

Essex Green Infrastructure Strategy

A strategy that champions for high quality green space and green infrastructure in Essex

2020



This Strategy has been prepared on behalf of the Essex Green Infrastructure Partnership (Steering Group & Partners), consisting of the following functions and organisations:

Steering Group: Essex County Council

- Culture & Green Spaces
- Environment (Commercial Development)
- Highways Active Travel
- Highways Network Development
- Place Services
- Planning
- Sustainability & Resilience
- Wellbeing & Public Health
- Housing Growth

Green Infrastructure Strategy Partnership:

- Basildon Borough Council
- Chelmsford City Council
- Colchester Borough Council
- Epping Forest District Council
- Harlow Council
- Maldon District Council
- Rochford District Council
- Tendring District Council
- Southend-on-Sea Borough Council
 - Essex Planning Officers' Association
 - Natural Environment research Council (NERC) Green Infrastructure Exchange Fellow - Green Infrastructure Planning Policy Assessment

Green Infrastructure Strategy Partnership continued:

- Professor Alister Scott
- Northumbria University

AONB

- Suffolk Coast & Heaths AONB

Environment Agency

- Sustainable Places, Covering East Anglia Area of Norfolk, Suffolk and Essex

Essex Bridleways Association/ British Horse Society

- Bridleways Development, Essex

Essex Wildlife Trust

- Landscape Conservation Planning

Friends of Flitch Way

- Flitch Way, Blackwater Rail Trail and associated woodlands under Flitch Way range services.

Green Arc

- <http://www.greenarc.org/>
- Covering South East Hertfordshire, South West Essex and North East London

Forestry Commission

- Representing East and East Midlands Area

Hertfordshire County Council

- Landscape and Planning (Hertfordshire Green Infrastructure Strategy)

Natural England

- Local Partnership covering Essex Area

RSPB

- Essex, Bedfordshire & Hertfordshire

Rural Community Council of Essex

Sustrans

- Network Development covering East Anglian Area

Thames Chase Trust

- Forest Development; Thames Chase Community Forest

The Tree Council

- Science & Research

University of East Anglia

- School of Environmental Sciences: Centre for Social and Economic Research on the Global Environment (CSERGE)

University of Essex

- ESRC Business & Local Government Data Research Centre

Woodlands Trust

- Regional External Affairs

Essex County Council

- Active Essex
- Adult Social Services
- Economic Growth & Regeneration
- Flood Water Management
- Spatial Planning
- Sustainable Travel Planning
- Waste & Environment

Foreword

On the 8th October 2019 the Leader of Essex County Council announced he was setting up an independent, cross party commission to help the Council in defining how it can play its part in tackling climate change.

The Climate Commission will set out a road map to net zero carbon for Essex. The Commission will review key areas where changes are needed to drive down emissions, manage increasing risks from an already changing climate and open opportunity for a new green economy. The Green Infrastructure Strategy will be presented to the Commission at its very first meeting in September 2020 with a detailed Action Plan, setting out how we can protect, create, improve and connect Green Infrastructure to combat Climate Change and improve the environment of Essex. This is only the first of a number of areas where Essex will need to take action to move to a sustainable future.

The Green Infrastructure Strategy, steered by the Essex Green Infrastructure Partnership, describes the need for green infrastructure in the county and sets a vision and objectives for the delivery of green infrastructure. This strategy provides a clear plan to guide the future planning and delivery of green infrastructure in Essex in light of increased development and population growth. Delivering the strategy, vision and objectives will be a complex and challenging task. Success will be dependent on strong working relationships with our partners across specialisms and between sectors and the local community and will require multi-agency cooperation and cross boundary working.

A carefully planned Green Infrastructure network is crucial for the environment, our health and well-being and will help support a thriving, sustainable economy. Green Infrastructure can deliver multiple functions and benefits. It provides recreation with opportunities to encourage people to be physically active and connects people to nature. It provides and creates green corridors for our wildlife thereby making our biodiversity more robust, particularly in the face of the challenges presented by Climate Change. It can alleviate flooding and improve air quality. We need to make sure that the Essex environment is maintained and enhanced so that it continues to support quality of life for existing and future communities.

Councillor Simon Walsh

Cabinet Member for Environment and Climate Change Action



Credit 1: Canvey Hole Haven Creek

Pixelwork

Contents

2	List of Tables	51	Oakwood Pond, Harlow
2	Figures	55	“Vegetalisons Paris!” The Greening Permit of Paris
3	What is Green Infrastructure?	59	7.5 Natural flood management (NFM)
5	Introduction	60	Thaxted, Uttlesford & Kingsmoor, Harlow
8	Objectives of the Strategy	61	7.6 Connect people to green infrastructure through active travel (CPAT)
9	3.1 Vision	63	7.7 Delivering environmental therapies and activities (ETA)
10	3.2 Green Infrastructure Objectives	65	Implementation of the Green Infrastructure Strategy by Sector
11	Evidence of the Green Infrastructure in Essex and Understanding the Key Drivers	67	8.1 Planning
12	4.1 Green Infrastructure Assets of Greater Essex	73	Sponge 2020 - Hospital Rehabilitation Rain Garden
20	4.2 Understanding our Drivers	76	8.2 Highways and Other Routes
26	4.3 Summary of the Essex Demographic	80	8.3 Coast
28	Why Invest in Green Infrastructure?	81	8.4 Flooding
30	5.1 Multi-functions and Benefits from our Green Infrastructure Assets	83	8.5 Energy
34	Case Study: Abberton Reservoir, an Essex Wildlife Trust Nature Reserve	85	8.6 Health and Wellbeing
35	Case Study: Hadleigh Park	86	Essex Local Delivery Pilot
36	Delivery of Strategy’s Objectives	87	Metal Art School, Chalkwell Park, Southend-on-Sea Netpark & Wellbeing Project
39	Delivering the Green Infrastructure Themes	88	8.7 Education
41	7.1 Marketing, branding and promotion (MBP)	90	8.8 Agriculture
43	7.2 Re-designation of Green Infrastructure (Rd)	93	Implementation and Delivery of Strategy
45	7.3 Environment net gain off-setting (ENG)	95	9.1 Stakeholder Engagement
48	7.4 Improve, repurpose and create new multi-functional green infrastructure (IRC)	96	9.2 Funding
		98	9.3 Timelines for Delivery
		99	Delivery - Action Plan
		109	Strategy Review
		111	References
		119	List of Appendices

List of Tables

Table 1	Summary of the total land area composition in Greater Essex	15
Table 2	Essex Green Infrastructure Action Plan - Project delivery of the objectives	37
Table 3	Area of Priority Habitat to be created at each Flagship Scheme	75
Table 4	Summary of green infrastructure Energy interventions	84

Figures

Figure 1	Green Infrastructure Map of Essex	13
Figure 2	Productive Spaces Map Layer	14
Figure 3	Types of green space (both publicly accessible and non-accessible) in local authority area	17
Figure 4	Types of green space (both publicly accessible and non-accessible) in Greater Essex	18
Figure 5	The relationship between green infrastructure and other strategies in Essex	25
Figure 6	Mapping by UEA showing the multi-functionality of green infrastructure in Essex and an insert of Harlow	31
Figure 7	Evidence to action case study example of green infrastructure functions and benefits to accessible Essex	34
Figure 8	Evidence to action case study example of benefits to invest in improving existing green infrastructure	51
Figure 9	Evidence to action case study of the Greening Permit of Paris	55
Figure 10	Evidence to action case study of leaky dams in Essex	60
Figure 11	Evidence to action case study Sponge 2020 Basildon Hospital in Essex	73
Figure 12	User hierarchy for accessing green space	77
Figure 13	Evidence to action case studies, examples of green care opportunities	86
Figure 14	Evidence to action case study of outdoor education	89
Figure 15	Evidence to action case study example of self-sustaining funding	97
Figure 16	Review and Monitoring Process	110

What is Green Infrastructure?

Chapter 1

Image: Essex County Council



Green infrastructure can be defined as a carefully planned network of high quality natural and semi-natural assets and habitat types, of green and blue spaces, and other strategical planned environmental features that maintain and delivers our ecosystem services¹. It provides multi-functional benefits integral to the health and wellbeing of our communities and to the ecology and economy of the county. Green infrastructure is often referred to as a network of these natural and semi-natural assets and spaces, which are joined together connecting urban and rural areas and are habitually strategically planned.

Green infrastructure provision is therefore an important solution to delivering the Lawton principles² of more, bigger, better and joined. Green infrastructure for this strategy includes the following assets:

- Parks and gardens
- Natural and semi-natural green spaces
- Designated sites (SPAs, SACs, Ramsars, SSSIs, AONBs)
- Reservoirs, lakes and ponds
- Coastal features
- Waterways (watercourses)
- Greenways (Public Rights of Way, footpaths, cycleways and tracks, bridleways, towpath)
- Outdoor Sport Facilities (Sport pitches)
- Amenity green space (provision for play facilities etc.)
- Green spaces around premises (Educational premises open space and play grounds)
- Cemeteries and churchyards
- Allotments, community gardens and city farms
- Public Realm/Civic spaces (urban greening – Urban and street trees, road verges, green walls, green roofs, Sustainable Drainage Systems and Natural Flood Management)
- Productive spaces (agricultural land and meadows)
- Green corridors (verges, green wedges and green fingers)

1. See Appendix B1 glossary for the definition of ecosystem services and natural capital. The term green infrastructure is closely related to and an important part of the natural capital concept, the resources through ecosystem services that nature provides for us and on which our economy and our lives depend. Green infrastructure delivered at many different scales can have many functions and that these functions providing a range of environmental, social and economic benefits are often also known as natural capital ecosystem services.

2. Lawton Principles advocates a landscape-scale approach to conservation, to create “a coherent and resilient ecological network”, guided by 4 key principles, summarised as “more, bigger, better and joined”.

Introduction

Chapter 2

Image: Essex County Council



The purpose of this strategy is to take a positive approach to enhance, protect and create an inclusive and integrated network of high-quality green infrastructure in Greater Essex, to create a county-wide understanding of green infrastructure – its functions and values, and to identify opportunities for delivering green infrastructure. The aim is to guide and shape planning and other services through setting principles that can inform plans and strategies, that will enable a coherent approach and partner collaboration in the delivery and long-term management of multi-functional natural assets, which will provide environmental, social and economic benefits for Greater Essex. When referring to Greater Essex, this includes the 12 Districts, Boroughs and City and the two unitary authorities.

High quality green infrastructure is an essential part of a successful and liveable county. Our green infrastructure attracts residents and families, creates the setting for businesses to invest and it is part of the package that draws in visitors from the surrounding area and around the world.

By integrating high quality, well-maintained green infrastructure as part of wider plans for residential growth, improving health and wellbeing, attracting businesses and increasing tourism, green infrastructure will provide the following benefits through:

- Facilitating the delivery of multiple objectives
- Providing a multi-functional network of open spaces and ecological networks at all scales, from regional to neighbourhood scale.
- Shaping the growth of sustainable communities- social and economic.
- Forming an integral part of the planning system; and
- Planning to meet the existing and future needs of our communities.

Consultation

Green infrastructure cuts across a wide range of agendas and responsibilities of many organisations. Successful outcomes are dependent on a collaborative approach. Consultation with both internal and external stakeholders has been important in the preparation of the Strategy, through the online group Essex Green Infrastructure Strategy Partnership and one-to-one stakeholder meetings.

In creating this strategy:

- Local and national green infrastructure policy and Local Planning Authorities Green Infrastructure Strategies were reviewed;
- Green infrastructure mapping was undertaken and updated to form the evidence base for the strategy; which included an area of 10km buffer around the County to capture cross-boundary opportunities;
- Continued engagement with key stakeholders.

A consultation document was launched in May 2019. This involved an online county wide public consultation for a period of 9 weeks (while hard copies of the strategy and questionnaire were made available at the 12 Strategic Essex libraries) and a stakeholder workshop was held on 16 May 2019 to review the draft strategy with a focus on the vision, objectives and proposals.

A mix of media channels was used including copy for newsletters, placed features and content, news articles, social media, bloggers, chat rooms, internal newsletters and online content, such as newspapers, communicate the Essex Green Infrastructure Strategy. A further policy strengthening workshop was held on 7 November, in lieu of the Mainstreaming Green Infrastructure Project's Green Infrastructure Planning Policy Matrix assessment to strengthen the strategy (NERC, 2019).

The consultation indicated that many people use green spaces daily for health reasons, for dog walking and horse riding. However, both residents and organisations and community groups felt easier access and feeling safe are important factors in encouraging people to use green spaces more. While, fragmentation of habitats, loss of biodiversity due to increase in housing and transport development and deficiencies in green spaces provision as population grows and recreational disturbance to wildlife, especially at protected sites were believed to be the main pressures and threats to green infrastructure.

Other areas of concern raised were the:

- Insufficient funding and resourcing available to deliver new or manage and maintain existing green infrastructure.
- Need to raise awareness, communicate, and advertise what we already have.
- Need to work collaboratively with landowners, businesses and communities, whilst finding a balance between providing access for people and protecting wildlife.
- Need to improve and utilise existing green spaces and paths better before investing in new green spaces.

The majority were supportive of the vision and objectives and felt the proposals were deliverable. A more detailed summary of the consultation is in Appendix A.

The strategy reflects the consultation feedback and a consideration of national and local evidence, to set out a shared understanding of green infrastructure. Successful delivery will depend on continued collaboration with an even wider set of partners including the community, through development of the action plan and progressing priority projects.

Investment into green infrastructure has continued to change, especially with further budget reduction, driving the need for new funding and delivery models. While, understanding of the environmental, social and economic value of green infrastructure has continued to develop, underpinned by new research and government's policy developments (i.e. The 25 Year Environment Plan). These factors have all provided key inputs to the strategy's development and are reflected in the following chapters and appendices with further supporting evidence and guidance. We have set out the key elements of the strategy below, that needs to be considered to understand the whole Strategy. Key summary chapter actions have been identified for the Evidence, Delivery and Implementation chapters, which sets out actions to guide the delivery, maintenance and protection of green infrastructure across Essex.

Key Elements of the Strategy

Vision	Describes what we would like to accomplish in order to deliver a high-quality green infrastructure network in the mid to long-term future	Chapter 3
Objectives	What we would like to achieve in Essex	Chapter 3
Evidence	The evidence of the green infrastructure in Essex, understanding the drivers and context for why we should invest in green infrastructure	Chapter 4 and 5
Delivery	Types of green space (both publicly accessible and non-accessible in Greater Essex	Chapter 6, 7 and 8
Implementation, Action Plan and Monitoring	The delivery mechanisms to deliver the actions from the strategy	Chapter 9, 10 and 11

Objectives of the Strategy

Chapter 3

Image: Essex County Council



3.1 Vision

The following vision reflects the Essex Green Infrastructure Partnership's (Steering Group and Partners) position regarding the important future role of green infrastructure within Greater Essex:

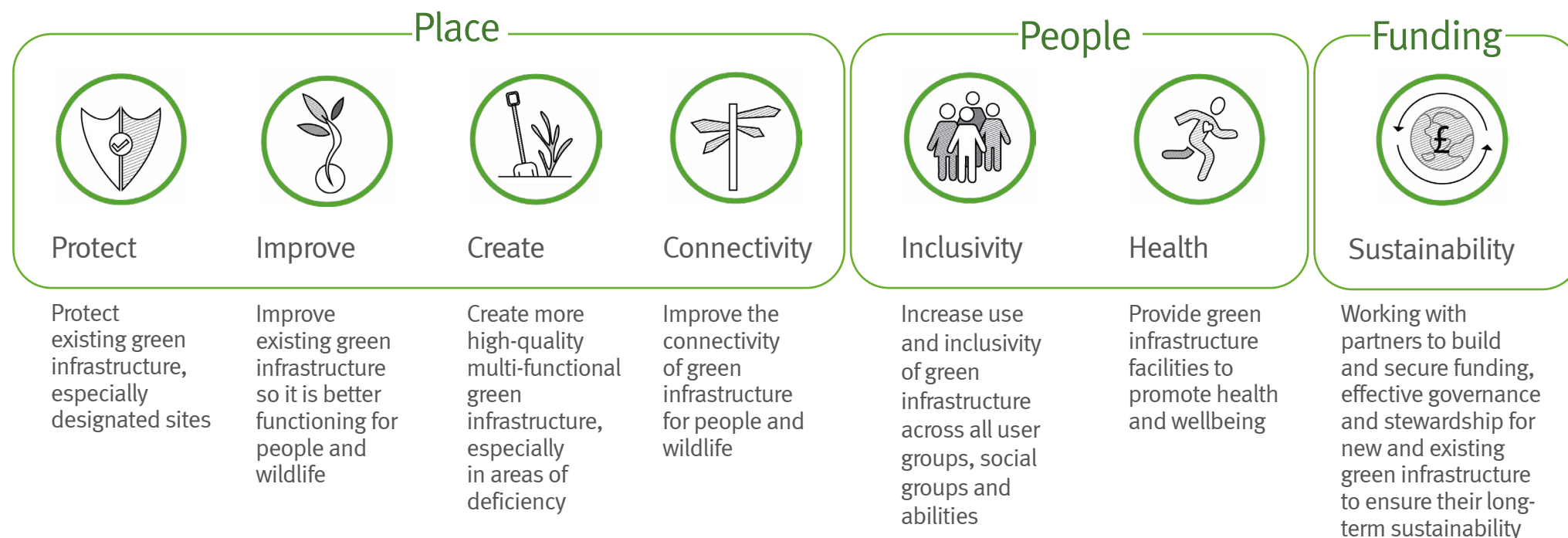
We will protect, develop and enhance a high quality connected green infrastructure network that extends from our city and town centres, and urban areas to the countryside and coast and which is self-sustaining³ and is designed for people and wildlife.

The vision and objectives set out what this strategy is aiming to achieve, recognising that good infrastructure is not an end, but an enabler of better social, economic and environmental outcomes. There is the potential to deliver green infrastructure through a wide range of activities including new provision within developments and effective land management and maintenance of existing areas and assets, utilising natural flood management techniques and coordinating with other projects to deliver multiple benefits. Working in a more joined-up approach with partners and the local communities will enable pulling together of limited resources to secure the greatest gains for both the environment and the sustainable economy.

3. See Appendices B1 glossary for self-sustaining definition – To maintain and continue in a health state independently.

3.2 Green Infrastructure Objectives

The Green Infrastructure Strategy aims to deliver the vision through the seven objectives specified below:



Evidence of the Green Infrastructure in Essex and Understanding the Key Drivers

Chapter 4

Image: Essex County Council



4.1 Green Infrastructure Assets of Greater Essex

In 2017, key spatial environmental data held by Essex County Council (ECC) and its partners - both national and local - was collated and captured within the Essex Natural Capital Asset Check to establish a county level baseline of Essex's Natural Capital resources (ECC/Place Services, 2017). As part of the Asset Check, it was recognised that green infrastructure is an important mechanism to deliver ecosystem services and an integral way to manage our natural capital stock, so the University of East Anglia (UEA) developed a countywide Geographic Information System (GIS) data mapping layer on the distribution of green infrastructure. This was through the integration of spatial data sets (particularly open source information such as OpenStreetMap). Building upon this green infrastructure layer UEA developed a green infrastructure GIS mapping model.

The green infrastructure data layer of the model shown in Figure 1 provides several insights into the distribution of such natural assets within Greater Essex. Overall, the data indicates that there is 782km² of green infrastructure in Greater Essex (21% of the total county area) (BLGDRC 2016 & 2019). It highlights that Greater Essex already benefits from a wide range of green infrastructure resources, made up of many types of green assets within our landscape, natural and historical environment, green spaces, blue infrastructure (water) and greenways (i.e. Public Rights of Way, cycle network, bridleways towpaths, waterways and byways).

(Productive spaces which include graded agricultural land and meadows as green infrastructure was not included for the purpose of this map due to the landscape scale of coverage would make it difficult to see the other green infrastructure assets and can be found in separate map in Figure 2 and further details in Appendix B2).

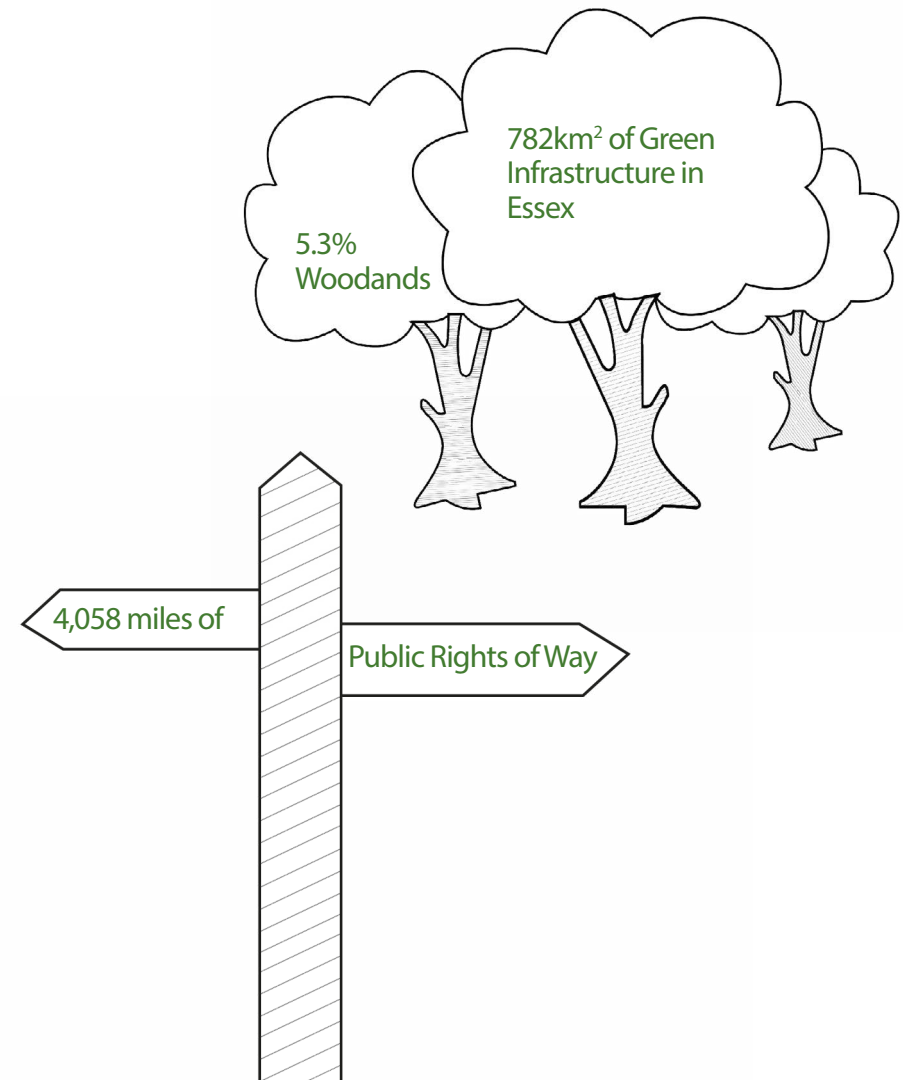


Figure 1: Green infrastructure map of Essex by School of Environmental Sciences, University of East Anglia (2019) (Table 6 in Appendix B7 lists the green infrastructure assets identified within each category. Appendix B2- Figure 1 shows graded agricultural land).

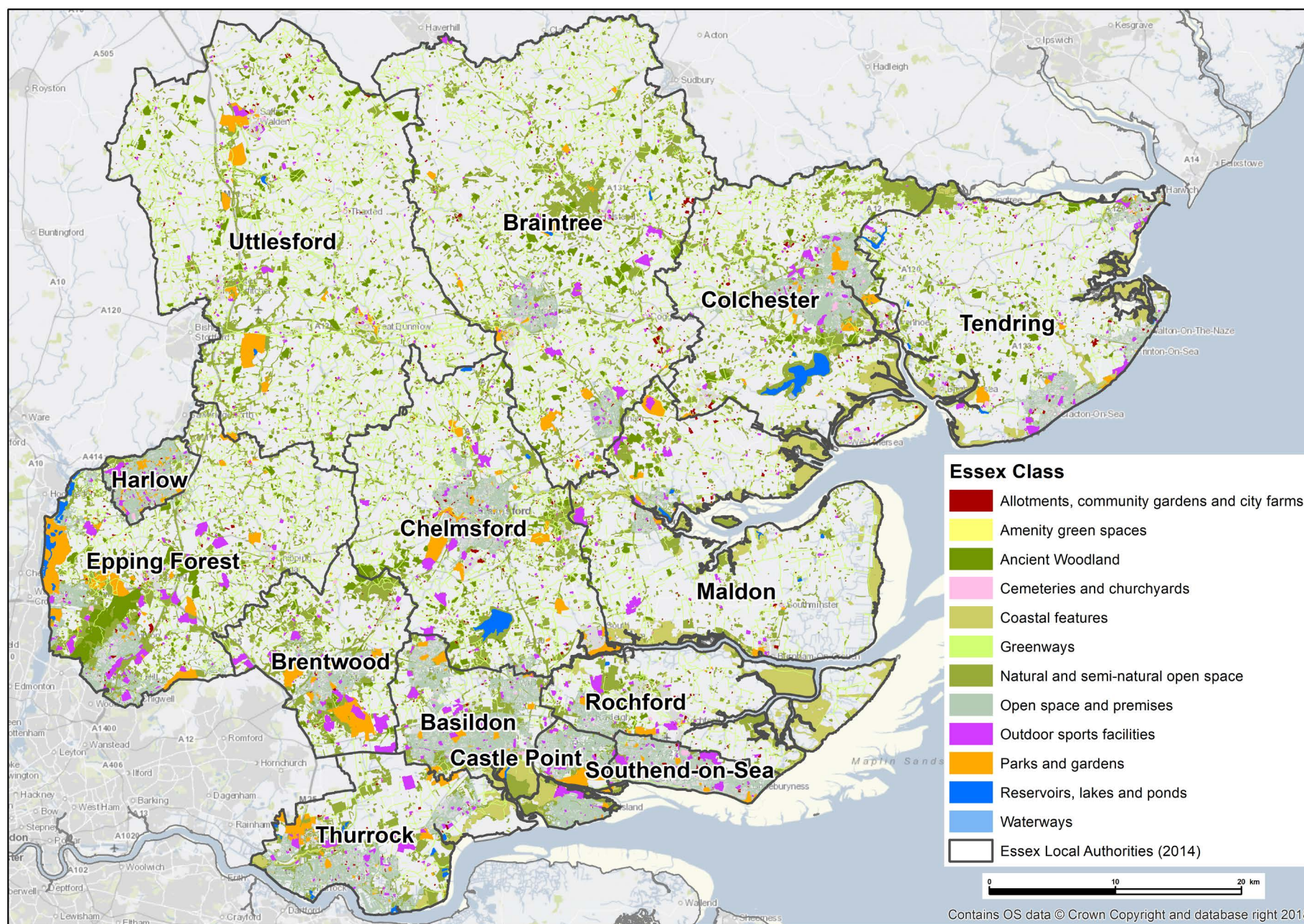
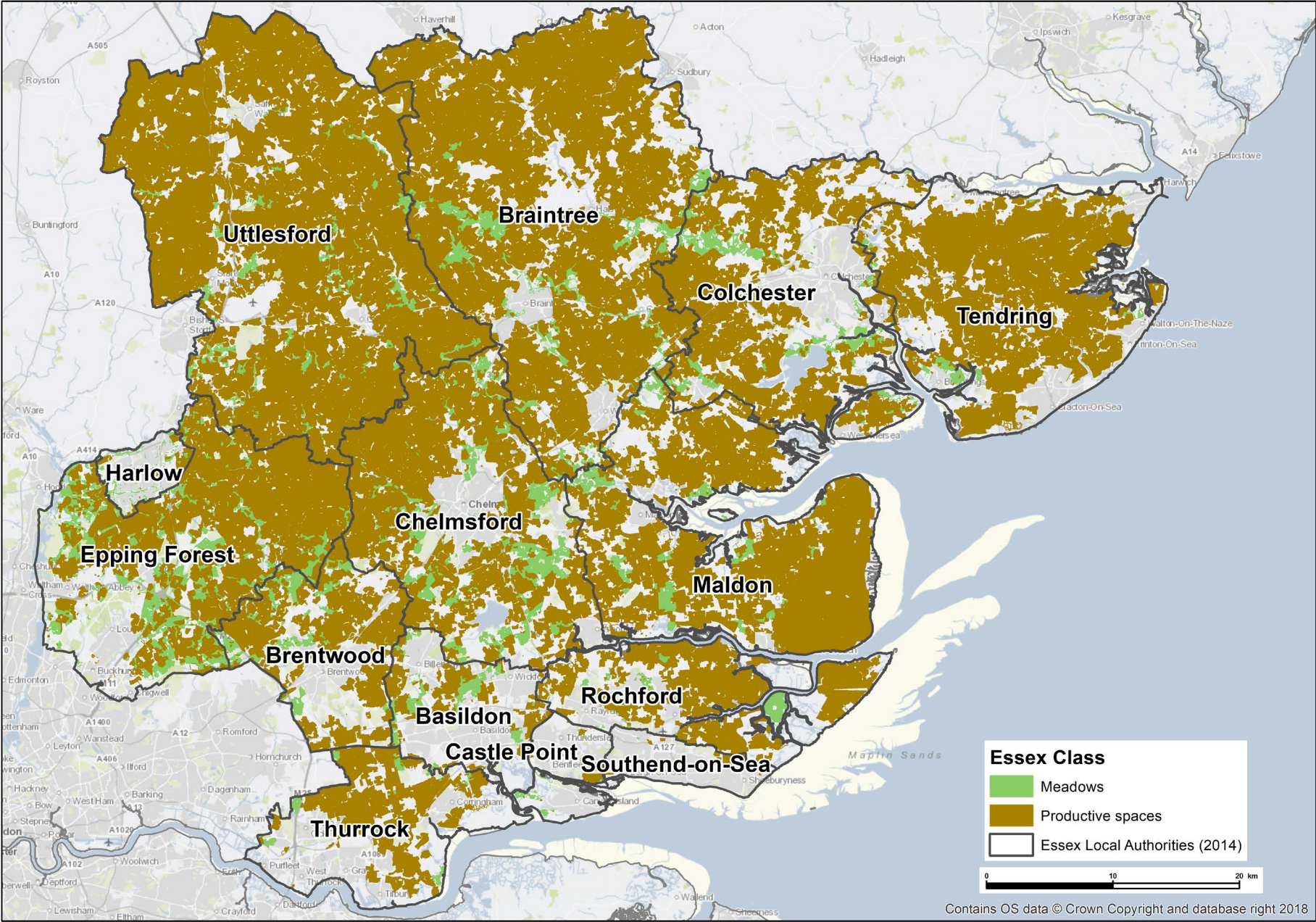


Figure 2: Productive spaces map layer



Key Elements of Essex's Green Infrastructure

This section outlines the green infrastructure and environmental character of Greater Essex, with further details set out in Appendix B3.

Landscape

Greater Essex has a rich and varied historic landscape of expansive plateaus, wooded hills and one of the longest coastlines in the country, much of which is of international significance for wildlife. The landscape is subtle in its landform and usually comprises of gradual changes in its character. Its highest point is about 420 feet and sections of it are beneath sea level. Rural in character and shaped by a long history of settlement and farming; over 61% of the county is graded agricultural land, as mapped in Appendix B2, Figure 1. The geology and soils of Essex are very complex. This variety of chalk, clay, sand and gravel has played an important role in shaping the landscape, wildlife and economy of the County. Table 1 summarises the composition of the land area in Greater Essex.

Table 1: Summary of the total land area composition in Greater Essex

Land Type	km ²	Percent
Total Area of Productive Spaces (e.g. Agricultural Land)	2,240	61
Total Area of all other Green Infrastructure	782	21
Remaining Land (e.g. Built-Up Areas)	655	18
Total Land Area in Greater Essex	3,677	100

There are 4 Natural England's National Character Areas in Essex, each of which is distinctive with a unique 'sense of place'. These broad divisions of landscape form the basic units of cohesive countryside character, on which strategies for both ecological and landscape issues can be based along with each local authority own local level Landscape Character Assessment. The Essex National Character Areas are:

- Greater Thames Estuary
- Suffolk Coast & Heath includes parts of Essex which is about to be designated as part of the Area of Outstanding Natural Beauty (AONB)
- South Suffolk and North Essex Clayland
- Northern Thames Basin.

Natural Environment

Greater Essex hosts a variety of important habitats, of which 13.4% (496km²) receive some level of protection through national and international designations and tree preservation orders. There are 1,978 designations, which include:

- 1 AONB (and 1 additional AONB to be designated - Suffolk Coast and Heath includes part of Essex)
- 12 Special Protected Areas
- 86 sites of Special Scientific Interests
- 11 Ramsars
- 3 Special Areas of Conservation
- 7 National Nature Reserves
- 1,707 Local Wildlife Sites
- 49 Local Nature Reserves
- 1 Community Forest
- 100 Special Roadside Verges

Trees and Ancient Woodlands

The Forestry Commission's Inventory of Trees and Woodlands (2002) estimates the woodland cover of Greater Essex is 5.3% (195km²) of total land area, of which 3.5 % (128km²) is defined as ancient woodlands over 2 hectares in size, of which 73km² is Ancient Semi Natural Woodlands (ASNW)⁴. There are over 5 million trees in Essex (BlueSky, 2017), and is believed that of just over 1.5 million of these are outside woodlands in rural Essex and as trees planted along streets. Street trees help to define and frame the streetscape giving visual identity and enhancing the street scene. There is also a total of around 12,500 km of hedgerow in Essex. Hedgerow removal, woodland loss, field size increase, and agricultural intensification and set aside are current concerns.

Historic Environment

The historic environment has played an important role in shaping the landscape, wildlife and economy of the county. It has developed through a history of human activity spanning over 450,000 years with some resource lying hidden beneath the ground in the form of archaeological deposits. Other elements, such as the area's historic landscape, the pattern of fields, hedges, grazing marsh, woodlands, and tracks, which are of ancient origin, are a highly visible record of past human activity. The 'built' part of the historic environment is equally rich, with the character of towns, villages, hamlets, farms, roads and ports having been shaped by their historic buildings.

Green Spaces

There is a wide and varied amount of green space in Greater Essex (as shown in Figures 3 and 4) that represents a green infrastructure network of green, blue and sometimes brown components that lie within and between towns and villages and can cross local authority areas. Green Spaces are any vegetated areas of land or water within or adjoining an urban area.

4. See Appendix B1 glossary for the definition of ancient woodland and Ancient Semi Natural. The total figure for ancient woodland cover may be an underestimation due to woodlands under 2 ha in size not registered as woodlands on the historic maps used within the ancient woodland inventory study.

Figure 3: Types of green space (both publicly accessible and non-accessible) in local authority areas. (Detailed figures of types of green space for each local authority area can be found in table 3 of Appendix B4)

Green Space Types of Essex Local Authorities (Km²)

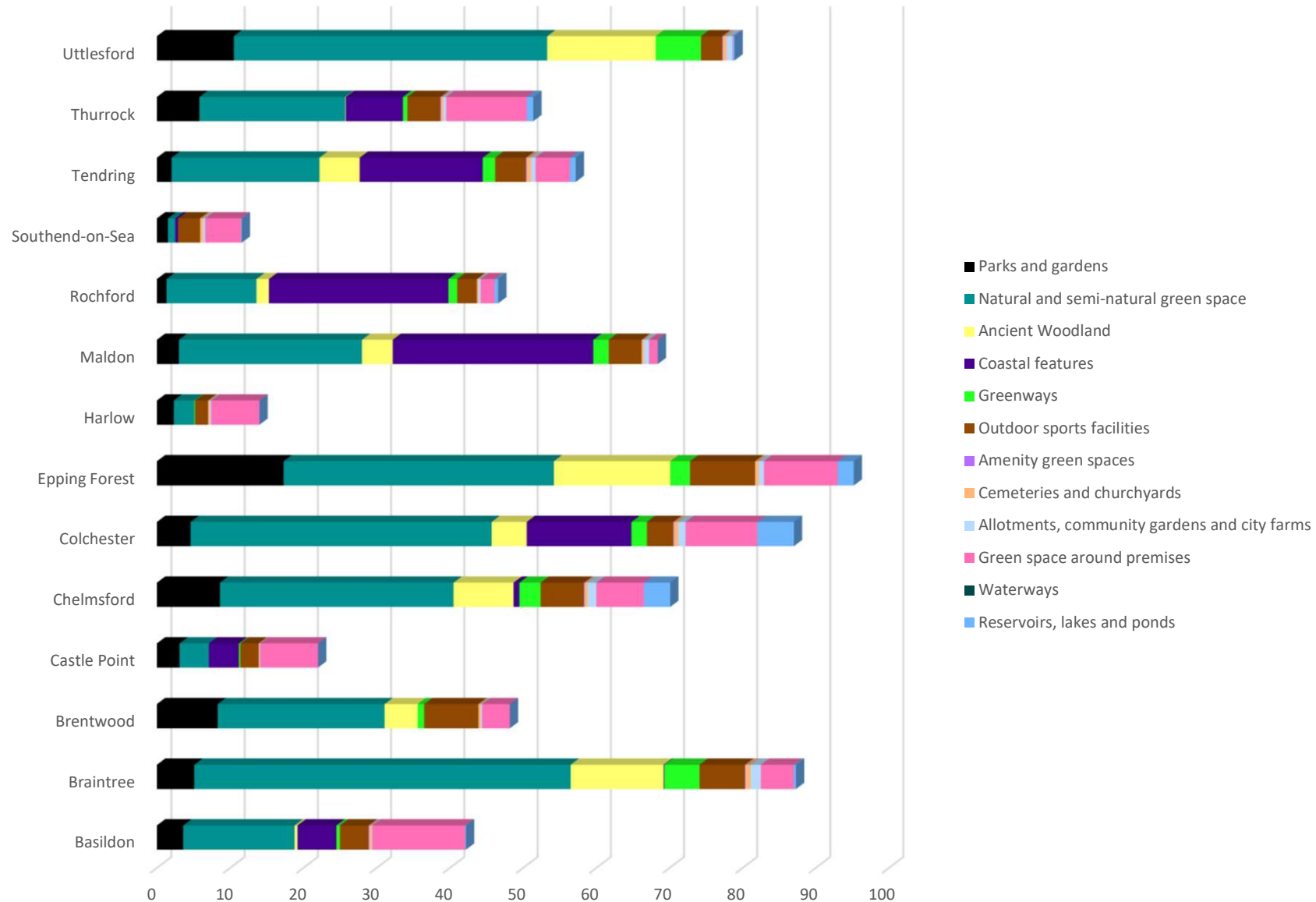
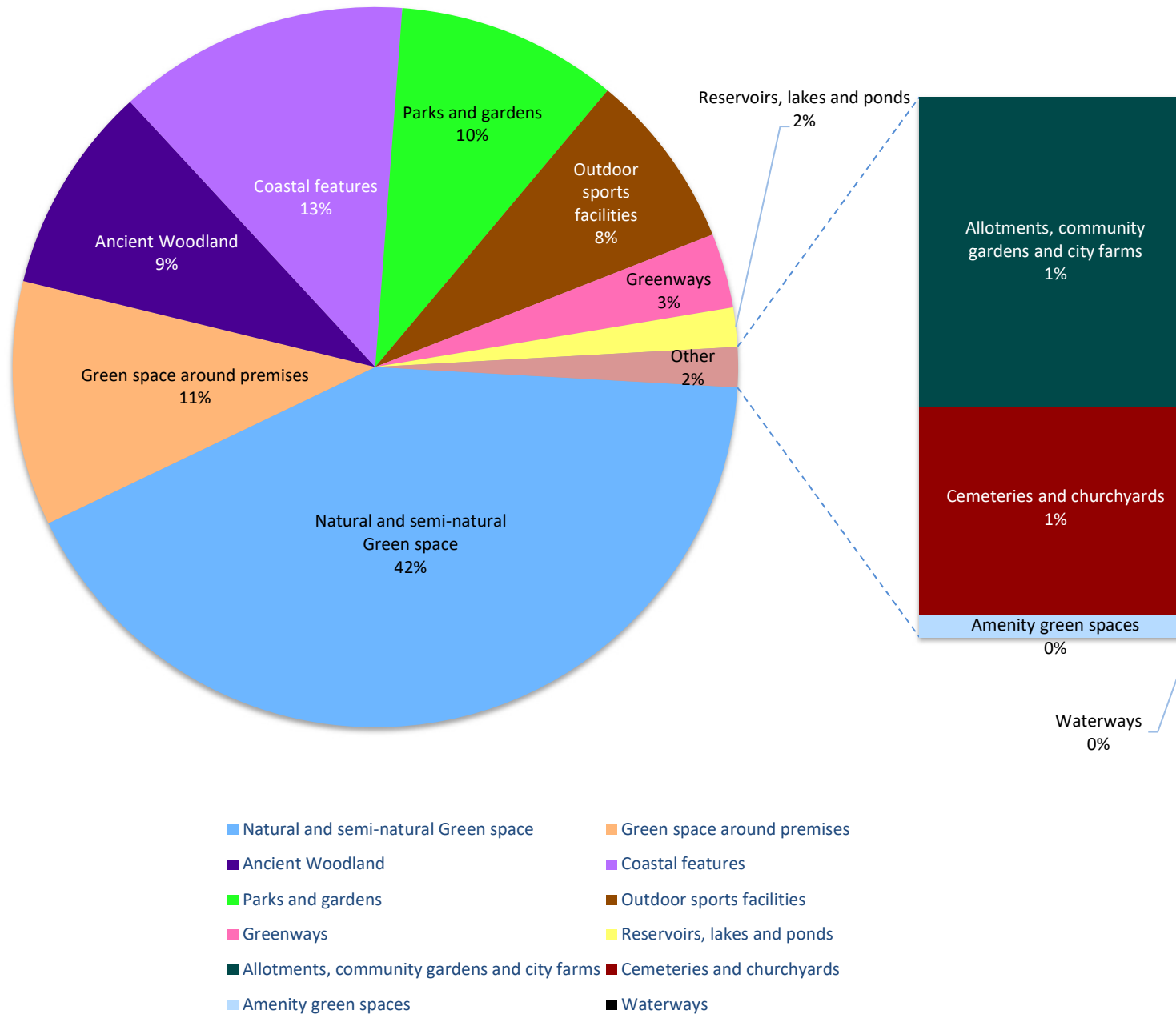


Figure 4: Types of green space (both publicly accessible and non-accessible space) in Greater Essex



Essex County Council manages seven of its own country parks and over 25 woodlands. It also plays an active role in the Thames Chase Community Forest, Lee Valley Regional Park, and Dedham Vale and Suffolk Coast and Heath AONB areas and works in partnership with the Woodland Trust at Hainault Forest. There are also country parks and nature reserves in most districts, owned and managed by the local authority or conservation charities such as the Essex Wildlife Trust, RSPB, National Trust, the Land Trust and Woodland Trust.

Water

Essex has five river catchments and three coastal streams, which are complicated and vulnerable catchments because of the low-lying land and coastal squeeze issues, combined with the development needs and protection of Natura 2000 sites⁵ and SSSI's. The floodplains of the principal estuaries have extensive expanses of alluvial marshland, which are increasingly managed for nature conservation and contain large wetland areas.

Essex also has three significant reservoirs, which serve millions of households and also provide habitats for wetland wildlife, two of which are successfully managed by the Essex Wildlife Trust. Namely, Abberton and Hanningfield reservoirs. There are also agricultural reservoirs that have been developed all over the eastern part of the county and that have the added commercial use benefit of fishing lake provision.

Much of the Essex coast is also particularly vulnerable to the effects of climate change including the sea level rise, loss of salt marsh (which is itself, a natural form of coastal sea defence) and the increased risk of coastal erosion and flooding to numerous communities and landowners.

Public Rights of Way (PRoW)

The Public Rights of Way network in Essex comprises approximately 6,531km of footpaths (84%), bridleways (12%), restricted byways (0.01%) and byways (4%) which provide access to the countryside and links between green spaces, towns, villages and places of employment.



Image: Essex County Council

5. The network of terrestrial and marine protected areas in Europe

4.2 Understanding our Drivers

4.2.1 National



National Planning Policy Framework (NPPF)

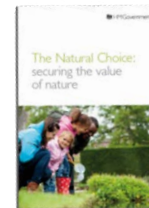
National Planning Policy Framework

Presented to Parliament
by the Secretary of State for Ministry of Housing, Communities and
Local Government
by Command of Her Majesty
July 2018

The National Planning Policy Framework (NPPF) February 2019 requires local planning authorities to make sufficient provision for conserving and enhancing the natural, built and historic environment, including landscapes and green infrastructure, through sustainable development and strategic policies within the local development plans (see 4.2.2 Local and Regional below) and neighbourhood plans. The NPPF promotes the use of green infrastructure to delivery multiple functions and benefits, for example adapting to climate change; to improve air quality and pollution; and to enable healthy lifestyles and the creation of inclusive and safe places.

It recognises the importance for people to be able to access high-quality open spaces and be provided with opportunities for sport and recreation (including playing fields) and for the protection, enhancement of existing and creation of new public rights of way to improve public access to the countryside and coast. Valued landscapes and the intrinsic character and beauty of the countryside as features to be protected. It allows opportunities to be taken to secure biodiversity and environmental net gains, through new habitat creation, protection for ancient woodland and veteran trees and establishing ecological networks. It recognises the wider benefits from natural capital and ecosystem services and that green infrastructure is an important part of the landscape setting of the built environment that can play an important part in achieving sustainable development and determinants of health and wellbeing.

In line with the Department for Communities and Local Government (DCLG) guidelines, March 2016, and growing population, garden communities (including city, towns and villages) represent a significant change in the traditional approach to delivery of major and strategic larger scale development. They may form an extension to an existing town and/or a new settlement and are built to Town and Country Planning Association Garden City Principles that form an indivisible and interlocking framework for the delivery of high-quality places. Including development that enhances the natural environment, providing a comprehensive green infrastructure network and net biodiversity gains, and that uses zero-carbon and energy-positive technology to ensure climate resilience (TCPA, 2019).



Natural Environment White Paper

The Natural Environment White Paper, 'The Natural Choice: Securing the value of nature' (2011) highlighted 'the importance of green spaces to the health and happiness of local communities'. The White Paper sets out a framework to protect and enhance the natural environment and to support coherent and resilient ecological networks that reflect the value of ecosystems.

It refers to the role of planning and the role of urban green infrastructure as providing linkages to the ecological network and as an effective tool to managing environmental risks such as flooding and heat waves. It advocates that green spaces should be factored into the development of all communities. The White Paper seeks to encourage local action, guided by local knowledge and statutory powers of local authorities, to work in a more integrated way to achieve multiple benefits (Defra, 2011).



25 Year Environment Plan

The 25 Year Environment Plan, 'A Green Future: Our 25 Year Plan to Improve the Environment' was published in 2018 and sets out a framework to maintain and improve the environment for the next generation. The following six key areas have been identified around which action will be focused:

- Clean air
- Clean and plentiful water
- Thriving plants and wildlife
- A reduced risk of harm from environmental hazards such as drought and flooding
- Using resources from nature more sustainably and efficiently
- Enhanced beauty, heritage and engagement with the natural environment

The key topics include: using and managing land more sustainably; recovering nature and enhancing the beauty of landscapes; connecting people with the environment to improve health and wellbeing; mitigating and adapting to climate change; minimising waste and air pollution; tree planting and woodland creation; and embedding the principle of 'environmental net gain' and upgrading green infrastructure standard in the planning system, with the aim of also developing a Nature Recovery Network.

Environment Bill

The emerging Environment Bill will put the 25-year Environment Plan into law and create a statutory framework for environmental principles. By creating long-term environmental governance and accountability. The Bill will include ambitious legislative measures to take direct action to address the biggest environmental priorities: biodiversity net gain, restore and enhance nature, improve air quality, tackle climate change, waste and resource efficiency, and water resource management.

Marine and Coastal Access Act 2009

The Marine and Coastal Access Act 2009 provided an opportunity for the development of England Coast Path (ECP) led by Natural England. This will provide a new record-breaking long-distance trail that allow people to walk around the whole English coast. It will be important in providing access to the coast as a natural resource with wider benefits.



Healthy Lives, Healthy People

Healthy Lives, Healthy People: Our Strategy for Public Health in England White Paper sets out the Government's long-term vision for the future of public health in England and recognises the relationship between the environment and good public health along with other factors such as education and employment to tackle health inequalities. The strategy states that the tackling of health inequalities can be achieved through empowering local government and communities, who will have new resources, rights and powers to shape their environments and tackle local problems (Government, 2010).

4.2.2 Local and Regional



Essex Growth Infrastructure Framework (GIF)

An Essex Growth Infrastructure Framework (GIF) was prepared to provide a view of emerging development and infrastructure requirements to support growth across Essex. The GIF provides a strategic framework across the county, for identifying and prioritising investment across a range of infrastructure, for planned growth up to 2036. It presents an overview of growth patterns and the infrastructure projects needed to support such growth, their costs, how much funding has already been secured or is expected towards their delivery and the funding gap. The framework estimated that new development will generate a demand for 16km² of green infrastructure, which will cost £251,860,000 including ongoing management. It identified a funding gap of £241,990,000 (ECC, 2017). Each Local Planning Authority has produced a Local Infrastructure Delivery Plan that provides a schedule of infrastructure requirements to help support new development growth planned as set out in the GIF.

Essex Organisation Strategy

One of the four strategic aims in ECC's Essex Organisation Strategy is to "help create great places to grow up, live and work". The Strategic Priority: 'Help secure sustainable development and protect the Environment' (Part B of Priority 2) states that we will aim to "Improve the quality of life for Essex residents, by continuing to improve our open green space and making the most of the Essex countryside for the wider benefit of all"

This will enable an opportunity to unlock our green assets to deliver multiple benefits, including support to health and wellbeing of our communities and aim to deliver a consistent policy approach for green infrastructure planning and investment to be applied across Essex, ensuring that opportunities are not missed to delivering inclusive growth (Essex County Council (2017)).

The Joint Health and Wellbeing Strategy for Essex 2018-2022 details how 'developing the use of community spaces and green space to support activity and connect people' is vital to improve health and wellbeing outcomes and a reduction in health inequalities.



Essex Rights of Way Improvement Plan (RoWIP) 2009

The Essex Rights of Way Improvement Plan (RoWIP) 2009, is a statutory document for improving the provision of access to the countryside through a Rights of Way network. The planning system will be used wherever possible to improve Public Rights of Way and pedestrian environments which is also reflected in the Local Transport Plan (2011) Policy 15 -Walking and Public Rights of Way, that encourages a move towards sustainable travel and healthier lifestyles.



Active Essex Strategy (2017-2021)

The Active Essex Strategy (2017-2021) is focused on increasing and sustaining 1,000,000 people's participation in and enjoyment of activities that benefit their physical and mental health and wellbeing. This Strategy promotes physical activity across all age groups and abilities, including the provision of a sustainable network of safe and accessible facilities, open spaces and active travel routes to get more people using open green spaces for exercise and health reasons.



Southend Physical Activity Strategic Partnership

Similarly, Southend-On-Sea has an Active Southend which is a community activity network that incorporates both a Strategic Network Group and a wider Delivery Group. The network works collaboratively with sports clubs, sports facilities and both local and Essex wide partners, including other boroughs and districts, in order to promote and improve physical activity and to maximise the opportunities and resources available to increase the key health and wellbeing priorities of our residents. A Southend Physical Activity Strategic Partnership report on the progress to deliver actions from the Physical Activity Strategy (2016 – 2021) to the Active Southend Network.



Local Plans

Minerals and Waste Local Plans aim to plan positively for the co-ordination and delivery of new green infrastructure within the restoration of the mineral and waste development areas.

Local Plans in Essex take a strategic approach to planning for the creation, protection, enhancement and management of biodiversity and green infrastructure networks as required by NPPF. There are direct and indirect references to the role of green infrastructure in delivering the aspirations of the Local Plan through policies and/or guidance, which need to be followed when a planning application is submitted.

Each of the Local Authorities has taken a different approach to managing, protecting and enhancing their green infrastructure network. Some have a specific green infrastructure strategy, while others either incorporate green infrastructure within their Infrastructure Delivery Plans, Open Spaces, Sport and Recreation strategy or Recreational Access Management Strategy or have predominantly undertaken an audit and assessment of need identifying the green infrastructure deficiencies. Some have detailed action targeting specific areas, while others have more general recommendations or set local provision standards and actions across their administrative area. A few Local Planning Authorities such as Epping Forest District Council and Uttlesford District Council have made commitments to produce a district wide green infrastructure strategy to help deliver Suitable Alternative Natural Greenspace (SANGS) to address recreational pressure impacts (including from housing developments) on protected sites, for example, Epping Forest Special Area of Conservation (SAC) and Hatfield Forest.

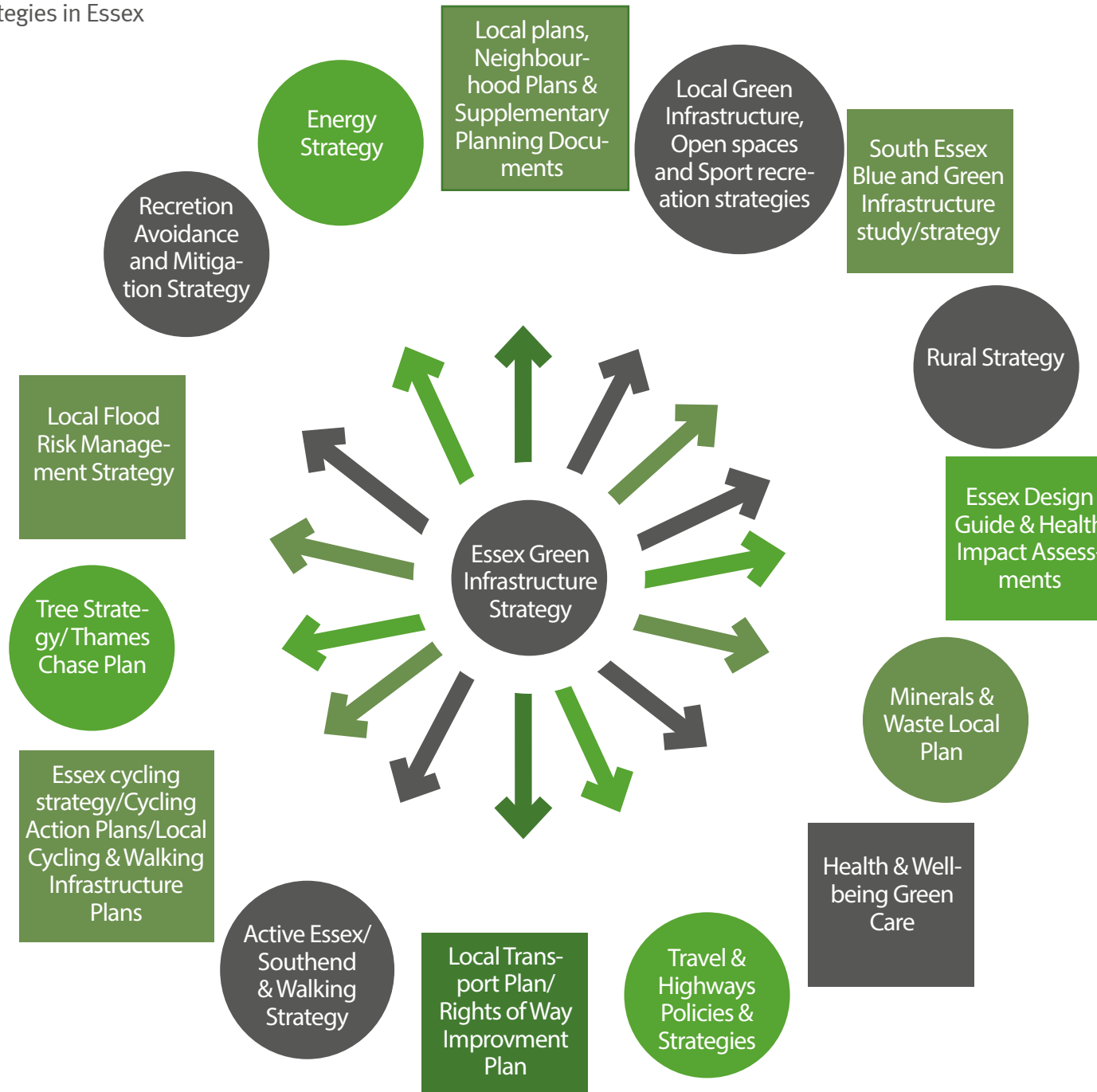
The key priorities coming out of all the local authority green infrastructure strategies and equivalent planning documents, for the functions provided by green infrastructure are:

- Access
- Health and Wellbeing
- Protect, maintain and enhance existing green infrastructure.
- Balance the creation of new green infrastructure to address any deficiencies and gaps where required
- Protect and enhance:
 - Biodiversity
 - Landscape character and designated protected sites (i.e. SSSI)
- Mitigate and adapt to a changing climate (i.e. flood management)
- Economy, with an emphasis on better promotion of existing green and open spaces

4.2.3 Other Drivers

The drivers outlined above are examples of the key national, regional and local policies, strategies and plans that influence action to protecting, managing and enhancing our green infrastructure network. There are several other national and local plans and strategies that also have an influence on planning for green infrastructure, such as Biodiversity Action Plans, 'Respecting our Past, Embracing our Future: A Strategy for Rural Essex-A new strategy for 2016-2020', Thames Chase Plan and Essex Walking Strategy. Figure 5 below illustrates the relationship between the green infrastructure strategy and other plans and strategies in Essex not covered in this section.

Figure 5: The relationship between green infrastructure and other strategies in Essex



4.3 Summary of the Essex Demographic

Essex is a large and varied county where the majority is rural in character, covering approximately 3,676km². It also has significant urban settlements. It borders to the north the counties of Suffolk and Cambridgeshire, to the west the county of Hertfordshire and the Greater London area to the South-west.

4.3.1 Summary of the Essex Demographic Context

More detail of the Greater Essex demographic context is set out in Appendix B5.



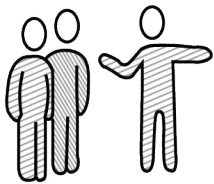
Social and Health

In Essex, two-thirds (66.3%) of adults aged 16+ are either overweight or obese (2013-15). While 20.9% of children in reception and 31.8% of children in year 6 are obese. ^cThe projected annual increase in obesity rate is 2% in adults and 0.5% in children. Source: Joint Strategic Needs Assessment (2016) & Joint Health & Wellbeing Strategy for Essex. Over 150,000 Essex residents are expected to be living with a mental health illness, with almost 50% of them having developed this condition in their early teens.

In Essex in 2014, 57.9% of people had the recommended amount of physical activity (2.5 hours a week). Source: Joint Strategic Needs Assessment (2016) & Joint Health & Wellbeing Strategy for Essex. Although fewer women take physical activity, at least 33.3% of females are active once a week compared to 38.3% of males.

The Active Lives Survey (2017) highlighted that 65% of people are active with 22.1% of people are inactive. The total cost of physical inactivity in Essex to NHS was £58,213,764 per year. Source: Sports & Physical Activity Profile: Greater Essex (2017)

13,832 of Greater Essex population live in Air Quality Management Areas in 2017. ¹The mortality rate of Greater Essex attributable to particulate air pollution in 2017 is 1,009 people. Source: Public Health Profile & ONS 2018 Deaths registered by area of usual residence, UK



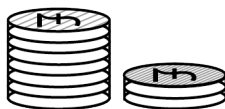
People and Projections

1,820,900 people in 2017 for Greater Essex. The county's population is expected to increase to 2,133,100 by 2041. With the greatest increases currently projected in Colchester, Basildon and Chelmsford. Source: From an ONS 2016-based subnational population projections



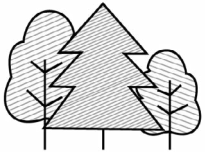
Development Growth

In 2016 there's approximately 784,000 households across Greater Essex local authorities. 179,657 homes needed across Greater Essex by 2036. Source: Greater Essex Growth Infrastructure Framework (2017)



Economic Growth

Greater Essex generates £36bn Gross Value Added (GVA) and supports over 816,000 jobs. 79,000 additional jobs needed forecasted by the East of England Forecasting model by 2036 (2016 run). Source: Greater Essex Growth Infrastructure Framework (2017)



Environment

In 2017, 18 % of population in Essex has accessible woodlands, whilst 36% of the population lived within 500m of inaccessible woodlands (of at least 0.02km² (2ha) in size). Source: Space for people (2017)

- 2 Areas of Outstanding Natural Beauty (AONBs):
- 86 Sites of Special Scientific Interest (SSSI)
- 12 Special Protection Areas
- 3 Special Areas of Conservation
- 11 Ramsar Sites
- 7 National Nature Reserves
- 1,707 Local Wildlife Sites
- 49 Local Nature Reserves
- 1 Community Forest
- 100 Special Roadside Verges

There are also:

- 117km² of land managed/owned for conservation
- 40 registered parks and gardens of Special Historic Interest
- 3 of the best-preserved medieval forests in Britain (Hatfield, Epping and Writtle). Essex Natural Capital Essex Check (2017)
- Essex Wildlife Trust own 87 nature reserves
- RSPB manage 10 reserves



Climate Change and Flood Risk

Essex is one of the top 10 areas at risk of surface water flooding in UK. The number of houses in Essex at risk from:

- Surface water is approx. 36,000 homes
- Rivers is approx. 10,000 homes
- Sea is approx. 50,000 homes

Essex can generally expect more frequent extreme weather events (such as storms, extreme cold weather); milder and wetter winters; and hotter drier summers by 2080. Source: Sports & Physical Activity Profile: Greater Essex (2017)

With the opportunities and challenges Essex faces from continued development and population growth, it is vital that the purpose of our green infrastructure is reconsidered so that it is better able to provide the benefits needed by our residents. There is a need to successfully integrate new and existing green infrastructure into new development such as housing, industrial premises and the transport infrastructure as well as from the other pressures Essex faces including the projected impacts of climate change on the county and its economy, and the growing demand on the health services. A well-planned and managed green infrastructure can help Essex meet these challenges.

Why Invest in Green Infrastructure?

Chapter 5

Image: Essex County Council



A major challenge for Essex is to maintain a healthy natural environment in line with the development and population growth in Essex and the creation of a green infrastructure network, while allowing for meaningful connections between people and nature – particularly in urban areas. A spatial analysis of the green infrastructure undertaken by UEA as part of the GIS green infrastructure data layer mapping found that there is a tendency for areas of green infrastructure to be higher in the south of the county (as mapped in Figure 3 in Appendix B6), suggesting that investment of green infrastructure could be focused in areas of lower green infrastructure value in the north. Nonetheless, where areas within this study may show a low total percentage value of green infrastructure it does not necessarily mean the local authority area has no green infrastructure, but maybe they are not accessible and open to the public. For instance, there is more agricultural land in the north than south of Greater Essex. Different local authority areas have different strengths and weaknesses in terms of their green infrastructure provision and will need to take into consideration their assessment of green infrastructure assets and features within District, City and Borough Councils green infrastructure strategies or equivalent policies and plans.

Historically grey infrastructure of pipes and power lines have been the characteristic of the built environment as it is tried and tested but only serves one purpose, while green infrastructure usually has more than one function. At its best green infrastructure can be designed to get the most benefit out of what nature provides us for free and therefore reduces what needs to be done by expensive technology and grey infrastructure alleviating social, environmental and budgetary pressures, to deliver better outcomes for residents and reduce dependency on strained public sector services.

By investing in the green infrastructure in Essex it can deliver a broad range of benefits in terms of environmental (i.e. improved air quality), social (i.e. recreation and improved health) and economic (i.e. attract business) values and benefit outcomes. Foregoing these values and benefit outcomes results in welfare losses and increased costs to society through increased environmental, social, and health services costs. To identify the benefits requires an assessment of our current green infrastructure provision (as summarised in chapter 4, 4.1) and an understanding of our current position and challenges that green infrastructure face in Essex (as summarised in chapter 4, 4.3) to identify potential opportunities.

5.1 Multi-functions and Benefits from our Green Infrastructure Assets

Green infrastructure delivered at many different scales can have many functions (such as flood management, improved air quality, or recreation) which provide a range of environmental, social and economic benefits. It is important that the diversity of these functions and benefits is recognised in policy and decision-making.

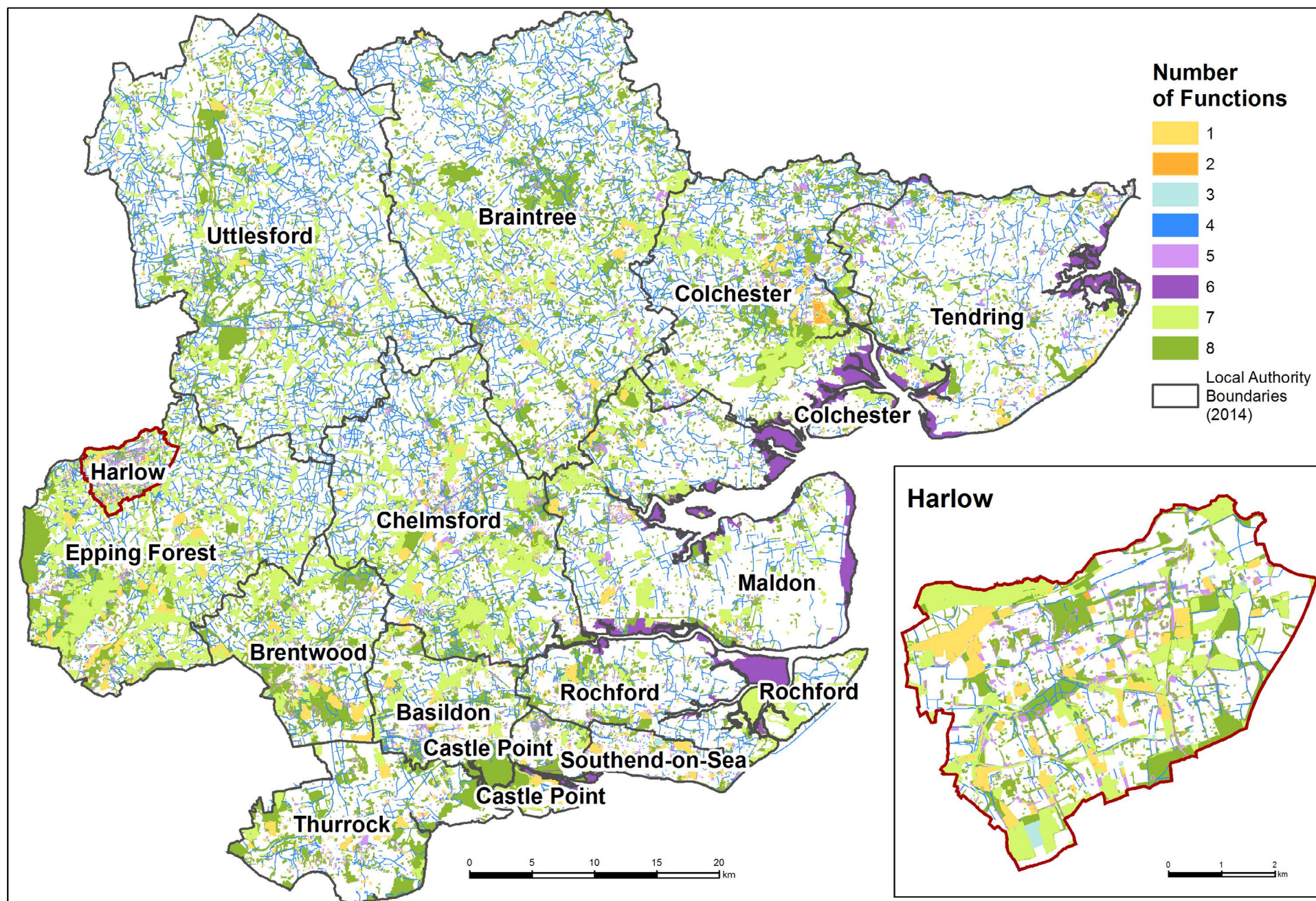
Building upon UEA's green infrastructure GIS data layer, a comprehensive mapping of green infrastructure of Essex was carried out by the university to improve our understanding of the types of green infrastructure, its distribution, what it can do (how it functions) and the benefits it provides. Using a GIS computer programme (BLGDRC, Lovett & Günnerberg, 2019), they were able to categorise the green infrastructure assets in Essex utilising the UK Habitat Classification (2018) into a green infrastructure typology and identify a range of green infrastructure functions they each perform as listed in Table 5 of Appendix B7.

Each category in the green infrastructure typology can perform multiple functions, taken from the following list:

- Recreational and active-living that support healthy lifestyles, both physical and mental well-being
- Green travel route
- Habitat provision - conservation and enhancement of biodiversity;
- Heritage and cultural assets - providing landscape, place quality and amenity
- Food production and productive landscapes
- Pollution absorption and removal
- Flood attenuation and water resource management
- Coastal Storm protection
- Cooling effect
- Access to nature

Once each type of green infrastructure typology had been determined, the total number of functions listed above for each was calculated, giving a map of multi-functionality as shown in Figure 6. This figure also gives an example of the number of functions performed by a range of green infrastructure asset in Harlow.

Figure 6: Mapping by UEA showing the multi-functionality of green infrastructure in Essex and an insert of Harlow



These 10 functions were then assessed against the range of green infrastructure benefits they provide directly and indirectly (as shown in Table 5 of Appendix B7). Green infrastructure not only provides multi-functionality, but also supplies multiple environmental, economic and social benefits for example:

Environment Benefits	Economic Benefits	Social Benefits
• Maintains/Restores habitat • Improves watershed health/water quality • Improves air quality • Enhances biodiversity • Flood alleviation and water management mitigates storm water/flooding • Regulates climate i.e. reduce heat in urban areas • Sequesters carbon • Improves more sustainable modes of transport and transport links • Increasing environmental quality and aesthetics • Heritage preservation • Increasing habitat area • Increasing populations of some protected species • Increasing species movement • Landscape • Intrinsic character and beauty	• Generates revenue • Provides access to local businesses • Increases land and property values • Lowers energy costs through helping to maintain internal building temperatures • Lowers health care costs • Promotes sustainable renewable energy, through bio products and bio-solar farms. • Increases local food production & other products from land i.e. biofuel, timber, chip board and sources of raw materials such as lignin and cellulose. • Increased tourism • Attracts inward investment • Promotes local economic regeneration • Enables regeneration of previously developed land • Noise/visual screening • Passive benefits to building (e.g. shading) • Sustainable travel opportunities	• Enhances the sense of the place • Enables recreation and leisure – relaxation/ play benefits • Improves public health • Promotes equity and access • Fosters stronger communities: social interaction, inclusion and cohesion • Connects people with nature, heritage, culture and landscape • Educates people about nature's role and the heritage, culture and landscape of a place. • Climate change mitigation and adaptation – community resilience • Increasing life expectancy and reducing health inequality • Improving levels of physical activity and health • Improving psychological health and mental well-being - eco therapy • Boosts educational abilities

(Appendix B8 provides more detailed evidence of the benefits from green infrastructure in line with the Essex context in chapter 4, 4.3).

The number of benefits for each function against each green infrastructure typology were mapped (in Figure 4 of Appendix B7), with the results showing a potential correlation between the number of functions and the number of benefits provided by the green infrastructure. In the example of Harlow, the green infrastructure providing one function would tend to only provide the maximum of five benefits. What Figures 6 (above) and 4 (in Appendix B7) show is there are several areas in Harlow where, for example, the green infrastructure only provides one function, but through an on-site investigation and benefits mapping the potential could exist to highlight these areas for enhancement, improvement and re-purposing, so that green infrastructure can provide multiple functions and benefits. Likewise, areas scoring in high numbers of green infrastructure functions and benefits could be identified as areas to protect from development.

There are a number of green infrastructure sites across Essex that provide six or more functions and greater than twelve benefits listed in Appendix B7 as demonstrated in the two case studies in Figure 7.



Image: Essex County Council

Case Study: Abberton Reservoir, an Essex Wildlife Trust Nature Reserve

Figure 7: Evidence to action case study examples of the green infrastructure functions and benefits accessible in Essex. Images: Essex Wildlife Trust

<http://www.essexwt.org.uk/reserves/abberton-reservoir>

<http://hadleigh-park.co.uk/>



GREEN INFRASTRUCTURE FUNCTIONS

Flood attenuation and water resource management, habitat provision, access to nature, recreation, access, heritage and culture asset



GREEN INFRASTRUCTURE TYPES

Grassland, meadow, ponds, lakes, wetland, woodland, scrub, natural and semi-natural green space



GREEN INFRASTRUCTURE BENEFITS

Environmental Benefits

- Directly: Flood alleviation and water management, environmental quality and aesthetics, biodiversity
- Indirectly: Climate change adaptation and mitigation, heritage preservation

Social Benefits

- Directly: Recreation and leisure, sense of place, education
- Indirectly: Health and well-being

Economic Benefits

- Directly: Tourism
- Indirectly: Quality of place, economic growth and investment, economic benefits

Case Study: Hadleigh Park

GREEN INFRASTRUCTURE TYPES

Accessible woodland; grassland, scrub, hedges, hay meadow (natural and semi-natural green space), grazing marsh, saltmarsh, ditches and ponds (wetland), park, sea wall (coastal).



GREEN INFRASTRUCTURE FUNCTIONS

Recreation, habitat provision, access to nature, heritage and culture asset, flood attenuation and water resource management, coastal storm protection, food production and productive landscape, green travel route, pollution absorption and removal.



GREEN INFRASTRUCTURE BENEFITS

Environmental Benefits

- Directly: Climate change adaptation and mitigation, landscape, environmental quality and aesthetics, biodiversity, heritage preservation.
- Indirectly: Flood alleviation and water, sustainable travel.

Social Benefits

- Directly: Health and well-being, recreation and leisure, sense of place.
- Indirectly: Community resilience, education, encouraging sustainable travel.

Economic Benefits

- Directly: Quality of place, tourism.
- Indirectly: Economic growth and investment, land and property values, labour productivity, products from the land, inward investment.



Delivery of Strategy's Objectives

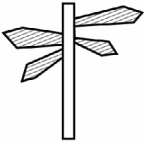
Chapter 6

Image: Essex County Council



Based on the evidence from the previous chapters, the following proposals in Table 2 have been identified in response to the issues for each objective and are targeted at areas or activities where “need” is greatest, or relatively simple and cost effective to deliver. These proposals form the basis for getting agreement and support to take forward actions, as they will require partner collaboration to successfully implement. They are examples of how green infrastructure can be delivered at the district and county scale over the short and medium term that will have the greatest impact to people’s lives. The proposals can sit within targeted areas or in other parts of strategic areas or may cross-cut several areas in Essex (hence why some actions are repeated meeting multiple objectives).

Focus	Objective	Proposal
Place 	Protect existing green infrastructure, especially designated sites	• Highlight green infrastructure in Essex in terms of their multi-functionality and benefits – through rebranding Essex as Green Essex with 1,978 designations. • Encourage and support the review of existing designations and local landscape designations to ensure their currency and maintain the accuracy of site information. • Support the recognition and appropriate designation of new green infrastructure, e.g. Local Wildlife Site, Local Nature Reserve. • Embed an ‘environmental net gain’ principle for development, including housing and infrastructure. • Coordinate the protection of internationally designated green infrastructure through Essex Coast Recreational disturbance Avoidance and Mitigation Strategies (RAMS).
Place 	Improve existing green infrastructure so it is better functioning for people and wildlife	• Create a Green Essex Network to develop, improve and promote Green Essex. • Support the development of new Visitor Centres and facilities • Better marketing & promotion of green infrastructure to increase use and income. • Public realm green infrastructure improved to reduce pollution and improve character and sense of place. • Create water gardens, green roofs and bio retention areas to absorb urban water. • Continue creating green spaces which also function as natural flood management and Sustainable Drainage System (SuDS) schemes. • Encourage better management of green infrastructure to benefit locally native species, focussing on recognised nature conservation priorities.
Place 	Create more high-quality multi-functional green infrastructure, especially in areas of deficiency	• Develop the coast path in Essex. • Increase access to the Outdoor Pursuits Centres. • Create green infrastructure in new developments such as Garden Communities. • Establish green infrastructure as part of Minerals and Waste restorations e.g. Pitsea Landfill. • Create town or village circular walks especially in areas of green infrastructure deficiency. • Strategically identify priority areas for the creation or improvement of green infrastructure that could provide most benefit for locally native species of recognised nature conservation priority. • Use planning policy to secure multi-functional green spaces within and beyond development site boundaries through the application of biodiversity net gain, biodiversity off-setting and the creation of compensation habitat and other green infrastructure promotion schemes. • Strategically identify priority areas for the creation or improvement of green infrastructure to enhance local landscape character.

Focus	Objective	Proposal
	Connectivity improvements connecting green infrastructure, people and wildlife.	• Use new green infrastructure provision to buffer or extend existing designated sites. • Develop the coast path in Essex in a sustainable manner. • Establish inter connecting paths between green infrastructure; that provides access for all. • Restore and Promote Essex promoted paths: • The Forest Way • The St Peter's Way • The Essex Way • The Roach Valley Way • The Coast Path (once designated as National Trail) • The Stour Valley Path • The Thames Estuary Path • The Flitch Way • The Saffron Way • Blackwater Rail Trail • John Ray Walk
	Increase use and inclusivity of green infrastructure across all user groups, social groups and abilities	• Explore environmental therapies and challenges across all social, demographic, ethnic and diversity groups and promote activities in green spaces e.g. mountain biking, Go Ape, Geocaching, orienteering, historic tours, arts and crafts, etc. • Promote activities to raise awareness of green infrastructure and its benefits across all social, demographic, ethnic and diversity groups.
	Provide green infrastructure facilities to promote health and wellbeing	• Explore environmental therapies delivered through mental health services. • Develop and promote Healthcare and wellbeing through green infrastructure activities.
	Working with partners to build and secure funding, effective governance and stewardship for new and existing green infrastructure to ensure their long-term sustainability.	• Develop new facilities that will generate revenues. • Create a Green Essex Fund for endowments, fund-raising bids, donations etc. in conjunction with the development of a Green Essex Network. • Create a distinct Green Essex identity through the development of a Green Essex Network to encourage a strong community engagement.

Delivering the Green Infrastructure Themes

Chapter 7

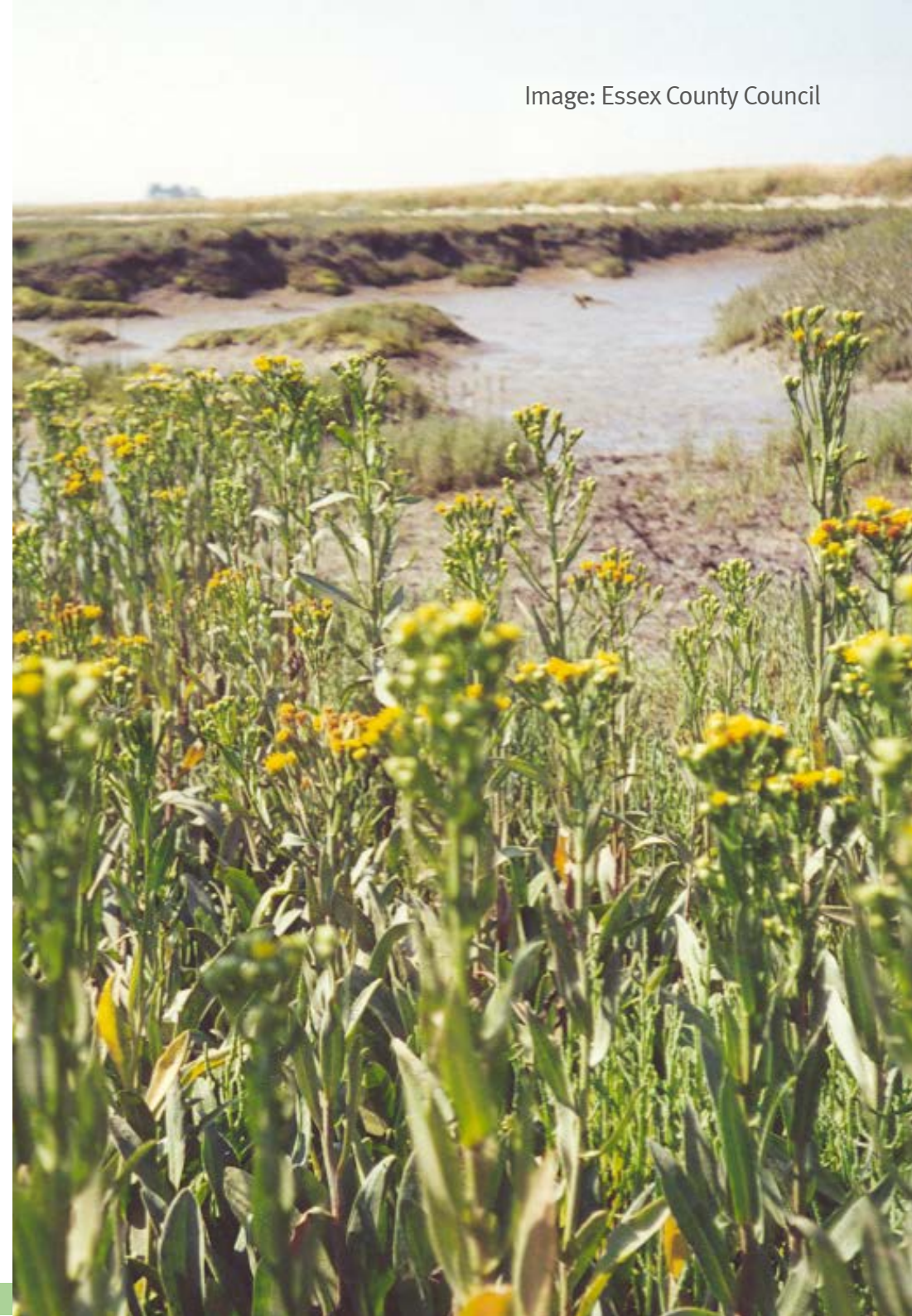
Image: Essex County Council



Broadly, these proposals set out in Table 2 in chapter 6 can be categorised into the following key project themes:

- Marketing, branding and promotion (MBP).
- Re-designation of green infrastructure (Rd).
- Environment net gain and offsetting (ENG).
- Improve, repurpose and create new multi-functional green infrastructure (IRC).
- Natural flood management techniques (NFM).
- Connect people to green infrastructure through active travel (CPAT).
- Delivering environmental therapies and activities (ETA).

This chapter will look at how the opportunities from these themes could be delivered and each theme will have a table listing the proposals that relate to that theme.



7.1 Marketing, branding and promotion (MBP)

Proposal		
Highlight the most valuable green infrastructure in Essex in terms of their multi-functionality and benefits – through rebranding Essex as Green Essex with 1,978 designations.	Protect	
Create a Green Essex Network to develop, improve and promote Green Essex.	Improve	
Better marketing & promotion of green infrastructure to increase use and income	Improve	
Develop the coast path in Essex in a sustainable manner.	Create and Connectivity	
Promote activities to raise awareness of green infrastructure and its benefits across all social, demographic, ethnic and diversity groups.	Inclusivity	
Develop and promote Healthcare and wellbeing through green infrastructure activities.	Health	
Create a distinct Green Essex identity through the development of a Green Essex Network to encourage a strong community engagement.	Sustainability	

There are several green spaces in Essex, where a considerable amount of time, effort and funding have been allocated to the running of these sites. All this effort would go to waste if these green spaces were not effectively promoted. Historically, there has been a widespread lack of awareness locally and nationally of the green infrastructure assets and facilities Essex has to offer and a lack of a coordinated promotion of these assets. There is, therefore a need to develop a marketing strategy which maximises existing marketing resources to their full potential and deliver a coordinate approach, promoting local identities and a recognisable pan Essex branding to successfully promote and raise awareness of our green infrastructure across Essex. This should include our most valuable green infrastructure such as the coast and ancient woodlands of Epping and Hatfield Forest and Hockley woods. Whilst taking into consideration the monitoring, management and mitigation of visitor impacts to these protected areas.

Establish a Green Essex web-based brand and tool where local authorities, third parties and other partners can form local partnerships and explore funding, the best practice, national policy and guidance. Sharing and rewarding best practice via the website with both a members section for local authorities, stakeholder partners e.g. Essex Wildlife Trust and a public-facing pages for the public living among or visiting the Green Essex resources.

Better marketing and promotion of our existing and new green infrastructure and their facilities such as our visitor centres, promoted paths (e.g. Essex Way and Flitch Way), the new coast path in Essex, and activities available (especially activities for various social groups and green therapies) will encourage more people to use green infrastructure and connect with nature. This will also increase their income to enable these sites to continue to be managed, enhanced and maintained, providing environment net gains and significant economic opportunities to other businesses through sustainable natural tourism and green industries. This can only be achieved by better links and joined up working through the creation of a Green Essex network with key sectors, stakeholders and partners, such as Visit Essex, Culture and Green Spaces, Local Authority communications, PROW and Public Health teams. Although a big campaign may prove costly, current resources could be better utilised and over time the increase in visitor spend could be re-invested into marketing, promoting and enhancing our green infrastructure.

Ensuring the visibility of our green space will make a significant difference to the interpretation of accessibility and provide opportunities for people to discover and explore a transformed green space or new greenway route and engage with nature. Making physical changes to our green spaces and woodlands through habitat management and maintenance, creating good paths to and through green spaces, and the installation of benches is often not enough to encourage people to use them. It will require good signage, interpretation, raising awareness and educating (i.e. Bird awareness) and promotion of these sites and their management and those changes made through a range of information resources. These resources could include:

- New interpretation boards;
- Artworks;
- Maps (including trails & orienteering routes etc);
- Trail guides;
- Signage;
- Leaflets;
- Press articles;
- Websites (including a Green Essex information portal with information such as Essex promoted paths);
- Social media pages;
- Mobile applications like geocaching, GPS guided tours⁶;
- Hold an opening ceremony or organised guided walks or activities (such as orienteering induction or school events, green therapies, and physical and cultural activities);
- Develop events on the coast increasing the cultural offer of the coast;
- Engage local people in active care of the natural environment, who will then inform others about the site.

Care will need to be taken to ensure we do not “urbanise” natural and semi natural open spaces with too many signs and interpretation boards. These are some things that could continue to be developed over time with the input of our communities, Green Essex network partners and businesses. Local communities will need opportunities to contribute their ideas and to be made aware of plans and progress, which along with good communication is vital for successfully improving the quality, access, inclusivity and provision of our green infrastructure.

6. For example - geocaching (<https://www.geocaching.com/play>) or GPS guided tours like Thames Estuary Path - www.thamesestuarypath.co.uk or Wildlife app like High Woods Country Park Wildlife tour -

https://play.google.com/store/apps/details?id=com.smartne.waizgo.highwoods&hl=en_GB

7.2 Re-designation of Green Infrastructure (Rd)

Proposal		
Encourage and support the review of existing designations and local landscape designations to ensure their currency and maintain the accuracy of site information.	Protect	
Support the recognition and appropriate designation of new green infrastructure, e.g. Local Wildlife Site, Local Nature Reserve.	Protect	

It is important to recognise the value of our green infrastructure in delivering environmental, social and economic benefits, and that they will themselves require protection to ensure these benefits continue to be provided for future generations. Further opportunities should be explored to enhance existing and new green infrastructure to potentially re-designate them as nature reserves, transforming them into wildlife and people friendly green spaces, whilst protecting them from future development.

There is the opportunity to discuss with Local Planning Authorities, Natural England, Place Services (environmental consultancy in the public sector) and other key partners developing clear guidance on reviewing and re-designating protected areas; to include other new and existing green infrastructure as new designations based on a standard process and sound criteria such as size of the green infrastructure and its value in terms of the functions and benefits it provides, including high biodiversity value, recreational access, flood prevention etc. The UEA green infrastructure GIS mapping model analysis on the access to green infrastructure provision, and the functions and benefits (5.1 of chapter 5) mapping could be used as part of the assessment to measure against the re-designation criteria to seek to ensure that the selection for re-designation is as objective as possible.

The testing of this guidance could be applied to support the review of existing designations and the recognition and appropriate designation of new green infrastructure, such as the following as case study examples:

- Wallasea Island managed by RSPB is a landmark conservation and engineering scheme covering more than 740ha, with two-thirds of the reserve now transformed to salt marsh, mudflats, lagoons and grazing marsh. Areas of the site have been designated as SSSI and Local Wildlife Site.
- South Essex Marshes is a dynamic landscape of grazing marsh, creeks and saltmarsh with farmland and settlements on the higher ground. The marshes are of international importance for nature and of outstanding heritage, with the vision of unifying the South Essex Marshes areas as a single destination.
- Thames Chase Community Forest within Havering, Thurrock, Barking and Dagenham and Brentwood areas covers 40 square miles of countryside around the London/Essex borders managed by the Thames Chase Trust.

Regular review of Local Wildlife Sites and local landscape character assessment within each Local Planning Authority area will ensure that newly created or enhanced green spaces that meet selection criteria as a result of their habitats or species populations can be recognised and protected within the planning system. Designation of green space as a Local Wildlife Site should be seen by developers as an aspiration, adding value to the communities that they establish. In order to achieve this, the focus of green space design and creation should be on habitats that complement those of biodiversity value in the surrounding landscape, focussed on recognised nature conservation priorities, including the Priority Habitats listed under section 41 of the Natural Environment and Rural Communities Act 2006. Landscape character assessments are used to underpin local policies around landscape and countryside conservation and enhancement in Local Plans and so are of vital importance in the conservation of rural green infrastructure networks and historic and productive landscapes outside of designated wildlife sites.



7.3 Environment net gain off-setting (ENG)

Proposal		
Embed an ‘environmental net gain’ principle for development, including housing and infrastructure.	Protect	
Use planning policy to secure multi-functional green spaces within and beyond development site boundaries through the application of biodiversity net gain, biodiversity off-setting and the creation of compensation habitat and other green infrastructure promotion schemes.	Create	

Embedding an ‘environmental net gain’ principle for all housing, commercial and other development, including infrastructure (such as utilities and highways), with the limited exceptions of householder development and permitted development only is an action in the Government’s 25 Year Environment Plan. The role of local plans and planning decisions in identifying and encouraging opportunities for net gains in biodiversity in and around developments is set out in paragraphs 174 and 175 of the NPPF. While, the Environment Bill is legislating to mandate biodiversity net gain. This means development proposals must demonstrate that they will leave the natural environment in a measurably better state. However, the ambition is to expand the net gain approaches used for biodiversity to include wider natural capital benefits, such as flood protection, recreation and improved water and air quality. The biodiversity net gain will be implemented through the planning system (i.e. Local Plans) with a consistent approach for developers to follow and a role for local planning authorities in relation to both strategic planning and development management. There is therefore, a need to recognise the role planning and the public realm (i.e. highways) has in the protection and improvement of existing and creation of new green infrastructure to enhance the character, quality and create a sense of place.

It is also important to ensure that lost or degraded environmental features are compensated for by restoring or creating environmental features that are of greater value to wildlife and people. Through moving towards an environmental net gain and offsetting approach local planning authorities will be able to target environmental enhancements to areas of most need and give flexibility to developers in providing them.

CIEEM, CIRIA and IEMA have produced good practice guidance on biodiversity net gain for developers, along with a practical guide and case studies⁷.

Within each local plan area, there is a strategic need to identify the areas where off-setting could have the most benefit for biodiversity and to consider what habitat types and ecological features would provide the greatest value in a sustainable way.

7. Documents available at: <https://cieem.net/biodiversity-net-gain-guidance-published/>

Essex already requires all planning applications to Essex County Council to complete the 'Essex Biodiversity Validation Checklist'⁸, which also offers guidance on how to submit the appropriate level of information about biodiversity, and further evidence that may be required, when making a planning application. Further work is needed to develop this into an environmental net gain principle for Essex.

By working with Place Services and partners to create the methodology of the environmental net gain principle in line with the Government's proposals to address the key issues of:

- Defining and understanding the difference between 'biodiversity' & 'environmental' net gains;
- Ensuring the net gains meet the National Planning Policy Framework requirements;
- Establish a mechanism for net gains, biodiversity off-setting, and developer contributions;
- Developing local policies to promote environmental net gains;
- Provide net gains and good practice development principles;
- Identify an effective monitoring mechanism to ensure projects deliver high quality green infrastructure and that the net gain methodology is viable.

Government is proposing as part of the methodology, to assess potential development sites, to use habitat surveys to identify habitat condition along with any opportunities and constraints for enhancement as part of green infrastructure. Then using a standard biodiversity metric utilising biodiversity loss and gain figures, to inform the development design. This metric will be populated with habitat information from the site assessment and landscape plans to demonstrate at an early stage that harm has been avoided as far as possible (especially for protected sites) and that new green infrastructure will be of good environmental quality.

It could also help to estimate the costs of achieving net gain and establish a tariff rate for off-setting and compensation costs. If net gain cannot be achieved on site, the metric would provide the right information to discuss habitat enhancement or creation during pre-application negotiations.

As part of this methodology, Essex can use the Local Nature Recovery Strategies (which identify priorities and opportunities to conserve and enhance nature) and the green infrastructure asset map from the green infrastructure GIS mapping model produced by UEA, as part of the baseline. As well as, the functions and benefits analysis (discussed in 5.1 of chapter 5), to assess the losses and gains of functions and benefits from the development proposals. This approach will enable decisions over whether a planning application is supported or to identify opportunities to avoid harm, mitigate and enhance environmental features on site. If net gains cannot be provided on site, the opportunities to provide compensatory off-setting either on site or towards other environmental habitat projects in line with local and national priorities should be explored and delivered. Net gain should only apply to developments that do not have an impact on protected habitats (for example, sites protected under the Birds and Habitats Directives, Ramsar sites, SSSIs) to which more robust planning regulations already apply. Also, the approach should not be applied to irreplaceable habitats such as ancient woodlands or blanket bogs. The mitigation hierarchy of avoidance, mitigation and compensation, must always be applied and enforced, in accordance with the national planning policies.

8. Essex Biodiversity Validation Checklist - <https://www.placeservices.co.uk/resources/natural-environment/essex-biodiversity-validation-checklist/>

Useful Guidance Documents

The guidance documents below are available and recommended for planners, urban designers, developers and communities to use when submitting a planning application in Essex, to minimise the adverse effects on the natural environment, people's health and wellbeing and how to deliver green infrastructure through good design.

Essex Design Guide⁹

The Essex Design Guide (EDG) has pioneered local design, creating space for innovation and encouraging high-quality development. The EDG aims to create distinctive places where people want to live, build communities and make sure that the infrastructure and facilities are in place at the right time. This includes the important role landscape and green spaces play in our lives and explores how to deliver beneficial landscapes and green infrastructure through good design.

A number of Essex local authorities have their own Design Guide and green infrastructure strategies as a supplementary planning document, which sets out their expectations for the design of new development, design of streets and parking standards in their area.

9. Essex Design Guide - www.essexdesignguide.co.uk/

Health Impact Assessment as part of Essex Planning Officers' Association (EPOA) Healthy places guidance notes

Guidance on how to prepare a Health Impact Assessment has been developed and is an Appendix to the EDG. Health Impact Assessments are gradually becoming part of both developers' and planners' toolkits to ensure that adequate attention is paid to the role green infrastructure plays in improving the long-term health of people.

The Essex Biodiversity Validation Checklist (as mentioned above).

This checklist can be further developed to promote and provide guidance on the environmental net gain principle methodology in Essex and how to embed the use of the methodology within in the following plans:

- Highways plans
- Local Development and Neighbourhood Plans
- Garden Communities and Villages proposals

It is recommended that the environment net gain principle is reflected in 'Local' validation checklists.

Homes for People and Wildlife

This guidance published by The Wildlife Trusts show how new housing developments can be built in a way that provides people with greener, inspirational homes which help to reverse decades of wildlife and habitat decline.

7.4 Improve, repurpose and create new multi-functional green infrastructure (IRC)

Proposal		
Coordinate the protection of internationally designated green infrastructure through Essex Coast Recreational disturbance Avoidance and Mitigation Strategies (RAMS).	Protect	
Support the development of new Visitor Centres and facilities.	Improve	
Public realm green infrastructure improved to reduce pollution and improve character and sense of place.		
Encourage better management of green infrastructure to benefit locally native species, focussing on recognised nature conservation priorities.		
Increase access to the Outdoor Pursuits Centres.	Create	
Create green infrastructure in new developments such as Garden Communities, with best practice guidance on its design and management for multiple benefits.		
Develop green infrastructure as part of Minerals and Waste restorations with reference to nature conservation priorities e.g. Pitsea Landfill.		
Strategically identify priority areas for the creation or improvement of green infrastructure that could provide most benefit for locally native species of recognised nature conservation priority.		
Use planning policy to secure multi-functional green spaces within and beyond development site boundaries through the application of biodiversity net gain, biodiversity off-setting and the creation of compensation habitat and other green infrastructure promotion schemes.		
Strategically identify priority areas for the creation or improvement of green infrastructure to enhance local landscape character.		
Use new green infrastructure provision to buffer or extend existing designated sites.	Connectivity	
Develop new facilities that will generate revenues.	Sustainability	
Create a Green Essex Fund for endowments, fund-raising bids, donations etc. in conjunction with the development of a Green Essex Network.		

7.4.1 Coastal Green Infrastructure Protection (RAMS)

The Essex Coast Recreational disturbance Avoidance and Mitigation Strategy project (RAMS) aims to collect funds from the development of new homes in order to protect the internationally important sites on the Essex coast from recreational disturbance. New housing growth will bring in new residents to an area potentially increasing recreational pressure on sensitive sites which may result in the disturbance of nesting or feeding birds. Developers within identified areas of risk are expected to make on-site provision for recreation within the development site as well as contributing a sum determined by the number of new dwellings to off-site measures used to mitigate the impacts of visitors to the sensitive coastal areas through site specific projects.

Off-site measures could include:

- staff resources (i.e. wardens);
- awareness raising;
- re-routing or screening paths;
- signage;
- interpretation;
- promoting alternative, less sensitive routes or car park locations, and
- creation of coastal coastline habitats.

Bird Aware Essex Coast (2019) has been established by 12 Local Planning Authorities, Essex County Council and Natural England. It is an initiative that engages with visitors and communities along the coast to raise awareness of bird species that feed and breed on the Essex coast and the impact of bird disturbance. So, people can access and learn how to enjoy the coast without disturbing the birds.

These measures are costed in the Essex Coast RAMS Strategy and will be delivered by Local Planning Authorities and partners to coordinate the protection of important coastal nature conservation sites in Essex and other coastal green infrastructure.

RAMS primarily deals with Site Access Management and Monitoring (SAMMs) measures which are needed on the protected sites and it doesn't include any provision of additional green infrastructure. However, there is an opportunity to consider complimentary measures in addition to the RAMS Strategy which could take place off-site, such as the provision of a new country park or other high quality strategic SANG to attract visitors and the creation of high-quality green spaces within the boundary of new development.

7.4.2 Green spaces facilities improvement and creation

Most communities, even small rural ones, have at least one public park or green space and some other community facilities, such as a library, or community centre. Improving those facilities, especially green spaces can mean different things for different communities. For some, the issue may be that adequate parks and green spaces facilities simply don't exist and need to be created. Others might find themselves with community facilities and green spaces that are adequate in some ways but need to be revitalised. A less obvious situation is one in which green spaces and facilities are in good shape and seem to be adequate, but are not being used, therefore require further investigation.

People are more likely to use green spaces and other green infrastructure, if they are well maintained. Once an under-used site is cleared of litter, graffiti, damage to any benches and signages/wayfinding repaired and opened up through cutting back overgrown areas (whilst leaving some natural areas for wildlife) to become accessible, (for example see Figure 8 case study example of Oakwood Pond in Harlow), sites can be improved in a number of ways, for example through planting or introduction of new plants and trees, the creation of new habitats and signage. As sites became easier to access, more visible, better used and more widely owned by local communities, it will contribute to local people's sense of civic pride, encourage ongoing involvement (i.e. volunteering and formation of 'Friends Of' groups) and reduce levels of reports of littering, vandalism and fly-tipping will decrease. There will need to be a balance to ensure that usage doesn't go beyond the carrying capacity of the green space, resulting in deterioration if maintenance and management of the green spaces becomes overwhelmed.

Oakwood Pond, Harlow

Figure 8: Evidence to action case study example of benefits to invest in improving existing green infrastructure. Images: Floods Team at ECC



Oakwood Pond and the surrounding wooded area in Harlow lie to the west of Princess Alexandra Hospital. The pond and surrounding area have a rich history, dating back as far as the 1100s as a stew pond for the Canons Brook monastery and later forming part of the grounds of Upper House in the 1700s. Unfortunately, over recent years, the area had been neglected, had fallen into a state of disrepair and was plagued with problems from unsociable behaviour. This coupled with the loss of the pond's spring water inlet led to severe silting, dropping water levels and loss of aquatic life. The woodland characterised by many mature trees and scrub, surrounding the pond had also become overgrown, with scrub and weeds taking hold of the less trafficked areas. Many local people avoided it.

HOW WAS THE GREEN SPACE IMPROVED?

The pond and the surrounding area were transformed by a combination of efforts by Essex County Council, Harlow District Council and local volunteers who have helped to unearth this beautiful area once again. The improvements to the ponds involved;

- Clearing the silt and reinstating entirely lost areas of the pond for local flood prevention for homes downhill from the site.
- Reintroducing the water supply to the pond by reconnecting the spring water source.
- Introducing and creating a diverse range of water, vegetation- and wood-based habitats to add to the biodiversity and filter the incoming water supply.
- Clearing scrub, brambles and excess trees which opened up the area.
- Installation of a new accessible fishing platform, paths, boardwalk, benches and interpretation panels around the pond. Creation of disabled access points and circular routes.

All improved access for the local community to and through the site to the town centre and the hospital and the general environment for both wildlife and local people.

IMPACT OF IMPROVEMENTS

This project has revitalised a forgotten and dilapidated area of Harlow. It is now a much-improved and loved amenity for the local community. Providing flood alleviation, educational and recreational benefits to the local area and has enhanced the biodiversity of the site. The water quality has improved through the restoration of aquatic plants and reinstating the pond thereby creating a popular fishing facility for the local community. The pond and surrounding areas have become more inclusive by ensuring disabled access and providing a safe space for the local community to use to walk, sit and reflect, fish and observe wildlife. Therefore, creating an identity for the area and fostering a sense of place.



Improving our Country Parks, green spaces, open access land, woodland and other facilities often takes a community effort. In some cases, it may take volunteers and/or donated labour and materials. In others, it may take an initiative that encourages the community, or even the local government to make changes. It generally requires both through participatory process liaising with the Country Parks teams, Outdoor Pursuits Centres, landowners and partners to support new visitor centre improvements and facilities and explore extending the outdoor pursuits offer to increase access to these sites.

Actual users are tremendously important, and if a Country Park for instance is going to be used by youths, seniors, families, and for activities like school trips and horse riding then ideally all these user groups should be represented in the planning, so that the park will speak to all their needs, as well as integrating them where feasible. Nevertheless, improving and developing new visitor centre, facilities and/or expanding the experience on offer will require financial sustainability for their ongoing management and maintenance. Not only are funds needed to develop new facilities, but it takes money and effort to maintain it as well. It is, therefore, important that these new facilities and outdoor pursuits generate revenue. To achieve this will require liaison with those responsible for the green space management, to identify potential income generating facilities and relevant funding streams developing a fiscal plan which can enable the new facilities to be created. The aim of the plan is first to raise the funds to plan, design, and build or restore the facility which may involve applying for grants, seeking donations from businesses and individuals, crowd funding and fundraising events. Following this, a strategy for generating regular income over the life of the facility and to be able to invest in the development of new facilities would be developed. Chapter 9 (9.2. Funding) goes into more detail of the potential funding sources and opportunities that will be explored.

An idea to be investigated is the potential creation of a Green Discovery Park. The aim of the Park would be to demonstrate self-sustaining environmental best practice and to showcase this to a wider audience.

The Park would showcase green infrastructure, solar energy, sustainable drainage systems and natural flood management techniques, climate resilient plants, examples of natural habitats designed to maximise biodiversity, waste and recycling and electric vehicle charging points. A sustainable multi-functional visitor centre would also provide an inspirational, interactive and educational experience. This will require working with wide range of partners such as Country Parks, Minerals and Waste Planners, Land Operations, Essex Wildlife Trust and other Partners to identify an appropriate location which could be a country park or a minerals and waste restoration site, and then to coordinate the delivery and implementation.

There are also opportunities through the creation or improvement of green infrastructure to strategically identify priority areas that could provide most benefit for locally native species of recognised nature conservation priority, such as great crested newts. To aim to protect, enhance and create diverse, species-rich, ecologically functional habitats that benefit the widest range of species possible. To encourage better management of the green infrastructure and to take into consideration the mitigation of recreational and development disturbance to these areas.

Where possible, the provision of new green infrastructure can act as a buffer or extend existing designated sites and contribute to the development of a Nature Recovery Network (NRN), working with Natural England, Essex Wildlife Trust and RSPB. NRNs are spatial planning frameworks which will deliver nature recovery and restoration outcomes. This will ensure biodiversity is planned for at the landscape scale and for the long term and may help identify opportunities for habitat creation to address such issues as coastal squeeze and managed realignment. For example, the approach could consider the best locations for the establishment/creation of wetlands (freshwater) to offset the possible loss of grazing marsh behind seawalls due to sea level rise. Identify areas along watercourses that would benefit from river restoration work (reinstating meanders, reprofiling banks, leaky dams, woody debris) to improve flood attenuation.

In 2012 the Independent Panel on Forestry recommended that the government should commit to increase woodland cover in England from 10% to 15% by 2060. Recognising the importance of trees, contributing significantly to the quality of life in both rural and urban areas. They enhance the local environment and biodiversity, support economic growth through regeneration, help mitigate the impact of climate change, assist in reducing air pollution and provide important health and educational benefits. The first tree of the Essex Forest Initiative was planted in Great Notley Country Park on 28 November 2019 and over the next five years (2019-2025) 375,000 trees will be planted across Essex, creating a total of 1.5KM² (150 hectares) of green infrastructure. This initiative will be coordinated with the Local Planning Authorities tree planting schemes¹⁰, pooling best practice and resources and working together with other partners such as Parish Councils and Voluntary Sectors (i.e. RSPB, Essex Wildlife Trust and Woodland Trust) through the Essex Forestry Initiative Partnership to deliver the Essex Forest Initiative.

10. Coordinating with Colchester Borough Council, Chelmsford City Council, Brentwood Borough Council, Harlow Council, Tendring District Council and Uttlesford District Council tree planting schemes.



7.4.3 Public Realm Green Infrastructure Improvements

There are further opportunities to enhance and improve green infrastructure and create a sense of place within the public realm. By reviewing the highways policies and maintenance plans along with developing and coordinating cycling and walking strategies, and referring to Local Planning Authorities Design Guides provide opportunities to increase access to green spaces, secure environmental net gain and to improve sustainable transport connections between green spaces can lead to a reduction of air pollution. Measures could include (but not exhaustive):

More street and urban planting (i.e. trees, hedges, green walls and roofs);

- Retention of trees, and develop local targets for increasing tree and woodland cover;
- Street furniture (i.e. benches, signage), whilst not contributing to cluttering of an area;
- Incorporating natural flood management techniques and Sustainable Drainage Systems (SuDS) for storm water management, to maximise biodiversity potential and increase public access;
- Soft landscaping with a variety and quality of other habitat types that are both viable and appropriate, to create an overall lush green aesthetic and provide significant wildlife habitat and other ecosystem services;
- Adjust cutting times of verges and hedgerows accordingly dependent on species type (i.e. short, flower-rich grassy verges to stop cutting during the summer) and allow for nesting birds and wildlife;
- Creating accessible and attractive routes for all, making it easier to walk and cycle, but provide opportunities for horse riding with better links to new developments, town centres, rural communities and green spaces;
- Manage the greenways to provide a quality, cross boundary, multi-user and multi-functional green corridor to benefit people and wildlife;

- Better connecting public transport with green spaces and transport hubs (i.e. situating new bus stops next to open space entrances and connecting multi-user greenways between green infrastructure);
- Explore opportunities to work with key landowners to increase benefits from publicly accessible land;
- Undertake research into the environmental impacts from our maintenance work to adjust our practices for ecological benefits where possible;
- Explore and implement an Essex Green Permit scheme to actively engage people to adopt, green up and manage land within the public realm (excluding private owned land), similar to the Paris Scheme in Figure 9.

“Vegetalisons Paris!” The Greening Permit of Paris

Figure 9: Evidence to action case study of the Greening Permit of Paris

<https://vegetalisons.paris.fr/vegetalisons/>

Paris has turned to its citizens with an invitation to green up their city to address air pollution and inadequate green space.

Locals are encouraged to be “gardeners of the Parisian public space”. Upon receiving a 3-year permit (that can be renewed), gardeners receive a starter pack of seeds and materials and can be creative, as long as they use sustainable methods, avoiding pesticides and promoting biodiversity in the city.

The aim is to create urban gardens, green roofs, mini orchards, keyhole gardens, living walls, and other green spaces adding up to a total of 1km² of new greenery by 2020.

By greening the area and making streets more attractive and biodiverse, the initiative builds community and sense of place. It gives people a role in public space, enhancing a sense of ownership and pride.



Since 2015 achievements include:

- 1,489 projects realised
- 0.3 additional km² of accessible green space
- 1km² of vegetation on walls and roofs, one third of which is dedicated to urban agriculture
- 20,000 new trees planted
- Renovation of parks and gardens

Highway Authorities are responsible for the construction and maintenance of non-trunk roads, cycle ways, Public Rights of Way, street lighting, bridges and structures and other highway assets. It is therefore important that in the delivery of capital and maintenance programmes, increasing resilience to extreme weather and flooding should be part of the green infrastructure network where this is cost effective. Working with Essex Highways, Flood and Water Management and health partners to identify funding to create a pilot green infrastructure project within the public realm. This project could take a strategic approach in planning and delivering natural flood management and SuDS schemes within the public realm - such as permeable surfaces, swales, wetlands and ponds (see 7.5 for Natural Flood Management) and to support people to lead healthier lives, through reduced air pollution and more attractive environment for active travel. Grass-cutting/mowing is one activity that could be significantly improved to target areas where wildflowers are allowed to flourish (such as Special Roadside Verges, edges of playing fields/ sports pitches/amenity areas), or riparian bankside vegetation is left to grow longer to provide better wildlife habitat.



7.4.4 Create Green Infrastructure as part of new developments

Green infrastructure provision in new developments can be varied and can include informal space, footpaths, bridleways, cycleways, SuDS, natural habitats, gardens and street trees. Whilst quality green infrastructure such as pedestrian, bridleways and cycle routes contribute to the attractiveness of a development, particularly where sustainable transport routes are well linked to wider networks. The integration of green infrastructure into new developments closely reflects the principles of sustainable development identified in national planning policy. Local planning policies, Supplementary Planning Documents and green infrastructure strategies, therefore, will play an integral role in the delivery of quality green infrastructure through new development with best practice guidance on its design and management for multiple benefits. As well as these developments complying with the local standards within the Green and Open Space Strategies produced by the Local Planning Authorities required for the administrative area.

Local Plans and policies can provide detail on the vision and standards for green infrastructure in terms of quantity, accessibility and quality, the protection and improvement to existing, and the provision of new green infrastructure, to ensure it can be factored in from the beginning of all development proposals. The following planning documents have opportunities to embed green infrastructure planning within their plans:

- Strategic Development Plans can identify the strategic project areas which can embed the wider concept of green infrastructure and networks and designate and protect strategic routes for active travel.
- Local Plans set out the spatial strategy which can identify detailed locations of green infrastructure, identify areas where actions could strengthen the green infrastructure network and links, and policies that support the incorporation of green infrastructure in the design of a new place or regeneration of an existing area.
- Supplementary Planning Documents and Guidance support the Local

Plan and can set out more detailed design principles for place-making and ways in which green infrastructure can be included in the design of a new place and provide a guide to the delivery of high-quality, well managed green infrastructure network.

- Masterplans for larger development sites, provide designs for specific spaces within a site and seek multifunctional benefits which can be served with green infrastructure and may identify likely management and maintenance costs at the outset and potential designing solutions to suit the budget.
- Green infrastructure, green and open spaces strategies by each Local Planning Authority will have identified actions that are based on the open space standards and meet their accessibility, quality and quantity needs and designate and protect strategic routes for active travel.

Local Plan preparation or review should include policies to support green infrastructure, in line with the NPPF. These policies can provide for biodiversity net gains and off-setting, as well as expanding this approach to include wider natural capital ecosystem services benefits, such as flood protection, recreation and improved air quality within development proposals designs. Through the application of biodiversity net gain and off-setting and the creation of compensation habitat, planning policy can secure multi-functional green spaces within and beyond development site boundaries. The following plans and guidance will also continue to be reviewed as and when required to improve and develop their green infrastructure policies and guidance:

- Neighbourhood Plans
- Essex Design Guide
- Highways Plans
- Garden Communities and villages proposals
- Health Impact Assessment
- Walking Strategy
- Cycling Action Plan
- Cycling and Walking Improvement Plans
- Rights of Way Improvement Plans

7.4.5 Minerals and Waste Green Infrastructure Restoration

Minerals and waste development can have a long-term impact on the character of an area, but is only a temporary operation. Once the minerals have been extracted or the landfill filled, the land must be ‘restored’ to an appropriate after-use. In some cases, this can involve restoring the land to its previous use, but restoration of minerals and waste workings can provide significant opportunities for habitat creation, climate change mitigation and recreation through green infrastructure.

The key to planning and managing green infrastructure in minerals and waste restoration is to consider the site in its context. This includes:

- Considering the features of the site and the networks of habitats, sustainable transport and greenway routes and water courses that surround it, which could be safeguarded or enhanced.
- Then identify the strategic green infrastructure needs and green corridors required to deliver green infrastructure functions and benefits linking to off-site green infrastructure and strengthening the green infrastructure network.
- Considering all user groups, social groups and abilities to provide accessibility and inclusivity.
- With an agreement on the proposed long-term maintenance of the green infrastructure.

This will require liaising with the Minerals and Waste Planners to consult on the use of green infrastructure within restoration programmes. As well as during the delivery of the restoration to minerals and waste sites, such as Pitsea Landfill, to ensure maximum green infrastructure value is being realised, consideration of nature conservation priorities and the potential to explore the opportunity for a Green Discovery Park. There is significant opportunity to further embed green infrastructure into policy and guidance on mineral and waste restoration. If this opportunity is to be fully embraced, will require providing green infrastructure training for Minerals and Waste Planners and other partners (such as Flood and Water management and Spatial Planners).

7.5 Natural flood management (NFM)

Proposal

Create water gardens, green roofs and bio retention areas to absorb urban water.

Improve



Continue creating green spaces which also function as natural flood management and Sustainable Drainage System (SuDS) schemes.

Essex is predicted to experience an increase in winter flooding events and summer droughts through climate change. Green infrastructure provides significant opportunities to deliver space for water and natural options for water resource and flood management. Sustainable Drainage Systems (SuDS) are the preferred approach to managing surface water. There are different SuDS features available to suit the constraints of a site. These include green roofs, permeable paving, ponds, wetlands and shallow ditches called swales. The main purpose of sustainable drainage systems is to mimic the natural drainage conditions of a site before development. This is achieved by capturing water and allowing as much as possible to evaporate or soak into the ground close to where it originated at a controlled rate that does not increase flood risk.

Delivery of strategic flooding solutions through SuDS, incorporating more natural flood management techniques could provide clear opportunities to deliver benefits including creation and restoration of wetland habitat, contribute to the overall visual amenity and the wider environmental performance of new and existing developments and public realm. This will entail further work and liaison with Essex Highways, Developers and the Flood Water Management teams to seek funding for the provision, maintenance and management of green infrastructure and SuDS using natural flood management techniques providing multiple functions and benefits in line with the guidance in the SuDs Design Guide for Essex and Local Plans. However, its long-term management should be fully integrated with the management of other aspects of green infrastructure.

Natural flood management involves techniques that aim to work with natural features and characteristics to manage the sources and pathways of flood waters, rather than through engineered process. Techniques could include for example¹¹:

- The creation of water gardens
- Green roofs and walls
- Bio retention areas
- Coastal and estuary management (i.e. saltmarshes)
- Woodland creations and leaky dams
- River restoration (natural meanders and bank profiles)

Using green infrastructure as part of the natural flood management solutions rather than hard landscaping and grey infrastructure of piping to attenuate flooding provides savings on the cost of hard infrastructure solutions and multiple benefits can be reaped from the same green infrastructure. Essex has been exploring the implementation of natural flood management solutions and in the first project of its kind in Essex, a series of 'leaky dams' have been built into a Thaxted watercourse in Uttlesford and Kingsmoor area of Harlow to help reduce the risk of surface water flooding to a number of local properties whilst improving wildlife habitats. The leaky dams in figure 10 are an excellent example of financial and sustainable land management, with conservation of an important ancient woodland helping to deliver innovative flood alleviation measures.

11. for details on Natural Flood Management visit: <https://www.gov.uk/government/news/natural-flood-management-part-of-the-nations-flood-resilience>

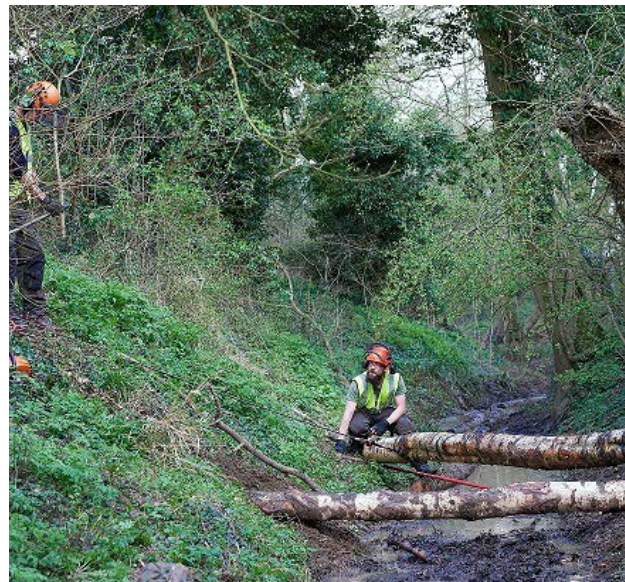
Thaxted, Uttlesford & Kingsmoor, Harlow

Figure 10: Evidence to action case study of leaky dams in Essex. Images from Floods Team at ECC.



Properties in both these areas were prone to surface water flooding and roads were often cut off. Through investigation of the areas a proposed scheme to reduce local flood risk was put forward. However, the woodland areas of these sites were ancient woodlands and in the case of Parndon and Ridsden Woods were SSSIs so it was essential that the proposals minimised ecological impacts.

Place Services worked in partnership with Essex County Council's Floods Services, Harlow District Council, the Environment Agency and Thames Water to devise and construct the leaky dams and pond de-silting works within local woods. The dams were constructed by hand from logs sourced directly from the wood (or for Thaxted, felled trees were extracted from Garnetts Wood, Dunmow) as part of its ongoing management plan. The felled timber and woody debris were sustainably harvested as part of Place Services' Essex Woodland Project. These were moved across the woodlands and into position using heavy horses (known as Suffolk Punch) traditional to logging to minimise the impact on the trees and local wildlife and negate the need for heavy machinery.



Felled trees and other woody debris were pinned into the river bank allowing water to flow freely when levels are normal. In times of flooding, the flow of water is slowed, reducing pressure on the dam by still allowing water through. Leaky dams also prevent flood water from washing away soil and silt from eroded river banks. An earth bund was created in a playing field directly upstream of the residential area in Kingsmoor to provide larger floodwater storage. Over time the leaky dams will improve local biodiversity by creating new and diverse habitats and restoring pond flora and fauna, such as newts. Kingsmoor scheme in October 2018 won 'Small Project of the Year' at the British Construction Industry Awards.

7.6 Connect people to green infrastructure through active travel (CPAT)

Proposal		
Create town or village circular routes especially in areas of green infrastructure deficiency.	Create	
Develop the coast path in Essex in a sustainable manner.	Connectivity	
Establish inter connecting paths between green infrastructure, that provides access for all.		
Restore and Promote Essex promoted paths.		

To ensure that access to green spaces is as easy as possible for all and to improve the character and sense of place, it is essential that greater connection with public realm, developments and transport planning is established. An analysis undertaken by UEA to map the provision of green infrastructure using the Natural England, the Accessible Natural Greenspace Standard (ANGSt)¹² in Appendix B9 found most areas have sufficient natural and semi-natural green space, parks and gardens, except for Braintree, Tendring and areas of Chelmsford and Uttlesford with over 40% of residents living in places achieving no more than a single benchmark, which supports elements of the findings in the Essex Growth Infrastructure Framework (2017)¹³. In some areas the percentage of accessible green spaces was low due to deficiency of green spaces in the first place. However, in many instances the provision of green spaces may appear sufficient, but they remain inaccessible or access maybe limited. Rural communities were identified as being particularly affected by lack of access despite being in close proximity to more natural areas (ECC, 2017) (EWT, 2009).

Some areas may not always be well served due to settlement evolution and the presence of barriers to access, such as roads and people's perception of accessibility and its inclusivity. Certain groups in society that are particularly vulnerable to social exclusion¹⁴ found specific barriers to access a green space were the cost to travel and any fees on site, fear for their safety, fear of segregation, accessibility due to lack of facilities and that they would not be welcome to use the site. These issues are particularly relevant to many parts of Essex. More details on the ANGSt provision and inclusivity review in Essex in Appendix B9.

¹² ANGSt sets out benchmarks aiming to ensure there is adequate accessible green space provision near to where people live.

¹³ Most of the local authorities in Essex that have developed green infrastructure strategies or equivalent had set out the provision requirement standards for new developments captured in the Framework (2017).

¹⁴ These include people with disabilities, ethnic minorities, young people, older people and those at an economic disadvantage.

The needs of a wide range of users will be considered when planning improvements to greenways, green wedges, green fingers, sustainable travel routes, green spaces and public realm to encourage more people to connect with nature and foster a sense of place. Assessing whether there are enough benches, level paths, good signposting, clear sightlines and good management and maintenance all will help to make areas more attractive and welcoming places, encouraging more use by a wide range of different people. Car parking will also need to be considered alongside other site facilities and services.

Through placemaking public realm initiatives, such as planting street trees, hedges and verges within the design, will not only improve air quality, but act as a green corridor and greenway connecting people and wildlife. Along with improvements to existing green infrastructure assets, including improved connectivity with the Public Rights of Way, bridleways, waterways and cycle network. These will provide a wide range of opportunities to explore the outdoors in both urban and rural areas and encourage the take-up of active travel with a shift towards walking and cycling for everyday travel.

There are ten Public Rights of Way routes in Essex (i.e. Essex Way, Flitch Way) that are promoted along with certain cycle networks and bridleways. More active use of these routes could be encouraged through opportunities to add to and improve them, as well as the wider rights of way, bridleway and cycling network, working with Highway Authorities, Country Parks, Active Essex, Active Southend, Local Health and Wellbeing teams, Essex Bridleways Association, Parish Councils, District, City and Borough Councils and Village/ Community groups and other key Partners through:

- targeted physical improvements and restoration to routes that can also be promoted for local and visitor use, including the development of the coast path in Essex¹⁵;
- provide and promote circular routes around towns and villages;
- seek sponsorship for a pilot circular walk(s) competition;
- utilising the UEA green Infrastructure GIS mapping model to identify new routes which provide multiple functions and benefits by inter connecting paths between green infrastructure;
- manage existing and new greenways to benefit people and wildlife providing environment net gains;
- new green infrastructure should aim to connect areas of biodiversity value to provide wildlife corridors and/or create larger areas of natural and semi-natural habitat;
- targeted promotion;
- improved signage;
- improve entrances and pathways to and within sites for multi- users by applying the principle of least restrictive access;
- open the first sections of the coast path in Essex, including improved access using links to sustainable transport;
- identifying and agreeing proposals for the long-term maintenance of these routes and any new green infrastructure along these greenways;
- seek and utilise innovative funds such as Coastal Communities Fund to create, connect, improve and promote these paths and other greenways (See Chapter 9, 9.2 Funding for more detail on funding sources).

¹⁵ There are restrictions in using the PROWs on sea walls as a bridleway, due to structural issues.

7.7 Delivering environmental therapies and activities (ETA)

Proposal		
Explore environmental therapies and challenges across all social, demographic, ethnic and diversity groups and promote activities in green spaces.	Inclusivity	
Explore environmental therapies delivered through mental health services.	Health	

The evidence strongly suggests that high quality green spaces can help reduce health and social inequalities and can be a cost-effective way of addressing many social and wellbeing needs. Improving access and raising awareness of the green spaces, facilities and activities available has a role to play in encouraging people to incorporate more green exercise and nature contact into daily routines helping to improve wellbeing and social inclusion through nature-based solutions. As a result, high quality green space and nature-based solutions could be used to a greater extent as a treatment for mental and physical health through referrals to environmental therapy such as green exercise programme run by Active Essex, Active Southend and High Woods Big Garden in Colchester. There is, therefore, a need to continue to create opportunities for community participation and volunteering to actively engage and benefit people, especially those that ordinarily face barriers to visiting green spaces.

Through liaising with Public Health to assess health deficiency areas and coordinating work with Active Essex and Active Southend on their projects will help identify green physical activities utilising green spaces to encourage more people to be active.

Whilst also working with:

- Mental Health Agencies;
- Wider health partners;
- District/Borough and City Health and Wellbeing Boards;
- Country Parks;
- Outdoor Pursuit;
- Active Essex and Active Southend partners;
- Wildlife Trusts;
- Community voluntary sector, and
- Educational and children's services.

To help build upon existing and develop, promote and deliver environmental therapy activities and programmes to a wide audience. It will require targeted marketing and promotion of events including conservation activities, environmental therapy and green exercise such as those listed below to be carried out as part of the marketing strategy in 7.1:

- Green gyms
- Eco-therapies (formal type of therapeutic treatment which involves doing outdoor activities in nature)
- Mountain biking
- Geocaching
- Orienteering events
- Historic tours and walks
- Learn new skills courses
- Arts and crafts
- Volunteering

It is important to find a way of making the natural environment relevant and of interest to people, especially those who had little in the way of a track record of engaging with it. By providing opportunities for people to take part and enjoy activities through the provision of new green spaces and improving existing accessible green infrastructure for the benefit of nature.

If these green spaces provide what local people want, they will be better used and offer a far better return on investment. Our green infrastructure should, therefore, be secure, accessible, inclusive, connected, easy to maintain and incorporate the highest quality design. For this to be achieved will require working with a wide range of stakeholders within the public, private and third sectors, including the local communities. There are opportunities to tighten working procedures with the planning authorities and other key sectors to improve our green infrastructure network.

Key Summary Chapter Action

We will conserve and enhance a multi-functional green infrastructure network, by maximising opportunities for the protection, enhancement, creation and connection of our green infrastructure network to maximise the collective social, economic and environmental benefits working in partnership with stakeholders (private, public and third sectors and community groups).

Implementation of the Green Infrastructure Strategy by Sector

Chapter 8

Image: Essex County Council



It is the intention of this strategy to embed green infrastructure requirements within new development and for green infrastructure to become an integral part of the day-to-day considerations in other key sectors and services to ensure that future planning, design, management and maintenance is coherent, structured and focused. In that the strategic decisions taken over the long-term looks to advance the case for green infrastructure and its importance in place making across Essex.

There is the potential to deliver green infrastructure through a wide range of actions and projects including new development and effective land management practices. Although, the development and planning system will have a key role to play, the following sectors also have the potential to make a significant contribution to protect, improve, create and sustain our green infrastructure:

- Housing
- Minerals and Waste
- Highways and Transport
- Flood and Coastal Management
- Energy
- Health and Wellbeing
- Education
- Agriculture

The challenge for Essex is twofold: firstly, to ensure that green infrastructure is planned, designed, implemented and managed in the same coherent, integrated and strategic way as transport, telecommunications, energy and grey infrastructure; and, secondly, to bring the multifunctional benefits of green infrastructure to our communities and workplaces.

The main opportunities to plan, deliver and manage green infrastructure in Essex will be from integrating green infrastructure priorities and principles into other proposals and decision-making processes, such as new developments, land management initiatives (e.g. woodland grant schemes) and infrastructure development. This section outlines the main opportunities likely to come forward from the eight sectors, the rationale for delivering green infrastructure through these opportunities and the principles that should be applied. Other opportunities may be identified as the strategy is delivered, therefore this section is by no means an exhaustive list.

The following sections relates to majority of the green infrastructure objectives:



8.1 Planning

Context

The planning system is one of the most important means of delivering green infrastructure. It can ensure that development respects, enhances and expands the existing green infrastructure network. While the quality of green infrastructure has the potential to improve and enhance most developments, it should also be a key consideration for any other sector such as highways and utilities. Especially since, Essex expects to face a continued period of steady growth and if this growth is to be positive and sustainable it is important that the planning is guided by a parallel emphasis on green infrastructure. Green infrastructure therefore, should also be considered at every scale of planning, from the strategic framework (allowing cross boundary issues to be considered) right down through the city, towns and villages and within streets to the individual home.

Practical Measures to Promote Green Infrastructure Through the Planning System

The role of the planning system could be influenced to improve the benefits of green spaces and green infrastructure through:

- Influencing the content, promoting best practice and continued assessment of green space and green infrastructure policies in Local Plans, Neighbourhood Plans and supporting planning documents, including a sound evidence base.
- Ensuring evidenced local green infrastructure needs are reflected in Infrastructure Delivery Plans (IDPs).
- Reviewing, updating and signposting to the Essex Design Guide, ECC Developer's Guide to Infrastructure Contributions, and LPA guidance for Planning Obligations.
- The role of the existing green infrastructure strategies and projects in Essex including Thames Chase Community Forest, South Essex Blue and Green Infrastructure strategy, the Green Arc, the Eastern Claylands Treescape project (Woodland Trust), Essex Wildlife Trust Living Landscapes, Essex Coast RAMS 2018-2038 etc.
- Local Authority Green Infrastructure, Open Spaces Strategies and Design Guides.
- Implementing the assessment of Access to Natural Green space standard (ANGSt) and other local open space standards to ensure appropriate provision of green spaces.
- Providing advice on taking green infrastructure proposals forward through planning and practical delivery.
- Embed the environment-net gain principle¹⁶.

¹⁶ See: <https://www.gov.uk/government/news/gove-sets-out-proposals-for-greener-developments>

Key Green Infrastructure Planning Principles

The following planning principles model can help protect and improve our existing and create new green infrastructure. All developments should follow these principles:

- Development is directed to the most sustainable and least sensitive locations.
- Planning and design of green infrastructure results in a coherent, meaningful and practical network of open green spaces.
- Combine green and grey infrastructure through planning the integration and coordination of urban green spaces with other infrastructure, such as highways and utilities, to facilitate the establishment of a well-designed and maintainable public realm.
- Greater awareness is achieved on the important contribution in responding to the impacts from climate change.
- Create connectivity to ensure there are good accessible links for all between urban, rural areas and green infrastructure widening the green infrastructure network.
- Deliver and enhance multifunctionality to provide multiple benefits (i.e. recreation, flood management), creating synergies, while reducing conflicts and trade-offs.
- The benefits of Green Infrastructure can be improved through the recognition of the value of ecosystem services.
- Once the impacts of development on biodiversity have first been avoided, mitigated and compensated, provides opportunities for biodiversity net gain.
- By locating developments in the right place and ensuring good early design, much biodiversity loss and damage through development could be avoided.
- Green infrastructure is designed to enhance, create and protect local landscape character and heritage.

- Deliver social inclusive processes that are open to all and incorporate the knowledge and needs of diverse parties. That results in safe and accessible green spaces designed to respond to changing population needs.
- Comply with the national and/or local open spaces standards set by Local Authorities for the quantity, accessibility and quality provision for their administrative area.
- Green infrastructure is at the heart of decision making at every stage in the planning and design process for all developments from the outset, thus green infrastructure is integral to place-shaping.
- Site management plans and funding for any development proposals should incorporate the long-term management and maintenance of green infrastructure and that these arrangements are agreed and secured alongside planning permissions to ensure that assets maintain their functions and benefits.

Consideration for strategic planning and development management policies and decisions should seek to achieve the recommendations set out in Appendix B10 (10.1) as a matter of good practice, or mitigation.

8.1.1 Supporting and Shaping Large and Small Developments

Context

Local Plans preparation work has identified the need for housing and employment growth in Essex to be delivered through small and large developments, including new ‘Garden Community’ settlements. The allocation and delivery of these sites and developments is strictly regulated through the planning process under the NPPF and local planning policy. If high quality, sustainable and multifunctional green infrastructure is considered early in the design process and master planning of development sites it will not only provide enjoyable and healthy environments for its future residents/employees but can improve developers financial return. For example, it can:

- Make construction easier and more cost effective.
- Provide high returns on properties.
- Lead to financial saving from the fact that one green infrastructure solution on a single piece of land can provide multiple benefits, such as flood attenuation through SuDs, biodiversity enhancement, aesthetic and amenity value, public open spaces, etc.
- Reduce the costs of installing conventional grey infrastructure structures such as pipes and tanks for flood management - whilst still providing for other priorities on the site through innovative solutions.
- Stimulate business growth and improving quality of life and health and well-being of its residents.
- Closely reflect the principles of sustainable development identified in the NPPF.
- Where green infrastructure has been considered as aspect of the design, planning permission may be granted with fewer conditions.

Green infrastructure can be incorporated on any scale and should be integral to planning the layout and design of new buildings and developments

from the outset, the important aspect is determining the right design. It is a common perception that requirements for development sites to protect and enhance biodiversity, protect local landscapes, provide for informal recreation and facilitate sustainable drainage are separate issues, each incurring additional costs. Providing these functions does not mean “doubling up” the costs. By combining these issues together and using a multi-functional approach, developers can reduce their costs, whilst at the same time delivering a high-quality development that is a key contributor to placemaking and the enhancement of local distinctiveness. Placemaking is central to enhancing the environmental and economic quality of Essex, and perceptions of the area among investors, potential employees and visitors.

Benefits of Green Infrastructure for Development Delivery and Viability

There are some general principles which, if carefully followed, could increase the viability of green infrastructure:

- Early assessment of existing green infrastructure on a site and incorporation of green infrastructure into master planning, design, demolition and construction of a new development is crucial and can avoid costs of retrofitting at a later stage. It should be considered how these assets can provide various green infrastructure functions and deliver integrated benefits on the development site, including SuDs, off road walking, horse riding and cycling routes, linkages to sustainable travel (i.e. buses), landscape and biodiversity enhancements.
- Alternatives to traditional infrastructure and design should be investigated.
- Understanding what types of green infrastructure are specifically required for an individual site and its context helps to avoid either over or under-provision of green infrastructure.
- Therefore, the quantity (amount/area of open space per 1,000 population), accessibility (distance from households and location of

entrances) and quality (type, design, inclusivity and management) of green infrastructure should be informed by the appropriate national and local standards, including the Accessible Natural Greenspace Standard from Natural England and the national allotment provision and local provision standards set within the Local Planning Authorities Green Space and green infrastructure strategy for their administrative area.

- The location and design of new development should be based on an understanding of what green infrastructure is already there – such an approach can provide an opportunity to strengthen networks of green infrastructure or improve the quality of individual elements.
- Developments should take account of and retain wherever possible existing trees and hedgerow, in addition to Public Rights of Way. Where hedgerows have adjacent footpaths, such paths should continue to exist as green paths (i.e. not be ‘improved’ as hard-surfaced paths).
- Identification of green corridors required to deliver green infrastructure functions, ensuring that on site green infrastructure links to off-site green infrastructure and that networks benefits are strengthened.
- Design of site to incorporate identified green corridors and enhancement opportunities within the built environment, including urban greening such as green roofs and street trees, and the inclusion of in-fabric opportunities for nesting birds and bats.
- Long-term management and maintenance of green infrastructure also needs to be considered at an early stage in planning for development to ensure it is taken into account in the viability assessment of the site. This includes consideration by the local planning authority and the developers during the planning process on how the green infrastructure will be funded, managed and maintained in perpetuity.
- Timely engagement with bodies responsible for various elements of green infrastructure can help to address some of the issues and identify the opportunities to incorporate wider green infrastructure networks on the site. Viability assessments also need to consider all the multi-functional characteristics of green infrastructure. For example, a new road introduced on a site will have to deal with run-off, and therefore a sustainable drainage scheme will be introduced as part of this. The

sustainable drainage could benefit habitat enhancement through planting road verges with biodiversity-rich grasses.

- New developments should increase biodiversity and implement an environmental net gain principle within the design of all green and blue infrastructure, utilising locally native species or those with a proven value to wildlife wherever possible. Careful design of green space can also reduce the cost of ongoing management, by focussing on low nutrient status habitats that have a greater benefit for biodiversity.
- When new places are planned, the quantity, quality, accessibility for all user groups and distribution of green infrastructure should be carefully considered.
- Care should be taken to avoid costing various green infrastructure assets multiple times for each individual function they fulfil. For example, if a green corridor on a single piece of open land delivers benefits to flood risk management, biodiversity enhancements, landscape, etc. this can all be delivered through the same investment. (Worcestershire County Council, 2015).
- Green infrastructure should be monitored and evaluated to see whether it is providing the benefits intended.

Green Infrastructure Implications for Key Essex Developments

There are a significant number of proposed development sites in Essex, mapped in Figure 7 of Appendix B11. Integrating green infrastructure into the development of these sites offers significant opportunities for green infrastructure delivery in the county. Local planning authorities through their Local Development Plans, Supplementary Planning Documents, green infrastructure strategies or equivalent and the Essex Design Guide set out what they expect in terms of the quantity and quality of green infrastructure in new developments so that the cost of providing it can be factored into the price that the developer pays for the land. Other consideration for strategic planning and development management policies and decisions should seek to achieve the recommendations set out in Appendix B10 (10.1.1) as a matter of good practice, or mitigation.

8.1.2 Green Infrastructure in Cities, Towns and Villages

Local Context

One of the key issues facing Essex is the relationship between its urban environment, settlements and with the wider natural and man-made landscape. For the larger settlements, such as Southend-on-Sea, Thurrock, Colchester, Chelmsford and Basildon issues to do with the boundary between settlements and the wider landscape have become important. Outside of these settlements, the majority of Essex is rural although there are towns and a number of rural villages and hamlets throughout the County. Harlow and Castle Point have been identified as having a having large proportion of green infrastructure in district. As population increases there is a need for developments to utilise every space better. Green infrastructure is widely known as a sustainable and cost-effective way of managing key environmental issues in our settlements. Therefore, more imaginative use and adaptation of space within the layers of existing city, towns and villages with green infrastructure to cater for the present and future needs of society will be necessary.

Reviews of existing spaces and green infrastructure within our settlements creates the potential to improve the overall sustainability and performance of places;

- to make them more resilient to the effects of climate change;
- to renew tired and single function open space, and
- to provide for a wider range of uses with multiple benefits for people and wildlife, enhancing the quality of life and overall sustainability performance of communities in the future.

Case Studies and Local Actions

There are also important opportunities to re-establish missing links and to create new linkages in the surrounding areas to enhance and develop the existing green infrastructure networks in our towns, city and villages. Especially, in some settlements and surrounding areas the rights of way network are fragmented. Creating multi-user greenways and/or links to Green spaces and green infrastructure is vital, therefore, gaps and missing links in the rights of way and other routes (including bridleways, waterways and towpaths) within the greenways network around towns and villages should be targeted to create good local access for all user groups to green spaces, the countryside and coast and explore the potential for circular routes. There is a need to take into consideration the opportunities presented within the Walking strategy, Cycling and Walking Improvement Plans, Rights of Way Improvement Plans and Cycling Action Plans.

There may also be significant possibilities for green infrastructure within areas of former industrial or brownfield land, or areas proposed for re-development or neighbourhood renewal, recognising the high biodiversity value (such as Thames Terrace invertebrates), that such habitats can develop in some situations. At a domestic level retro-fitting green spaces around housing which have been lost to driveways (e.g. through permeable paving and green grass driveways) can help alleviate local flood risks. In fact, size doesn't matter – green infrastructure can be introduced on any site, even if it's a small rain garden, or a green roof on an outbuilding.

As shown in the case study in Figure 11, where the internal courtyards within the Essex Cardiothoracic Centre at Basildon University Hospital has been redesigned and refurbished as a rain garden. Any action to slow down rainwater or introduce biodiversity can reduce pressure on over stretched traditional systems such as our drainage network and generate an opportunity for nature.

Nevertheless, there are parts of our cities and towns that need to remain grey for their primary function like seawalls, pavements and bridges. These grey infrastructure features can also be “greened” to improve their economic, social and ecological value through for instance:

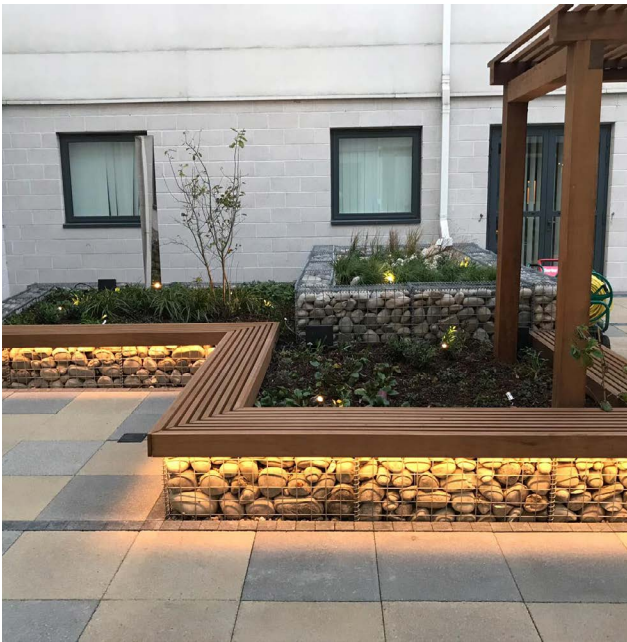
- Green bridges
- Enhancing railway embankments for wildlife
- Installing green screens along guard rails and around schools
- Green railway walls
- Green roofs / roof gardens
- Green walls
- Green (grass or permeable) driveways
- Sustainable drainage systems (NERC, 2017)

Green infrastructure must not be seen in isolation from ‘grey’ infrastructure, but as a means to improve its performance and benefits (NENW, 2009).

The recommendations in Appendix B10 (10.1.3) summaries what planners, landscape architects, developers and others involved in shaping our built and green environments should consider as a matter of good practice.

Sponge 2020 - Hospital Rehabilitation Rain Garden

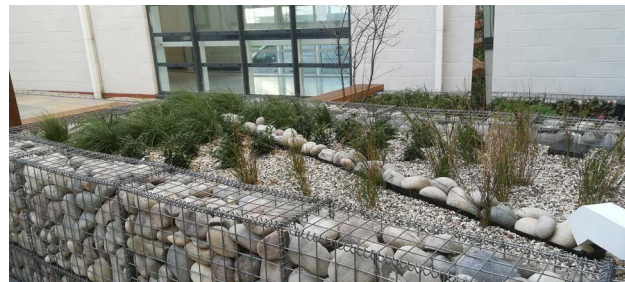
Figure 11: Evidence to action case study Sponge 2020 Basildon Hospital Essex, Images provided by Floods Team at ECC



Basildon University Hospital is located in a Critical Drainage Area within South Essex, an area within the top 10 at risk from pluvial flooding nationally. In order to increase the resilience to surface water flooding Basildon and Thurrock University Hospital worked with Essex County Council and other stakeholders to retrofit Sustainable Drainage Systems (SuDS) in the hospital as part of the EU Interreg 2 Seas project Sponge 2020, which is part-financed by the European Regional Development Fund.

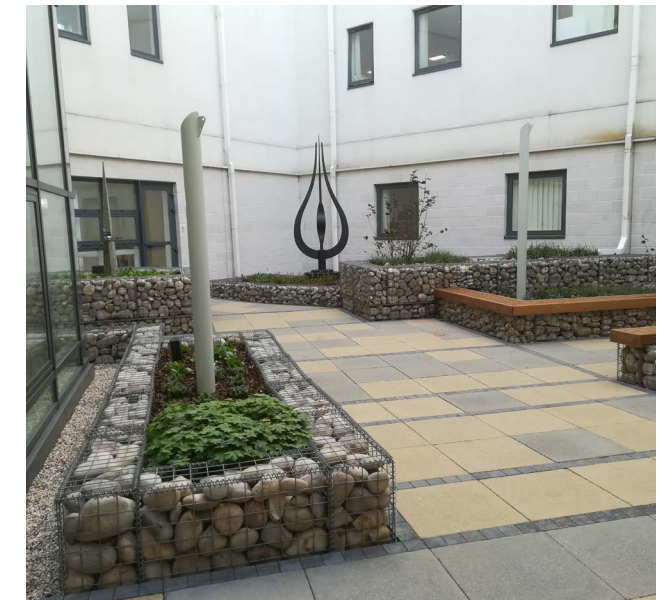


The installation of SuDS allows areas to be adapted to slow down the rate of water entering conventional drainage systems and reducing the flood risk. However, by incorporating more natural flood management techniques through the use of green infrastructure within the design and delivery of SuDS enabled the creation of a rain garden on the grounds of the hospital. This rain garden provides multiple functions and benefits of not only alleviating flooding, but a place for staff, visitors and patients to enjoy and relax, improve recovery rates, promote nature and adapt to climate change.



This project provides a great example of how green infrastructure can be implemented alongside other infrastructure such as SuDS and demonstrates:

- Adaptation of critical infrastructure to utilise existing space to improve the overall sustainability and performance of a place to provide a wider range of uses with multiple benefits for people and wildlife.
- Retrofitting of SuDS and green infrastructure in an urban environment.
- Size doesn't matter – green infrastructure can be introduced on any site to alleviate flooding and encourage biodiversity.
- Co-benefits and dual functionality of SuDS.



8.1.3 Mineral Extraction and Waste Restoration

Context

Mineral and waste development and mineral extraction are a temporary operation; however, it can have a long-term impact on the character of an area. Once the extraction or waste operations have been completed, the land needs to be restored to an appropriate after-use - either to its former use or an alternative use. Site restoration provides opportunities for a range of benefits, including:

- Enhanced biodiversity through the provision of new and restored habitats and habitat linkages enabling species to migrate, disperse and colonise, and supporting and consolidating important designated sites.
- Reduced flood risk to communities, together with improvements to water quality and the ecological function of watercourses.
- Restoration and enhancement of landscape character.
- Productive agricultural land and forestry.
- Provision of informal and formal recreational and sports facilities.

After Uses of Minerals and Waste Sites

Historically most end-use of restored mineral and waste sites would include agriculture, open water or recreation. However, an increasing proportion of mineral workings and some ancillary waste sites (i.e. landfilling) are now being restored to amenity use and habitats of high nature conservation value. They also provide valuable opportunities for linking to habitats and features in adjacent or surrounding areas. Due to their scale and the significance of landscape and habitat change often involved with these sites, there is usually opportunity to integrate the delivery of green infrastructure assets into restoration schemes. Such a method can help to provide a sustainable approach to mineral extraction and restoration and helps to support and offset

impacts relating to climate change.

Although mineral sites offer the greatest opportunities due to the large expanse of land areas such developments cover, smaller waste uses can also provide significant opportunities for mitigation and connection between sites, even if they are permanent development.

When planning and managing green infrastructure in minerals extraction, waste operations and their restoration it is important to consider the site in its context. This includes considering the features of the site and the networks of habitats, biodiversity, sustainable transport and greenway routes and water courses that surround it. Restoration of mineral and waste sites offers unique opportunities for the creation of high-quality green infrastructure, especially where they are located in close proximity to communities. It is important that access is provided to green space, taking into consideration accessibility for all user and social groups and abilities, following the restoration of sites and this can be secured in perpetuity by dedicating new public rights of way or open access area. Sandon Quarry in Chelmsford restoration scheme for instance will provide public access and circular permissive routes for walkers and horse riders. It is acknowledged that the natural environment can be vulnerable to greater public access, where, for example, the public and their dogs can disturb ground nesting birds or other breeding populations of mammals. In this regard some restored areas may need access management to avoid the public conflicting with nature conservation interests.

A Mineral Resource Assessment should also be completed for each of the Garden Communities as required by the Minerals Planning Authority to ensure a sustainable approach through the potential on-site resource of sand and gravel for building materials, thus lowering transport and carbon emissions and costs. Upon completion the minerals site becomes part of the planned green infrastructure of the Garden Community.

Minerals and Waste Local Plans

Essex County Council is the Minerals and Waste Planning Authority (MWPA) for Essex, while Thurrock Council and Southend-on-Sea Borough Council are the respective MWPA's for their administrative areas. The MWPA has a statutory responsibility to plan for future minerals supply and waste management and determines mineral and waste planning applications. Each have produced a Waste Local Plan and Minerals Local Plan that sets out strategy, policies and locations for this development. ECC's vision is to make the Essex Minerals Local Plan a national exemplar for sustainable development. The Essex Minerals Local Plan will deliver significant long-term benefits for wildlife and people, transforming intensive agricultural land to wildlife-rich habitats through positive planning of minerals development. It expects all minerals developments to achieve a net gain in biodiversity and contribute to the enhancement of priority habitats and the local ecological network. It specifically seeks the creation of 200 ha of 6 Priority Habitats at 5 Flagship Schemes as shown in table 3 by 2029. While the Waste Local Plan sets out for all restoration schemes should, in the first instance, be seen as an opportunity to enhance and upgrade greenways, especially PROW where possible, with regard to the provision of Bridleways as multiuser paths as part of any permission granted.

Careful consideration of the environmental impacts and opportunities of the minerals and waste development will be necessary as part of a planning application with proportionate levels of mitigation to be established. Especially with the final restoration and long-term management and maintenance to be beneficial to the biodiversity and habitat creation. ECC as MWPA prepared a Mineral Site Restoration for Biodiversity Supplementary Planning Guidance as a tool to provide guidance to developers on mineral site restoration and after use that aids the delivery of green infrastructure¹⁷. Further recommendations for planners and developers to consider are set out in Appendix B10 (10.1.3).

17. <https://www.essex.gov.uk/minerals-waste-planning-policy/minerals-local-plan>

Table 3: Area of Priority Habitat to be created at each Flagship Scheme

Location	Minimum area of Priority Habitat Creation at each preferred or reserve site
A3-A7 Bradwell, Rivenhall	50 hectares (A3-5 'preferred sites': 28 hectares; A6-7 'reserve sites': 22 hectares)
A9 Broadfield Farm, Rayne	50 hectares
A46 Colemans Farm	20 hectares
A31 Maldon Road, Birch	23 hectares
A20 Sunnymead, Alresford	50 hectares

Key Summary Chapter Actions

- We expect green infrastructure to be planned at the earliest opportunity and address the multiple benefits (listed in this Essex Green Infrastructure Strategy).
- We would expect all development to set out the green infrastructure "checklist" showing how each element will be substantially addressed and should follow the key green infrastructure planning principles listed under 8.1.
- Restoration and mitigation plans for mineral and waste sites should ensure that opportunities to create and link biodiversity and habitats are fully explored to create mitigation and environmental net gains.

Checklist topics include: Multiple green infrastructure functions and benefits, biodiversity, active travel and mobility, carbon sequestration, landscape, habitat connectivity, air quality, water environment, inclusivity, management and maintenance, etc.

8.2 Highways and Other Routes

Context

There are over 5,000 miles of roads within the public realm in Essex, together with a footway network of 4,000 miles (including footways shared with cycleways), and 4,000 miles of public rights of way. Essex County Council maintains this vast network and ensures that people and goods in Essex move safely and seamlessly. While the two unitary authorities, Southend-on Sea Borough Council and Thurrock Council are responsible for the roads within their administrative area. Our transport network is essential to economic growth but also contributes to poor air quality, impacts on biodiversity, landscape and heritage, through the vehicles using our roads. Road traffic creates many harmful pollutants, including particulate matter (PM₁₀), volatile organic compounds (VOCs) and other gaseous pollutants such as carbon monoxide (CO) and oxides of nitrogen (NO_x). These pollutants are linked to a number of health conditions, such as asthma, heart disease and cancer (Ibex Earth, NSCit2S, 2018).

Environmental Impacts and Mitigations

- Roads also impact on biodiversity through ecosystem destruction and fragmentation, thereby negatively impacting ecosystem services. Our transport network has a huge impact on our environment and our quality of life. However, green infrastructure can help mitigate against these issues and also enhance the value of the network by providing other functions such as:
- Integration of transport and green infrastructure may enhance scenic value, landscape character and connectivity resulting in increased benefits from leisure and tourism.
- Intelligent use of green infrastructure and appropriate planting in street and roadside design can be incorporated as a traffic calming measure which also help soften the street scene by creating visual interest, improving the microclimate and providing valuable wildlife habitats.
- Highway green infrastructure such as road verges, roundabout centres,

tree belts and other green spaces such as ditches and mowed grassland can make a major contribution to people's everyday experience of green spaces.

- Maintenance of some of the green infrastructure assets, e.g. verges, can be done by local residents, increasing the sense of ownership among the community and reducing maintenance costs for the councils (as shown in the "Végétalisons Paris!" case study in chapter 7, Figure 9).
- Moreover, providing people with high quality and attractive alternative to car use and public transport for short trips to work, school and other destinations relieves the pressure on the road network and has proven health benefits.
- Planting and retaining of trees, low hedges and other vegetation alongside roads act as porous bodies that influence the distribution of pollutants and improving air quality by absorbing through leaves, plant surfaces and the bark.
- Green infrastructure in the highway can provide for SuDS removing water from the drainage system and preventing flooding and improving water quality.

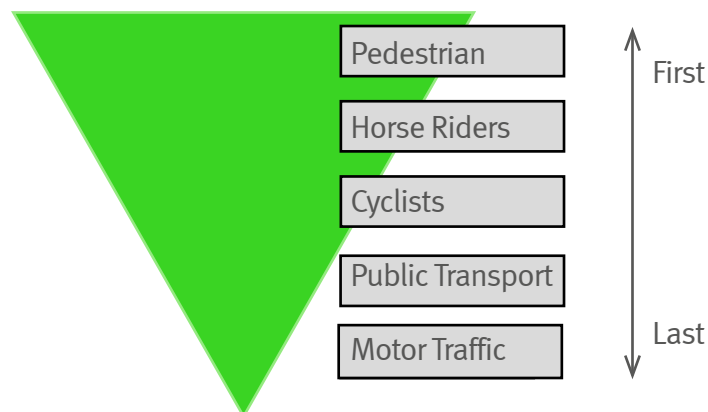
There are many areas of green space along the highway network and other linear routes that are not necessarily accessible but are nevertheless of visual importance. In some cases, these play an important role in creating visual separation between roads, housing and the surrounding countryside, as well as providing habitat value. Road and railway verges and waterway banks form important wildlife corridors and play a key part in the tourism appeal of the landscape for many recreational activities. Combining green infrastructure with permeable pavements may further reduce storm management costs and environmental pollution. Green walls or green embankments along infrastructure function as noise barriers, and reduce air pollution through particulate filtering (Trinomics, 2018).

The planting of hedges has the greatest effect when safeguarding residents from airborne pollutants. Roadside hedges could also be planted in "bio

retention areas” which absorb the highway water as a SuDS feature, thus alleviating two important issues for our towns and cities, water pollution and urban flooding, whilst providing aesthetic value. Hedges are also flexible in that they can be planted in troughs where underground services restrict tree planting. Furthermore, with good design, hedge trough can also accommodate seating, bins, cycle racks etc. Where there are large buildings close to the road, low hedges are far more effective than taller trees in reducing the impact of pollution from vehicles.

Roads also impact on the local connectivity and accessibility of the landscape severing links between places. Improvements to the connectivity and accessibility of existing green infrastructure and creation of new green infrastructure can be highly influenced by Highways. It is important to consider the user hierarchy when considering how people access green spaces to encourage modal shift from cars to more sustainable and active travel options. This is a well-established concept which places the most vulnerable road users at the top, pedestrians and people with disabilities, followed by cyclists, public transport and motorised transport as shown in Figure 12. The objective is not to give priority for pedestrians, horse riders and cyclists in every situation, but to ensure that the needs of vulnerable road users are considered first.

Figure 12: User hierarchy for accessing green space



There is a possibility of reconnecting green spaces fragmented by the road network through the creation of green bridges that cross over the road linked with new pathway connections to carry people over (RiverLab, 2018). Land Use Consultants on behalf of Natural England undertook a study on the benefits of green bridges and found that they could become an important part of the sustainability of future transport projects by:

- Creating a safe crossing point for wildlife movement.
- Joining up habitats and connecting colonies, as they are also used by wildlife as a home in their own right.
- Creating a crossing point for people and benefit pollinators.
- Integrating roads and railways into the surrounding landscape (NE, 2015).

Providing better connection between and improving access to green infrastructure assets including greenways is in support of a number of Highway Authority’s strategies and plans, such as the Local Transport Plan, Cycling Strategy and plan, Sustainable Travel Plan (i.e. Essex Sustainable Modes of Travel Strategy, Better Southend Programme and Thurrock Travel Plans), Rights of Way Improvement Plan, and Local Cycling and Walking Infrastructure Plans.

Further recommendations that the Transport Authorities, planners, developers and other partners should consider can be found in Appendix B10.2.

8.2.1 Greenways

Sustainable Travel Networks, Connectivity and Health

Essex green infrastructure network can be used as a viable and sustainable transport option. In support of the Health and Wellbeing and transport authorities promotion of active travel through walking, cycling and other physical activity, including horse riding. Greenway routes can be creatively designed to encourage leisure use, a method for accessing recreational activities, as well as providing commuting routes to work and school. Especially since walking, cycling and horse riding is on the increase and the proportion of users with decreased mobility is also increasing. These users range from parents with pushchairs, who are keen to take their young children out into the countryside and green spaces, to people who may have mobility related disabilities.

This strategy seeks to help ensure that our green infrastructure will be seen not just as destination but also as an attractive through route that links places and communities. This can provide significant incentives to encourage increased physical activity as a result of the high-quality journey as the route passes through diverse natural environments.

A network of public rights of way, footpaths, bridleways and cycle routes exists in the county including other accessible greenways (as shown in Appendix B12, Figure 8). However, more work can be done on connecting these routes and allowing for multi-user accessibility such as horse riding. To ensure the selection of a gap, gate or stile which permits people to use a path crossing a field boundary such as a hedge or fence should result in as little restriction as possible for potential users, whilst meeting the land management needs of the landowners. Within urban areas, consideration should be given how the

routes can be made more attractive such as tree planting, so they are used by residents more frequently for their daily trips, for instance, to retail and employment areas. While, better connectivity and promotion for the use of our waterway paths, river paths and towpaths are needed. These routes are not only valuable green infrastructure in urban and rural areas by enhancing biodiversity and providing aesthetic value; but as routes for sustainable transport and recreational for walking, horse riding and cycling and providing a tourism resource which encourages healthy exercise and contributes to wellbeing. The Highway Authorities are developing Local Walking and Cycling Infrastructure Plans and programmes and Rights of Way Improvement Plans, which will prioritise the development of the Public Rights of Way (including bridleway) and cycling networks over the coming years.

Essex Green Infrastructure Routes

There are many long-distance trails, bridleways and cycle routes that pass-through Essex, such as The Essex Way, Flitch Way and Thames Estuary Path. These may take the form of woodland routes, riverside or coastal routes, former railway lines routes or cross-country routes, for example.

Some parts of the path network are promoted paths, which include:

- The Forest Way
- The St Peter's Way
- The Roach Valley Way.
- The Stour Valley Path
- The Saffron Way
- Blackwater Rail Trail
- John Ray Walk

Future Opportunities

Opportunities should be taken to add to and improve the promoted paths and the emerging coast path to encourage more active use of the network through more targeted promotion and improved signage particularly on the urban fringes. Other smaller routes can also be found across Essex, providing potential opportunities to:

- Create an Essex Outer Greenway if some of the existing routes are connected.
- Link greenways outside urban areas for leisure and recreation by, for example, a greater variety of short routes that can be completed by multi-users with different needs including circular routes around towns and villages which can be reached within walking distance.
- Ensure the design is resilient and sustainable, through planting trees and vegetation along new paths to make more attractive and provides optimum habitat for biodiversity.
- Consider allowing the new greenway paths to be wider than 2 metres where there are trees/verges to enable the paths to remain usable during periods of vegetation growth and prevent canyon effect.
- Build in the principle of least restrictive access in the design of new paths and routes to provide access for all users.
- Expand upon existing schemes such as:
 - Hadleigh Park Riders to be replicated in other suitable green spaces teaching children and adults how to ride a bike.
 - The Cake Escape, where cafes throughout Essex signed up to encourage residents and visitors to cycle through some of the most beautiful places in Essex, could be expanded to include more greenways.

Appendix 10, 1.1 provide other recommendations that those responsible for greenways, including planners and developers should consider as matter of best practice.

Key Summary Chapter Actions

- Sustain and improve existing Greenways and Highways green infrastructure network working in collaboration with partners, whilst engaging and involving Parish Councils and communities.
- New development will use appropriate green infrastructure design and its multi-functions that will enhance the quality, ease of accessibility, inclusivity and connectivity to green spaces, local amenities and across the development.

8.3 Coast

Essex has one of the country's longest coastlines stretching for over 300 miles. The many different uses of the Essex coast all exert varying pressures on this sensitive and highly valued natural resource. Much of the Essex coast is also particularly vulnerable to the effects of climate change including the loss of salt marsh (which is itself, a natural form of coastal sea defence) and the increased risk of coastal erosion and flooding to numerous communities and landowners.

There are several types of coastal green infrastructure that provide protective services that can help reduce vulnerability and enhance resilience to these pressures often referred to as living shorelines. These primarily include (but are not limited to):

- Saltmarshes. Coastal wetlands that form in saline tidal zones along protected shorelines.
- Ridges of material submerged at or below sea, estuarine, or river surfaces. For example, biogenic (composed of organisms such as mussels and oysters) or geogenic (composed of rock, sand, or other inorganic substrates).
- Seagrass beds. Submerged aquatic vegetation that grows in shallow marine and estuarine habitats.
- Sand beaches and dunes. Deposits of sand and gravel shaped by waves, wind, and coastal vegetation.

Using coastal green infrastructure such as plants, sand, and natural barriers will reduce erosion and flooding. It also can lessen the associated impacts on human health and property. Restoring affected wetlands can reduce wave heights and property damage.

In contrast to hard structures such as bulkheads and sea walls, vegetative shorelines provide multiple ecosystem benefits, including improved water quality, aquatic habitat, and carbon sequestration. Managed coastal improvements also provide potential sites for renewable energy and creates connected habitats for wildlife. Coastal areas provide opportunities for learning and leisure and deliver economic benefits through the creation of distinctive places for tourism such as coastal county parks and the 300 mile England coast path in Essex being developed by Natural England. The coast path will provide opportunities for the economy and health benefits of often deprived seaside towns. The coastal landscape provides important perceptual (i.e. aesthetic) and cultural qualities, that all form part of the ecosystem services it delivers.

Further consideration for coastal strategic planning and decision making should seek to achieve the recommendations set out in Appendix B10 (10.3) as a matter of good practice.

Key Summary Chapter Action

Opportunities for multifunctional green infrastructure should be maximised by developments located within the developed areas of the coast and coastal projects, such as the Coast Path in Essex. These developments should include the restoration, enhancement, connection and protection of the watercourses and coastal areas providing environmental, economic and social benefits. This should be delivered using adaptive design and in accordance with the guidance and actions set out in the Shoreline Management Plans, RAMS, Local Plans and South East Inshore Marine Plan.

8.4 Flooding

Context

Flooding remains one of the most frequent natural hazards in Essex and is predicted to experience an increase in flooding, extreme weather events and summer droughts through climate change. Green infrastructure provides significant opportunities to deliver space for water and natural options for flood alleviation and water management.

Under the Flood and Water Management Act 2010, Essex County Council and the two unitary authorities are defined as a Lead Local Flood Authorities and are required to produce, implement and monitor a strategy for the management of local flood risk. This includes flood risk from surface water, ground water and ordinary watercourses. Although the Flood Strategy does not reference green infrastructure, it does mention working with the natural environment.

“To encourage innovative new thinking, considering community needs, while working with the existing natural and built environment”. (ECC/Place Services, 2018)

Water Management - Roles and Benefits of Green Infrastructure

Green infrastructure can contribute to making areas less vulnerable to flood risk whilst ensuring development doesn't increase flood risk to third parties, through its key role in:

- sustainable drainage;
- drought mitigation;

- flood and water stress reduction;
- providing opportunities for attenuation or infiltration that can help to recharge aquifers;
- maintaining levels in watercourses or other blue infrastructure features.

Green infrastructure can also influence water quality through limiting diffuse pollution and controlling water levels in watercourses. Whilst all the elements used to control flood waters can be valuable green infrastructure assets if developed and managed appropriately. Therefore, using green infrastructure rather than hard landscaping and grey infrastructure to attenuate flood will be more environment friendly and will provide savings compared to the cost of hard and grey infrastructure solutions which could pose problems for local ecosystems and communities. Multiple benefits can be reaped from the same green infrastructure. This can be in the form of small-scale rain gardens or large scale Sustainable Drainage System (SuDS) solutions. Leaky Dams project as shown in Figure 10 (Chapter 7, 7.5) are an excellent example of financially and sustainable land management, with conservation of an important ancient woodland helping to deliver innovative flood alleviation measures.

Sustainable Drainage Systems (SuDS)

The implementation of SuDs is becoming an integral part of best management practices within the public realm, new and existing developments and is widely applied as a planning condition. SuDs are a national planning policy requirement for major developments, unless there is clear evidence that this would be inappropriate. SuDs work on the principles of managing surface water run-off on site as near to source as possible, slowing down run-off, treating it naturally and releasing good quality surface water to watercourses or groundwater. Keeping surface water on the surface increases the capacity for flood storage, provides easy access for maintenance and is cheaper to construct. Moreover, the end design solutions can provide attractive aesthetic and amenity features within the development, provide opportunities for

biodiversity enhancement, recreational corridors and deliver multi functions and benefits to a community, especially when natural flood management techniques are considered within the flood management schemes design. SuDS may become a key driver for green infrastructure.

To ensure that green infrastructure maximises the opportunity for flood management and improving water quality in Essex for individuals and organisations involved in managing flood risk at a local level, including local authorities, developers, landowners, farmers, and voluntary sector organisations these need to:

- Ensure that SuDS and other urban natural flood management measures are linked into the overall green infrastructure network.
- Consider how the retained water from SuDS can be used for active and passive irrigation for urban plants and green spaces, for example by designing green corridors and street trees as stormwater planters.
- Encourage take up of small-scale urban drainage measures such as green roofs, green facades, rain gardens and ponds to be implemented on an individual level by households and businesses.
- Consider the use of incentives to facilitate this process.
- Explore possibilities of converting arable land to woodland and grassland in mid and upper catchments to stabilise soils, reduce sediment and nutrient run-off and improve flood management.
- Make small adjustments to land management or allowing unproductive land to be used for flood storage and alleviation to protect urban area downstream.
- Where development is alongside water courses and bodies, protection and enhancement of safe public access and enhanced amenity value should be demonstrated in a Water Management Plan.
- Use of watercourses, SuDS and other urban natural flood management measures to be incorporated into new developments and into proposals to refurbish existing neighbourhoods, providing a drainage role, but also contribute to the visual aesthetic and amenity value.

Consideration for multi-functional green infrastructure measures to improve water quality and alleviate flooding could be encouraged through the delivery mechanisms, such as the SuDS Design Guide and Local Plans and should seek to achieve the recommendations set out in Appendix B10 (10.4) as a matter of good practice.

Key Summary Chapter Action

All development proposal should incorporate SuDS and natural flood management techniques. This should demonstrate multifunctional green infrastructure solutions to flood management. Development should include biodiversity and open space provision, which will enhance biodiversity, natural capital and provide aesthetic and amenity value; and safe public access. These designs should draw on national and local best practice guidance and must comply with requirements set out in the Essex SuDS Guide and national policy.

8.5 Energy

Context & Environmental Impacts

The non-renewable energy sector - the burning of coal, natural gas and oil for electricity and heat - is the largest single source of global greenhouse gas emissions and is responsible for over 2,897 kt CO₂ which equates to over a quarter of all Greater Essex greenhouse gas emissions (Gov.UK, 2018). Energy transmission infrastructure, such as power stations also generally lead to fragmentation of natural habitats, ecosystem destruction and depletion of ecosystem services.

Mitigations and Roles of Green Infrastructure

There is an increasing pressure on those involved in the delivery of energy transmission infrastructure to mitigate some of the deleterious effects that such development has on the environment and there is a matching understanding that often quite simple actions involving the integration of some quantity of green infrastructure into these energy transmission infrastructure schemes is a potent way of helping to address the problem.

Green infrastructure can play a role in reducing the negative impacts of the energy sector, by:

- Reducing energy consumption;
- Reduce buildings energy costs through natural shading and insulation;
- Contributing directly to energy production, such as providing bioenergy, and providing carbon uptake and storage (carbon sequestration), and;
- Some facilities and ways of energy production that can serve as green infrastructure assets within an overall green infrastructure network.

Green infrastructure has significant potential to reduce energy consumption and the direct impact from energy transmission infrastructure on the landscape in Essex. For example, green areas such as urban parks, and tree-lined streets can play a role in reducing an area's overall energy demand and thus contribute to the moderation of the 'urban heat island' effect. Green roofs and walls and other green infrastructure features reduce heating, cooling and associated energy demands within buildings, resulting in reducing energy needs and therefore, decreases the emissions from power stations. For example, domestic buildings are responsible for 31.3% of CO₂ emissions in Essex. A 20% tree canopy over a house providing shading for instance, results in annual cooling savings of 8 to 18% and annual heating savings of 2 to 8% (Trinomics, 2018). Investment in green infrastructure can contribute to meeting the emissions reduction target of the UK Climate Change Act 2008. Mitigating the impacts of subsidence from the tree roots, the need for extra lighting from the tree canopy cover and other conflicts with buildings and utilities will need to be taken into consideration.

Examples of such interventions that can be explored further are summarised in Table 4 .

Table 4: Summary of Green Infrastructure Energy Interventions

Green Infrastructure Energy Intervention	
Bioenergy	Green infrastructure can provide biomass heat and electricity generation derived from trees or agricultural residues (biofuel crops), which is deemed to be a renewable energy source. Green infrastructure can both capture and store carbon from the atmosphere, and provide biofuel, when it is managed in a way as to provide biomass (mowing, pruning, logging). If energy crops are to be regarded as green infrastructure, they must provide a net gain to the site-based biodiversity and the delivery of multiple ecosystem services. It depends on the species selected (indigenous or not) and the harvest cycle whether that is the case. Utilising timber from Essex woodlands for wood fuel is not easily achievable due to the small size and disparate location of these woodlands. However, a study by AGB Environmental on behalf of ECC and Thames Chase explored the local authority woodland resource and found the potential opportunities of coordinating small cluster of woodlands across the districts and boroughs. Due to 38% of all PM2.5 pollution is derived from woodburning fuels the use of biofuels will need to be carefully considered and managed.
Renewable Energy	Wind and solar farms could in some way be considered as a green infrastructure asset if managed correctly. These facilities are typically constructed on green infrastructure assets – Solar farms take up less than 5% of the land leaving scope to develop protected habitats to support local wildlife. A study in 2016 investigates whether solar farms can lead to greater ecological diversity when compared with equivalent undeveloped sites. The results of the botanical surveys revealed that overall, solar farms had greater diversity than control plots, and this was especially the case for broadleaved plants. This greater diversity was partly the result of re-seeding of solar farms of species-rich wild flower mixes and/or agricultural grass mixes. The report suggest that the findings are not only beneficial for wildlife but could also provide ecosystem services important for people and agriculture. For example, by becoming net producers of pollinating insects, which are in decline across the UK, solar farms can promote the health of surrounding crops such as cereals, vegetables, soft fruits and orchard fruits (Hannah Montag, 2018).
Nuclear	Bradwell in Essex is one of the proposed sites in UK for a new nuclear power station. Nuclear power projects are large energy infrastructure projects which, in most cases, would result in significant change of land use. This would likely lead to loss of green spaces to allow for construction and potential impact on the designated sites within the Essex estuary. There are opportunities involving the local communities to use green infrastructure within the landscaping of the nuclear site.

Further details on the green infrastructure energy interventions and recommendations to consider are set out in Appendix B10 (10.5).

Key Summary Chapter Actions

Promote green infrastructure:

- As a mitigation tool for Energy (i.e. energy production, reduce emissions and renewable infrastructure).
- To make urban areas liveable against the effects of climate change, through for example, insulating buildings, shading against UV rays and mitigating against the Heat Island effect.
- Policies and plans should maximise green infrastructure through making connections between energy and at least three or more of the following sectors: heritage assets; recreation and access; biodiversity and social exclusion, to ensure multi-purpose and functional use.

8.6 Health and Wellbeing

In addition to the important role green infrastructure plays in providing healthy and comfortable urban environments, access to green infrastructure also provides general health benefits. Green infrastructure not only provide clean air and clean water, it provides natural places to play and serves a green space for improving health and wellbeing.

PERFECT (2018), a European project, advocated that if a large proportion of health care budgets were redirected to prevention it could fund the enhancement of green infrastructure to deliver health benefit outcomes and avoid mental and physical health costs. Increased provision of and access to public green spaces will reduce the costs of treating ailments due to air and noise pollution. In general, more time outdoors and nearby green places (from countryside to green streets) creates an exposure to the healing effects of nature contributing to health. It provides benefits to:

- Health services – reducing costs for, and pressure on, services through:
 - Actively tackling the effects of mental ill health, obesity and key conditions and diseases such as cardiovascular illness, stroke, diabetes and dementia.
 - De-medicalising some conditions, such as mild to moderate anxiety and depression.
- Social care – reducing pressures on the services through:
 - The development of independent living skills and improved personal resilience.
 - Tackling social isolation and the health consequences of loneliness.

Considerations of the health and wellbeing benefits from green infrastructure should be integral to decision making across sectors, by completing a Health Impact Assessment. In addition, there are other opportunities to use green infrastructure to meet the needs of the community through the delivery and/or promotion of green care. Green Care is a wide range of treatment programmes which aim to improve people's mental and physical wellbeing through doing outdoor activities in nature.

Green care includes:

- Facilitated green exercise interventions;
- Social green prescribing by GPs referring to therapy or treatment programmes that take place in natural surroundings;
- Ecotherapy; and
- other nature-based solutions (i.e. horticulture, nature arts and crafts)

Health professionals working with providers of green spaces, sport activities (including those delivering equine therapy) and communities are well placed to use the natural environment as a resource, delivering green care. It should be possible for people to participate in therapeutic nature-based activities, wherever they live and give people a greater choice of ways to get active in the outdoors.

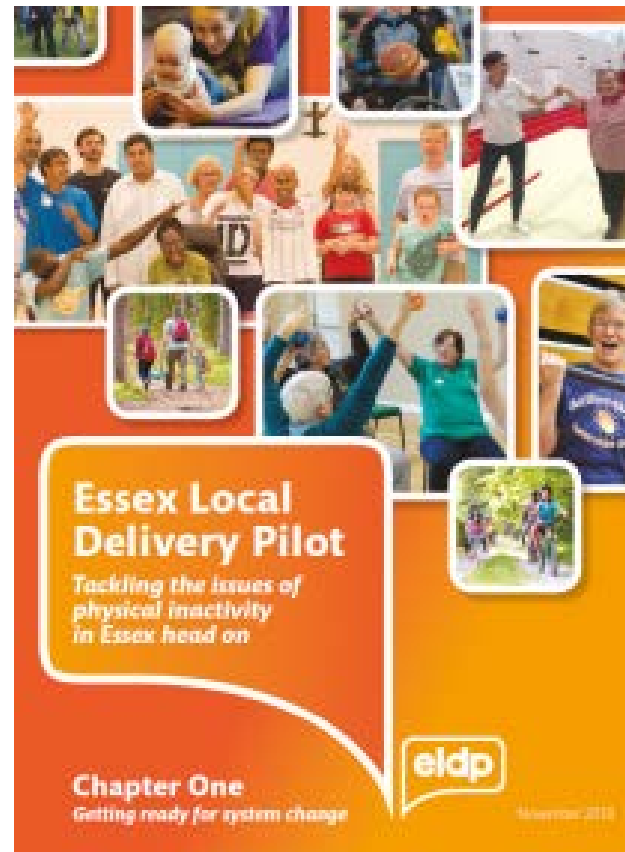
Case Studies

The case studies in Figure 13 provides examples of where there are opportunities to work in partnership to coordinate delivery of green care. While Appendix B10 (10.6) provides examples of recommendations for health professionals, sport and leisure, planning, transport, social care and economic development should consider as best practice to connect people with nature and improve health and wellbeing.

Essex Local Delivery Pilot

Figure 13: Evidence to action case study examples of green care opportunities

Essex is just one of 12 Local Delivery Pilots selected by Sport England nationally and all the pilots are deliberately focused on whole system change – the need for strong vision and leadership at the highest level and with the collaboration of all stakeholders, at all levels, being key. The aim is to create innovative partnerships that make it easier for people in these communities to access sport and physical activity, including use of green spaces.



The pilot is led by The Essex Health and Wellbeing Board and supported by Active Essex, Basildon Borough Council, Colchester Borough Council, Tendring District Council, the University of Essex and other partners. Basildon, Colchester and Tendring are three areas that represent 37% of all inactive people in Essex and are the focus areas for the Delivery Pilot.

Some of the findings from the test and learn pilots included:

Success factors identified for example:

- An accessible location which is safe, friendly, and welcoming.
- Strong and passionate leadership, typically comprising a paid leader supported by trained volunteers.
- A collaborative approach with a range of engaged partners.
- Effective use of community insight and engagement to understand the place and people and to co-produce projects and activities.

Factors that limit the success for example:

- Individual barriers faced by residents (e.g. long-term physical condition, child care needs, lack of confidence).
- Referral processes are currently not successful in introducing new participants to the projects.

There is a lack of knowledge and awareness by residents and providers of existing physical activity programmes.

www.activeessex.org/essex-local-delivery-pilot/

Metal Art School, Chalkwell Park, Southend-on-Sea Netpark & Wellbeing Project

Metal has been active in Southend-on-Sea since 2007. They support artists, working in all disciplines, at all career levels and work from buildings of historic significance like the renovated Georgian Chalkwell Hall, situated within the grounds of Chalkwell Park into vibrant cultural community hubs. Metal run activities and projects such as NetPark (the world's first Digital Art Park), and NetPark Wellbeing Project (short courses and sessions to encourage positive mental health).

NetPark was developed to create an added visitor attraction to the usual stroll in Chalkwell Park through the uses of a smart device apps. Building upon this NetPark Wellbeing Project uses the collection of apps to offer a free support system for people living with mental health and wellbeing concerns including dementia, creating a safe space for the community to make friends and explore their creativity.

Metal has been working with Southend Borough Council Public Health team and NetPark to provide one off sessions to weekly group activities, short courses and days out. The art therapy group works allows the attendees carers two hours free respite.

Achievements so far:

- 37 organisations involved.
- 806 people with mental health issues have participated. Patients have suffered from, depression, bi polar, isolation Post Stress disorder, paranoia etc.
- 1,234 hours of free art therapy has had been offered to those with dementia, by October 2017.
- 73% of participants said symptoms reduced.
- 43% of participants said reduced GP visits.

<http://www.metalculture.com/about-us/southend-on-sea/>



Key Summary Chapter Action

Promote community-led activity to enable inclusive use of green infrastructure, that will provide health and wellbeing benefits.

8.7 Education

Context and Benefits of Green Infrastructure to Learning

Green infrastructure provides learning opportunities as an ‘outdoor classroom’ relevant to both the National Curriculum and lifelong learning (e.g. forest schools and Continuing Professional Development). It is a valuable educational resource and has the potential to improve educational achievement, through improved concentration and self-esteem. Exploring the wider environment such as woodlands, ponds, wildlife areas help children and young people to learn a variety of skills through play and social interaction –stimulating the imagination and testing boundaries. These are essential for our children and young people to grow and learn.

Greening learning facilities means educational establishments with green outdoor environments allow children and young people to have safe, ready-made access to green places and engagement with nature, whilst improving their health and wellbeing. It can also provide other benefits such as mitigating flood risk, reducing air pollution and improving energy efficiency. Advancing environmental education of green infrastructure can help to showcase the social and ecological benefits of green infrastructure to peoples’ everyday lives, thus increasing awareness of the value of nature. Appendix B10 (10.7) provides examples of recommendations for those responsible for education and green spaces should consider in awareness raising and public engagement in delivering green infrastructure within schools and the community.

Green Infrastructure Educational Opportunities

- Green infrastructure offers the following educational opportunities:
- Formal and informal place-based learning in built and natural green

infrastructure settings.

- Using other green infrastructure for educational purposes that otherwise may not be perceived as educational (e.g., waste management facilities, and SuDs).
- Employment and higher educational opportunities in the green sector especially serving the demand of specialist input to maintain, expand and monitor the green infrastructure assets and their overall function as a network.
- Multi-benefit green infrastructure should be taught in all green infrastructure related sectors, by developing centres of excellence where possible. For example, in the field of green infrastructure and environmental technology covering subjects such as sustainable land management, renewable energy, bio-engineering and water management.

The opportunities to support initiatives to foster links between education and the environment include:

- Ensure the use of green infrastructure in schools and other educational premises (retrofitting in the playgrounds, gardens and buildings of existing and new builds).
- Outdoor classrooms - an outdoor learning space.
- Forest schools, – long term programmes within a natural space, led by a qualified practitioner. They focus on developing personal, social and emotional life skills through learner led, nature-based learning. There are opportunities for schools to become a qualified practitioner¹⁹
- Living laboratories – for example, wildlife habitats, weather stations, and grow your own.

19. Forest School - <http://forestschoools.com/>

Essex benefits from some valuable educational assets set in green infrastructure settings, such as Epping and Hatfield forests, the coasts and rivers. There is also a network of country parks and associated facilities providing a comprehensive range of learning opportunities, suitable for schools and other groups visits.

While some schools do deliver environmental education through Forest Schools, it is largely on an ad-hoc basis. An environmental education framework could be developed to improve facilities and establish a programme of activities with schools and children centres which meets curriculum-based needs and wellbeing of families, as well as creating positive use of school grounds, parks, woodlands and other green spaces.

The framework could build upon existing programmes and activities available such as Forest Schools and Wellies in the Woods project to help children and their families to feel more confident in using local green spaces as described in Figure 14.

Case Study

Figure 14: Evidence to action case study of outdoor education

Wellies in the Woods

Wellies in the Woods delivered by Groundwork East provides play sessions for parents and children based around wildlife exploration, creativity with nature and getting active. The project offered:

- a website funded by the Sylvia Adams Charitable Trust with outdoor activities,
- courses run by Groundwork East to help parents and children explore local wildlife and get creative with nature together, and
- training opportunities for staff at children centres and schools (and even social workers) to promote the importance of and continue to support families to enjoy the outdoors whatever the weather.

The activities are designed for children of pre-school age, but older children can also get involved. Wild play sessions are less about coaching or teaching and more about enjoying the outdoors through one-off or a short set of school holiday activities. There are activities to do for each of the seasons.

<https://www.welliesinthewoods.org.uk/>

Key Summary Chapter Actions

- Developments to enhance school grounds for environmental education and biodiversity or open links to green spaces to provide access for existing schools.
- Promote environmental education for encouraging hands-on-stewardship or restoration of green infrastructure, as well as provide opportunities for programmes such as Forest Schools and further education courses.

8.8 Agriculture

Context

Agricultural practices have had a significant impact on shaping the landscape character of Essex, with 68% of Essex designated as graded agricultural land (mapped in Figure 1 of Appendix B2). Agriculture is an important industry in rural communities. The agricultural system can also play a significant role in maintaining the health of our natural and cultural heritage (highly valued landscapes, structures and biodiversity influenced by natural processes and a long history of land management).

The Roles of Farmers in Green Infrastructure

- Farmers have a key role to play as custodians of the countryside to protect and enhance the natural environment and cultural heritage and to meet the needs in areas where opportunities for access and recreation are limited. It is important to encourage and build on their ethos of caring for the environment. Engaging farmers, therefore, in delivering green infrastructure can offer substantial social and environmental benefits, such as:
- Green infrastructure on agricultural properties can support farming production and provide additional ecological goods and services, such as biofuels etc.
- Green infrastructure features can retain stormwater for use during droughts while also filtering runoff, which reduces phosphorus loads and contributes to improving water quality.
- Buffers and hedgerows protect agricultural lands from wind and soil erosion, create green corridors providing vital habitat for wildlife, including pollinators. Along rights of ways on agriculture land they offer a more aesthetically pleasing alternative to standard chain link or wooden fences and provide visual screens, while helping define boundaries.
- Woods and forests offer the potential for very significant benefits in carbon sequestration; provide outdoor spaces for exercise and recreation; and also contribute to improving agricultural productivity.

A number of farmers are engaged in countryside and environment stewardship activities (shown in Appendix B2 Figure 2) and adopt management practices that include green infrastructure features, such as conserving and restoring wildlife habitats, landscape conservation, protection of the historic environment and woodland creation and management, all contribute significantly to the green infrastructure of the County, but more can be done at a local level to support them. There is a need to take into account their local context to work out how best to engage with the agricultural community. Especially with the potential opportunities that could be presented from the withdrawal from the European Union's Common Agricultural Policy (CAP), that originally governed the financial support or market interventions that certain crops and practices receive, that influenced how the land is farmed, food is grown and the state of the natural environment. It is optional for landowners and farmers to take up these subsidies and support. It is likely that some market intervention will remain, particularly in the short-term, after we leave the EU. The emerging new agricultural bill would also offer farmers environmental land management contracts, requiring them to sign up to specified measures to safeguard the natural environment, such as maintaining waterways, reducing harmful emissions and measures to reduce flooding, as well as public access to the countryside (Defra, 2018).

Agriculture and Green Infrastructure - Key Success Factors

A key success factor in integrating agricultural-related green infrastructure is to:

- Manage agricultural land to protect and enhance existing areas of wildlife habitat.
- Maximise opportunities for creating new habitats and filling gaps in ecological networks in agricultural landscapes, with particular attention to green corridor connectivity.
- Increase participation in agri-environmental stewardship schemes.
- It may require many individual farmers to coordinate their management to link green infrastructure on a regional scale across agricultural landscapes. For example, work with existing strategies such as Turtle Dove Friendly Zones; Essex beach-nesting birds Group and the Farming & Land Management Group around the Blackwater Estuary.
- Maximise the opportunity to promote the use of the farmland for outdoor recreation and improved public access for all user groups that could enhance the natural heritage, provide economic value to the industry and educational value, through well designed recreational developments such as farm trails, visitor centres, bridleways and access routes etc.
- Promote public access and enjoyment of the historic countryside by means for example, of information boards, way markers, supported by information and maps on-line.
- Choose robust native vegetation that is adapted to our climate and can withstand the nutrient loads associated with runoff.
- Explore effective management and maintenance regimes of verges and hedgerows to enhance biodiversity net gain.
- Use climate and environment-friendly farming practices (no pesticides, crop diversification, maintaining, existing permanent grasslands and creating and/or maintaining an ecological focus area of at least 5% of the arable area), as promoted by CAP.
- Explore opportunities to implement green infrastructure on agricultural land through for example:
 - Bioswale (wet or dry) - simple landscaping features used to slow, collect, infiltrate, and filter stormwater.
 - Dry pond - a drainage feature that can help reduce surface flooding. It is a man-made depression that captures stormwater runoff during a heavy rainfall.
 - Wet pond - a stormwater facility constructed through filling and/or excavation that provides both permanent and temporary storage of stormwater runoff.
 - Filter strip - are gently sloping, vegetated strips of land that provide opportunities for slow conveyance and infiltration used to reduce sediment, organics, nutrients, pesticides, and other contaminants from runoff and to maintain or improve water quality.
 - Hedgerow - are rows of trees, shrubs and/or vines along roads, and between fields and residential areas.
 - Riparian buffer - a vegetated “buffer-strip” near a stream, which helps to shade and serves as a buffer to pollutants entering a stream from runoff, controls erosion, and provides habitat and nutrient input into the stream.
 - Woodland Creation - recognising that there may be important opportunities for small scale tree planting, for example, on field margins, along water courses or on other (non-prime) arable land.

Green Infrastructure Support for Agriculture and Rural Land

Planting of a large riparian buffer zone or hedgerow can be expensive, but though partnership working with conservation trusts, local council authorities and community groups (e.g. 'Friends of' groups, student groups, scouts etc.) can help reduce the cost to implementing green infrastructure on agricultural land. This will also provide opportunities for public education.

Grant funding is available for planting new woodlands through the Forestry Commission, such as the planning the woodland grant²⁰ and the Woodland Carbon Fund (WCF)²¹. Under the WCF landowners, land managers, local authorities and public bodies can apply for support to plant large-scale productive woodland. The scheme offers capital funding for the creation of new productive woodland for carbon sequestration. This includes the planting of trees and costs of protection items including tree guards, fencing and gates. There is also funding for the installation of forest roads and recreational infrastructure. While, the Woodland Creation grant, which is part of the Countryside Stewardship scheme offers grants per hectare for planting new woodlands with an additional multi-annual small payment per hectare for a period of 10 years for eligible applicants, which can include payments for capital items²².

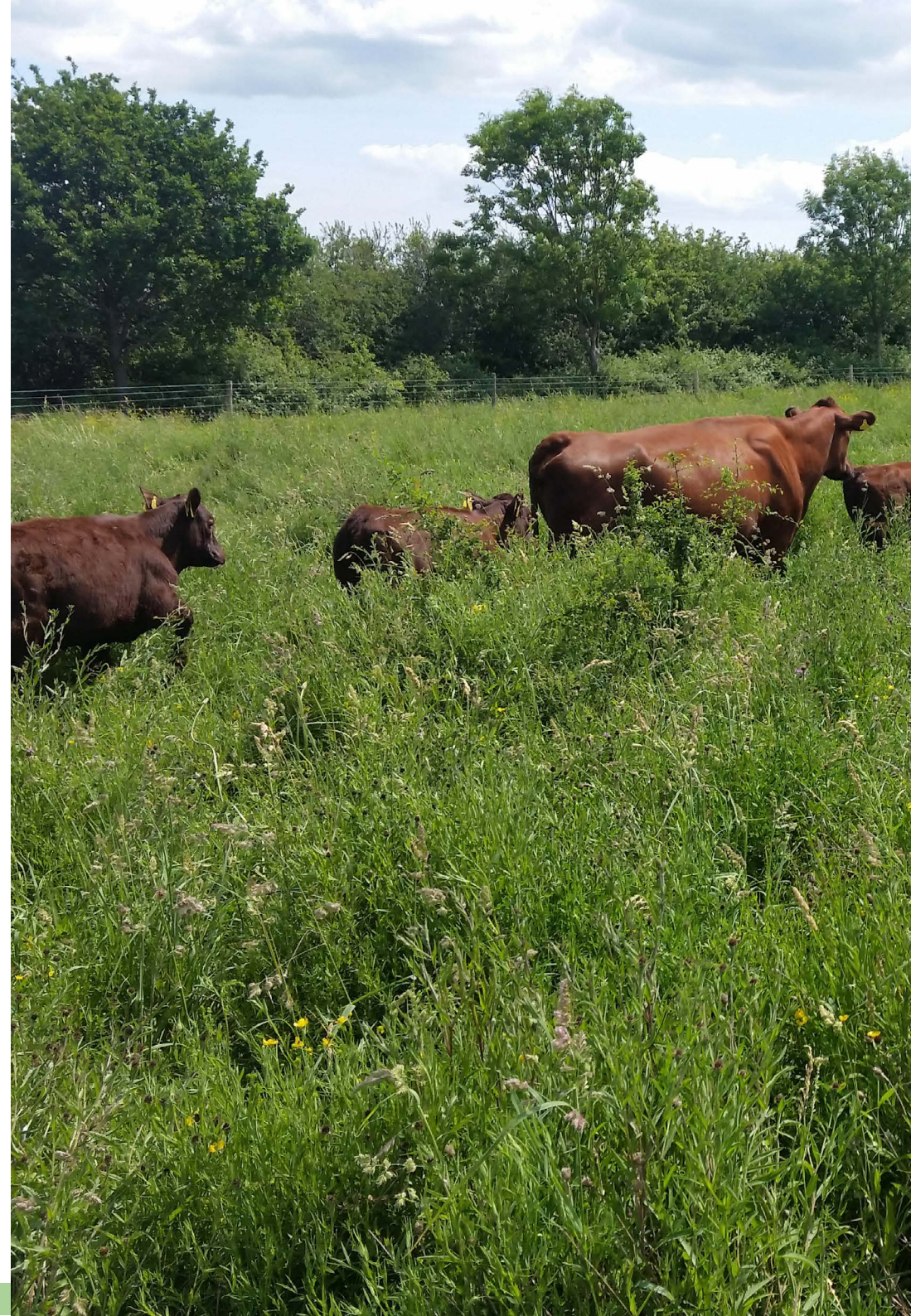
Key Summary Chapter Action

- Rural communities and associated stakeholders should be supported to create and enhance green infrastructure as a tool to address identified health and wellbeing needs.

20. Woodland Planning - <https://www.gov.uk/guidance/woodland-creation-planning-grant>

21. Woodland Carbon Fund - <https://www.gov.uk/guidance/woodland-carbon-fund>

22. Woodland Creation grant - <https://www.gov.uk/guidance/woodland-creation-grant-countryside-stewardship>



Implementation and Delivery of Strategy

Chapter 9

Image: Essex County Council



It is essential that this strategy translates its objectives and proposals into tangible actions and projects where they can be identified. This section sets out how green infrastructure actions and projects can be implemented and resourced.

The aim is to move away from looking at individual parts of the environment in isolation, towards a more joined-up, partnership approach which uses limited resources to secure the greatest gains for the environment and the sustainable economy, as well as the health and wellbeing of its communities. The green infrastructure approach provides opportunities to add value to existing programmes, by highlighting more sustainable solutions, making optimum use of existing budgets and resources to achieve multifunctional outcomes. This will help achieve the sustainability objective of the strategy.

The successful delivery of the strategy vision will be dependent on coordinated, targeted activity and strong working relationships with many partners including the local community.

Image: Essex County Council



9.1 Stakeholder Engagement

The purpose of the Essex Green Infrastructure Partnership is to optimise planning and delivery of green infrastructure in Essex. The partners represent a diverse range of interests, all focused on enhancing the natural and historic environment, whilst encompassing sustainability, health and wellbeing and the economy.

Working in partnership will help to achieve a coordinated, cross boundary and inter agency approach to the delivery of green infrastructure across the county and beyond. Delivery will be achieved in a wide variety of ways and with different bodies taking the lead through for example:

- Engagement with partners such as the Local Authorities on this issue, Planners, Landowners, Developers and other key Service Areas.
- Public Consultation.
- Essex Planning Officers' Association engagement.
- Workshop sessions, with key stakeholders to input into setting the strategic action priorities.
- Further green infrastructure mapping is to be undertaken and updated to form the evidence base for the strategic action priorities.

Equally important to ensure the green infrastructure is valued by people is to seek input and involvement, from local communities to tap into their local knowledge and give them a chance to shape the design. Green infrastructure is all about 'place making', in which the communities are their true owners. Getting buy in and support makes all the difference in getting a scheme to work, be sustainable and encourage community ownership and involvement such as volunteering. Communities can provide useful information on what existing green infrastructure should be kept, the best places for new connections, routes and linkages, and what new additions they would like in their area, be it allotments, cycle routes or parks. This can help foster community pride in the place.



9.2 Funding

Whilst there are traditional funding pots for green infrastructure such as Lottery, Section 106, charity funding etc, this strategy has shown that green infrastructure meets the objectives of many other sectors, and as such, there are a variety of potential projects and funding sources which can fund green infrastructure. Below are some examples:

- Government's High Street Fund bid where ECC are looking to invest £25 million in an Essex Town centre where reshaping of the centre will include green infrastructure.
- The programmed Pitsea Landfill restoration of 3.7km² in 2023, will create another huge area of green infrastructure in South Essex.
- Coast path implementation which is 100% funded by Natural England and first section of nine can now be implemented.
- Surface Water Amelioration Schemes from Essex Highways could include green infrastructure to absorb water.
- The Environment Agency and the water companies have funded new green infrastructure to create "Natural Flood Management".
- Community Access Fund, funding access to Lee Valley across Essex for groups to visit and be coached in the Lee Valley Park.
- The Active Essex partnership has won £10 million for the Essex Local Delivery Pilot from Government to enable local communities to access sport and other activities using local facilities, including green infrastructure.
- Anglian Water have a campaign called "Make Rain Happy" and want to soften landscapes to absorb water and plant a million trees over 25 years.
- Social Prescribing - Government announced social prescribing in late Jan 2019 as a way to link GPs with walking groups etc to utilise green infrastructure.
 - Highways schemes to lower pollution such as the A127 study which is providing cycleway infrastructure which is often also green infrastructure.
 - Green Space sponsorship to ensure their long-term management and offer opportunities to show case best practice.
- Recreational disturbance Avoidance and Mitigation Strategy could

consider the delivery of creating and improving appropriate green infrastructure within their mitigating projects. The 12 Councils in Essex will produce a shared mitigation strategy to identify the measures that are needed and how they will be funded and delivered.

- The Essex Forestry Initiative has earmarked a £500,000 Carbon reserve over 5 years to pay for 150 hectares of woodland or 375,000 trees with another £500,000 coming from Forestry Commission grants and partner contributions.

Much can be achieved with existing resources including invaluable volunteer efforts. This is especially important since public sector finances continue to be constrained across the county, therefore, there will be a need to work more efficiently with the resources that are available. This means identifying opportunities to deliver across outcomes, working in partnership and accessing external funding wherever possible to deliver our priorities.

Although a challenge, planning for the delivery of green infrastructure will need to consider and make arrangements, (whether through developers, landowners, community groups and managing companies) for the ongoing management and maintenance of the asset. As well as over time, to be assured that the benefits and functions are delivered and secured in the long term, therefore we will need to look at different ways of using revenue funding to secure long-term maintenance.

There are a range of grants and funding options available that will be explored, although they rely on the preparation and submission of applications and the outcome of competitive bidding processes. As a result, there will be a need to establish a coordinated approach to identifying and maximising funding opportunities, establishing mechanisms for co-delivery as appropriate. Table 7 in Appendix B13 describe the variety of funding sources will be derived from. Making this happen can take many years, but the results can transform an area for the better.

To fund green infrastructure, we require a flexible funding mechanism. A Green Essex Fund could act as a fund for endowments, donations, successful bid and other green infrastructure purposes (including maintenance). Whilst managed by ECC it could be steered and used by the wider Green Essex Partnership. It will require clear governance and terms of reference to define the purpose, objectives, roles and delivery of green infrastructure projects.

Figure 15 gives two examples where ECC has created financially self-sustaining green infrastructure to ensure its long-term management and maintenance; namely the Essex Country Parks and Essex Woodlands project.

Figure 15: Evidence to action case study example of self-sustaining funding

Essex Parks and Woodlands	Essex Woodland Project
Essex County Council manages 7 Country Parks to provide recreation, allow flora and fauna to flourish and protect history. The parks' maintenance and development are funded mainly through car parking costs. Additional incomes are derived from catering offers, commercial hire, admissions events, rental of areas of the park and film company hires. This diverse income stream is a good model for many green infrastructure venues to consider, making the parks self-sustaining, an important resource for today and the future. http://www.visitparks.co.uk/ 	The Essex Woodlands Project is an innovative and sustainable approach to the management of Essex County Council's woodland estate. It aims to sustainably manage remote (unstaffed) areas of woodlands in a way that minimises financial burdens on the Council. With little or no active management over the past ten years, the woodlands have suffered from overgrown paths, unmanaged habitats and historic features and outdated interpretation materials. Under a Countryside Stewardship agreement with the Forestry Commission and Natural England, Place Services will implement woodland management plans for 32 sites and a total area of 3km². This includes 3 sites which are designated Sites of Special Scientific Interest (SSSI) and 22 areas of ancient woodland (which are over 400 years old). Maintenance work will be undertaken in a sensitive way with the use of Suffolk Punch horses and will be supported by rangers, volunteers and partner organisations such as The Conservation Volunteers.

9.3 Timelines for Delivery

The strategy sets the framework for delivery but needs to be monitored and reviewed on an ongoing basis.

Key Summary Chapter Actions

- Green infrastructure needs continued investment and managing to ensure that the benefits from green infrastructure is maximised. This will be achieved through the creation of a Green Essex Fund and exploring other funding opportunities mentioned in this strategy. Contributions towards local green infrastructure projects will be sought where green infrastructure is provided as part of a development, applicants should also detail how it will be maintained in the long term.
- We will form better partnership working across Greater Essex to deliver a green infrastructure network.

Delivery - Action Plan

Chapter 10

Image: Essex County Council



The action plan will set out a programme of proposed actions and measures for implementation of the green infrastructure strategy to achieve the green infrastructure objective over the next 15 years. It is primarily intended to provide a framework for the coordination of green infrastructure planning and delivery as well as facilitating coordinated action by local partnerships and stakeholders in the public, private and voluntary sectors involved in the delivery and management of specific green infrastructure assets or sites. A wide variety of individuals, groups and organisations, in addition to Essex County Council and the Local Authorities in Essex, will have an important delivery role to play.

The Council will continue to work with partners to validate and programme the delivery priorities and emerging strategic projects and tasks and will develop further implementation plans. The action plan will be monitored, updated and reviewed to focus on delivery as and when resources become available and will respond to changing priorities and opportunities. A priority will be to agree and put in place an appropriate governance structure to oversee development of the action plan and to monitor progress.

The following action plan is broken down into the key themes aligned to the objectives and the proposals mentioned in chapter 6, as well as divided into four phases of priority. Phase one lists the actions and projects prioritised for years one and two of the strategy.



Phase One

Objective	Themes	Proposals	Actions
Protect	Re-designation of green infrastructure	Encourage and support the review of existing designations (i.e. SSSIs etc.) and local landscape designations to ensure their currency and maintain the accuracy of site information. Support the recognition and appropriate designation of new green infrastructure, e.g. Local Wildlife Site, Local Nature Reserve.	Discuss with Local Planning Authorities, Natural England, Essex Wildlife Trust and Place Services (Environmental consultancy to lead) regarding reviewing and re-designating (as LoWS etc.) the new green infrastructure as new designations e.g. Wallasea, South Essex Marshes, Thames Chase etc. taking into consideration the Assessments and Best and Most versatile Land analysis for agricultural land.
Improve	Marketing, branding & promotion	Create a Green Essex Network to develop, improve and promote Green Essex	Contact the green infrastructure Knowledge Hub group to liaise about the establishment of the Green Essex Network. The GE Network would comprise of the main green infrastructure managers, Landscape Planners and would coordinate the development of Green Essex.
Improve	Improve, repurpose and create new multi-functional green infrastructure	Public Realm green infrastructure improved to reduce pollution and improve character and sense of place	- Establish a tree planting programme of delivery for the Essex Forest Project 2019 – 2025 to address air quality issues and carbon reduction - Work with partners to develop local targets for increasing tree and woodland cover. - Work with Essex Highways to increase green infrastructure in the public realm.
Improve	Natural Flood Management techniques	Create Water Gardens, Green roofs and Bio-retention areas to absorb urban water	Working with MITIE and explore opportunities of garden roofs on ECC Estate and establish a volunteer Gardening Group.
Improve	Natural Flood Management techniques	Continue creating green spaces which also function as Natural Flood Management and SuDs schemes	- Seek funding from partners to address flooding but also create green spaces with multiple benefits and provide environment net gains. - Delivery Make Rainwater Happy – Flood prevention Programme
Create	Improve, repurpose and create new multi-functional green infrastructure/ Environment net gain & offsetting	Use planning policy to secure multi-functional green spaces within and beyond development site boundaries through the application of biodiversity net gain, biodiversity off-setting and the creation of compensation habitat and other green infrastructure promotion schemes.	Work with Essex Planning Officer Association (EPOA), Place Services and partners to develop the ‘biodiversity net gain’ methodology the first stage of development towards an environment new gain approach, to ensure wider benefits of the green space is realised (i.e. access for people). Pilot the methodology in Castle Point Borough Council area.

Phase One Continued

Objective	Themes	Proposals	Actions
Create/ Connectivity	Connect people green infrastructure through active travel	Develop the coast path in Essex in a sustainable manner.	• Contact Natural England about the status of the 9 stretches of coast path in Essex • Essex Highways to manage the delivery of the Essex Coast path • Improve access to the coast path using sustainable transport, signage etc utilising innovative funding such as the Coastal Communities Fund • Deliver “Path to Prosperity” in Tendring. • Provide a Hopper Bus
Create	Improve, repurpose and create new multi-functional green	Create green infrastructure in new developments such as Garden Communities, with best practice guidance on its design and management for multiple benefits.	• Continue to consult on green infrastructure on key documents, such as: • Essex Design Guide • Highways Plans • Local Plans • Garden Communities and villages proposals • Health Impact Assessments. • Establish a Green Infrastructure Garden Communities and Planning Development consultation service. • Create links to Best Practice for GI via a Green Essex website.
Inclusivity	Delivering environmental therapies and activities	Explore Environmental therapies and challenges across all social, demographic, ethnic and diversity groups and promote activities in green spaces.	• Liaise with Education service, Children’s services, health partners, Outdoor pursuits and Country Park to build upon existing programmes • To help develop young people and provide activities across all social groups.
Health and Wellbeing	Marketing, branding & promotion	Develop and Promote Health and Wellbeing through green infrastructure activities.	• Liaise with Public Health and Health and Wellbeing Boards in District, Borough and City to assess health deficiency areas and propose green activities such as walking and other physical activities. • Work with Active Essex and Active Southend on their projects to better use green spaces to encourage more people to be active.
Sustainability	Improve, repurpose and create new multi-functional green infrastructure	Create a Green Essex Fund for endowments, fund raising bids, donations etc. in conjunction with the development of a Green Essex Network.	• Set up a fund in conjunction with Essex Finances and steered by the Green Essex Network and Partnership. • Ensure funding includes managing volunteers and maintenance programmes, terms of reference and clear governance processes.

Phase Two

Objective	Themes	Proposals	Actions
Protect	Marketing, branding & promotion	Highlight green infrastructure in Essex in terms of their multi-functionality and benefits – through rebranding Essex as Green Essex with 1,978 designations.	Working with Visit Essex, Essex Communications and partners to develop a pan Essex Marketing Strategy to create a brand for Green Essex that also promotes local identifies and brands
Protect	Environment net gain & offsetting	Embedding an ‘environmental net gain’ principle for development, including housing and infrastructure.	Create the methodology of the ‘environmental net gain’ principle so it can be used in the following guides/plans: • Essex Design Guide • Highways Plans • Local Plans • Garden Communities and villages proposals • Walking Strategy, Cycle & Walking Improvement Plans, Cycle Action Plan, Rights of Way Improvement Plan. • Essex Planning Officers’ Association (EPOA) Healthy Places guidance notes • Work with EPOA, Place Services and partners to develop the ‘environmental net gain’ methodology.
Improve	Improve, repurpose and create new multi-functional green infrastructure	Encourage better management of green infrastructure to benefit locally native species, focussing on recognised nature conservation priorities.	Promote locally native species in the rural environment; otherwise consider species selection in urban areas and new developments balanced with other attributes such as visual quality, scent, size, all year interest, autumn colour etc.
Improve	Improve, repurpose and create new multi-functional green infrastructure	Public Realm green infrastructure improved to reduce pollution and improve character and sense of place.	• Development and coordination of cycling and walking strategies to deliver green infrastructure within those projects. • Working with rural communities, landowners and other relevant bodies (i.e. EA, NFU, CLA, MOD, EH etc.) in delivering landscape, biodiversity, heritage and access enhancements through existing and potential future environmental stewardship programmes. • Explore opportunities to greening town centres for air pollution amelioration through the creation of Parklets

Phase Two Continued

Objective	Themes	Proposals	Actions
Improve	Natural Flood Management techniques	Continue creating green spaces which also function as Natural Flood Management and SuDs schemes.	- Seek funding from partners to address flooding but also create green spaces with multiple benefits and provide environment net gains. - Delivery through development management on major development sites.
Create/ Connectivity	Connect people to green infrastructure through active travel	Develop the coast path in Essex.	Market and promote the coast path through Visit Essex, Comms and other partners.
Connectivity	Connect people to green infrastructure through active travel	Restore and promote Essex promoted paths.	Liaise with Public Rights of Way team, Country Park, community groups and other partners to assess condition of current paths and prioritise promotion and any improvement works needed or recommendations for new and better paths.
Create	Connect people to green infrastructure through active travel	Create Town or village circular routes especially in areas of green infrastructure deficiency.	Seek sponsorship for a pilot circular village route(s) competition. Liaise with Parish Councils, District, City and Borough Councils, Active Essex, Active Southend, Local Health and Wellbeing teams and/ or Village groups to deliver circular route.
Connectivity	Connect people to green infrastructure through active travel	Establish Inter connecting paths between green infrastructure, that provides access for all.	Using the UEA mapping to identify greenway routes which realise most multiple benefits by connecting green infrastructure , wildlife and landscape.
Inclusivity	Marketing, branding & promotion	Promote activities to raise awareness of green infrastructure and its benefits across all social, demographic, ethnic and diversity groups.	- Provide support to groups through activities, provision of site maps, and design of sites, such as sensory gardens/walks, improved signage etc. - Promote and make wider use of Parks and other open spaces e.g. for community events, park runs, markets, walking and cycling loops, outdoor gyms and natural play areas.
Health and Wellbeing	Delivering environmental therapies and activities	Explore Environmental therapies delivered through mental health services.	Liaise with Mental Health Agencies, wider health partners and community voluntary sector to develop Green Activities such as green gym, eco-therapies, guided walks.

Phase Three

Objective	Themes	Proposals	Actions
Protect	Improve, repurpose and create new multi-functional green infrastructure	Coordinate the protection of coastal green infrastructure through the Essex Coast Recreational disturbance Avoidance and Mitigation Strategy (RAMS).	Engage with Place Services and partners to develop the RAMS schemes to protect important nature conservation sites in Essex.
Improve	Improve, repurpose and create new multi-functional green infrastructure	Support the development of new Visitor Centres and facilities.	Liaise with ECC Country Parks and partners to support new Visitor Centre improvements and facilities in the Country Parks.
Improve	Improve, repurpose and create new multi-functional green infrastructure	Public Realm green infrastructure improved to reduce pollution and improve character and sense of place.	- Working with health and flood partners to seek funding to create a green infrastructure Pilot project to support people to lead healthier lives. - Seek funding to improve the public realm for pollution and other benefits.
Create/ Connectivity	Connect people to green infrastructure through active travel	Develop the coast path in Essex in a sustainable manner.	Liaise with Highways about the opening of further sections of the coast path in Essex.
Create	Marketing, branding & Promotion	Increased access to the Outdoor Pursuits Centres.	Liaise with Outdoor Pursuits Centres, Active Essex, Active Southend and Country Parks to explore extending the Outdoor Pursuits offer.
Create	Improve, repurpose and create new multi-functional green	Establish green infrastructure as part of Minerals and Waste restorations with reference to nature conservation priorities e.g. Pitsea Landfill.	- Consult on green infrastructure after use with Mineral and Waste Planners. - Liaise with Mineral and Waste Planners as minerals and waste sites are prepared for restoration and after care as green space to maximise green infrastructure value.

Phase Three Continued

Objective	Themes	Proposals	Actions
Connectivity	Connect people to green infrastructure through active travel	Establish Inter connecting paths between green infrastructure.	Use this map to identify gaps and missing links in the greenways network to be prioritised and apply the principle of least restrictive access (considering wildlife and people separately).
Inclusivity	Marketing, branding & promotion	Explore Environmental therapies and challenges across all social, demographic, ethnic and diversity groups and promote activities in Green spaces e.g. mountain biking, Go Ape, Geocaching, arts and crafts, etc.	Promote activities in Country Parks, Outdoor Pursuits centres, Active Essex, Active Southend and partner sites to develop activities for all social groups, including youth orientated activities.
Health and Wellbeing	Delivering environmental therapies and activities	Explore Environmental therapies delivered through mental health services.	Better promotion and tailor Green Therapies to mental health service users.
Health and Wellbeing	Marketing, branding & promotion	Develop and Promote health and wellbeing through green infrastructure activities.	Improve attractiveness of site facilities through improved signage (e.g. destination information, maps), amenities (e.g. seating, toilets) and ensuring accessible.
Sustainability	Improve, repurpose and create new multi-functional green infrastructure	Develop new and existing facilities that will generate revenues.	• Liaise with green space managers to identify potential income generation facilities, including a creation of a Green Discovery Park. • Identify the relevant funding streams to create new facilities via the Green Essex Network • Cross reference actions within the Local Planning Authority's green infrastructure strategies with the Essex Green Infrastructure Strategy to ensure the strategies are aligned and create opportunities for collaboration via the Green Essex Network • Work with the districts to help draft and/or deliver their Green Infrastructure Strategies to add value and ensure a coordinated approach via the Green Essex Network

Phase Four

Objective	Themes	Proposals	Actions
Improve	Marketing, branding & promotion	Better marketing & promotion of green infrastructure to increase use and income.	Working with Visit Essex, ECC Comms and partners to develop a pan Essex Marketing Strategy to: - Promote new Visitor Centres and facilities. - Creation of a Green Essex promotion – a network for pan Essex green space and facilities marketing. Promote public access and enjoyment of the historic countryside) (e.g. by means of information boards supported by information and maps on-line.
Improve	Improve, repurpose and create new multi-functional green infrastructure	Public Realm green infrastructure improved to reduce pollution and improve character and sense of place.	Explore and Implement an Essex Green Permit Scheme, allowing locals to adopt and green up areas within the public realm.
Improve	Natural Flood Management techniques	Create Water Gardens, Green roofs and Bio-retention areas to absorb urban water.	Liaise with Essex Highways and Floods teams to seek funding for the provision of green infrastructure and SuDS (Sustainable Drainage Systems).
Create/Connectivity	Connect people and wildlife to green infrastructure through active travel	Develop the coast path in Essex.	Collaborate with Visit Essex and Culture to develop events on the coast increasing the cultural offer of the coast.
Create	Improve, repurpose and create new multi-functional green infrastructure	Develop green infrastructure as part of Minerals and Waste restorations with reference to nature conservation priorities e.g. Pitsea Landfill.	- Explore opportunities to create a Green Discovery Park, showcasing green Infrastructure, solar energy, SuDS, climate resilient planting, Waste and Recycling and electric vehicle charging and sustainable visitor centre as a multi-functional and educational site. - Provide green infrastructure training for Minerals and Waste planners.

Phase Four Continued

Objective	Themes	Proposals	Actions
Create/ Connectivity	Improve, repurpose and create new multi-functional green infrastructure/ Environment net gain & offsetting	Strategically identify priority areas for the creation or improvement of green infrastructure that could provide most benefit for locally native species of recognised nature conservation priority and enhance local landscape character. Use new green infrastructure provision to buffer or extend existing designated sites.	Action to be confirmed Work with EPOA, Place Services, Essex Wildlife Trust and partners to develop the 'environmental net gain' methodology.
Connectivity	Connect people to green infrastructure through active travel	Establish Inter connecting paths between green infrastructure.	Seek funding from various benefit funders to create inter connecting paths.
Connectivity	Connect people to green infrastructure through active travel	Restore and promote Essex promoted paths.	Seek funding (local and national) to fund promotion and infrastructure to those paths identified for improvements.
Health and Wellbeing	Marketing, branding & promotion	Develop and Promote Healthcare and wellbeing through green infrastructure activities.	Raise the profile of these facilities through marketing, advertising locally and on the internet, such as Visit Essex.
Sustainability	Marketing, branding and promotion	Create a distinct Green Essex identity through the development of a Green Essex Network to encourage a strong community engagement through the pan Essex Marketing Strategy and brand for Green Essex that also promotes local identities and brand.	Partnership working with stakeholders and community groups to provide and maintain green infrastructure.

Strategy Review

Chapter 11

Image: Essex County Council



To ensure that the vision, objectives and actions proposed by this strategy continue to be met, evaluation and monitoring will be undertaken as shown in Figure 16. This will allow progress to be continually monitored, allow the strategy to be responsive to legislative change and remain current and on track to achieve its vision. The planning, funding and provision of green infrastructure will continually be improved, and current best practice followed. This strategy is intended to be a ‘live’ document that is regularly reviewed so that it can maintain the essential characteristics of the county’s environment into the future.



Figure 16: Review and Monitoring Process

References

Chapter 12

Image: Essex County Council



Active Essex. (2017). Changing 1 million lives to get Essex active: Active Essex Our Strategy; 2017-2021. Active Essex.

Active Essex. (2017). Sports & Physical Activity Profile: Greater Essex. Retrieved from Active Essex: <https://www.activeessex.org/wp-content/uploads/2017/11/JSNA-Report-Greater-Essex.pdf>

Active Essex. (n.d.). Hadleigh Park. Retrieved from Essex County Council: <http://hadleigh-park.co.uk/>

AECOM. (2018). North Essex Garden Communities, Garden Communities Charter, June 2016. Retrieved from Braintree.gov.uk: https://www.braintree.gov.uk/download/downloads/id/5787/garden_communities_charter.pdf

Beckett, K. Freer-Smith, P.H. Taylor, G. (1998). Urban woodlands: their role in reducing the effects of particulate pollution. 99, 340–360: Beckett, K.P., Freer-Smith, P.H. & Taylor, G. (1998). Urban woodlanEnvironmental Pollution.

BlueSky. (2017). National Tree Map. Retrieved from BlueSky Map Shop: <https://www.blueskymapshop.com/products/national-tree-map>

BTCV. (2008). Inspiring People, Improving Places: The positive impact and behavioural change achieved through environmental volunteering with BTCV. BTCV.

BLDGRC. (2016 & 2019). Integrating Spatial Data Sources to Develop a Representative of Green Infrastructure for Local Government. ESRC Business & Local Government Data Research Centre.

BLGDRC, A. Lovett & G Sünnerberg. (2019). Spatial data integration and analysis to support the Essex Green Infrastructure Strategy. ESRC Business and Local Government Data Research Centre.

Building with Nature. (2019). Building with Nature - a green infrastructure benchmark. Retrieved from Building with Nature: <https://www.buildingwithnature.org.uk/>

CABESpace. (2005). Decent Parks? Decent Behaviour? The link between the quality of parks and user behaviour. <https://forestry.gov.scot/images/corporate/pdf/CABEDecentparksDecentBehaviour.pdf>: CABE.

CABESpace. (2010). Community green: using local spaces to tackle inequality and improve health. Design Council.

CABESpaces. (2014). The value of Public Spaces, How high quality parks and public spaces create economic, social and environmental value, Design Council . www.designcouncil.org.uk/sites/default/files/asset/document/the-value-of-public-space1.pdf : CABE.

Chambers & Ellis Butlin. (2011). The Value of Mapping Green Infrastructure. Retrieved from MerseyForest.org.uk: https://www.merseyforest.org.uk/files/The_Value_of_Mapping_Green_Infrastructure_pdf.pdf

CIRIA. (2007). Building Greener: Guidance on the use of green roofs, green walls and complementary features on buildings . CIRIA, Report No.C644.

CLES & Groundwork. (2007). The contribution of the local economy to the local environment. www.cles.org.uk.: CLES.

Coombs, E, Jones, A. & Hillsdon. M. (2010). Objectively measured green space access, green space use, physical activity and overweight. Society of Science and Medicine; 70(6):816-22.

Countryside Agency. (2005). “WHAT ABOUT US?” Diversity Review evidence – part one Challenging perceptions: under-represented visitor needs. Forestry Commission, Defra, English Nature, Rural Development Services, Countryside Agency, Landscape Access Recreation

Davies, Z. G. Edmondson, J.L. Heinemeyer, A.. Leake, J.R. & Gaston, K.J. (2011). Mapping an urban ecosystem service: Quantifying above-ground carbon storage at a city-wide scale. Journal of Applied Ecology, 48(5), 1125-1134.

Defra. (2011). Natual Environment White Paper. Retrieved from Gov.uk: <https://www.gov.uk/government/publications/natural-environment-white-paper-implementation-updates>

Defra. (2018, February). Health and Harmony: the future for food, farming and the environment in a Green Brexit. Retrieved from Government UK: Withdrawn

Duffy, A.. Jefferies, C.. Waddell, G.. Shanks, G. Blackwood, D. & Watkins, A. (2008). A cost comparison of traditional drainage and SUDS in Scotland. Water Science & Technology, 57, 1451-1459.

Essex Coast Recreational disturbance Avoidance and Mitigation Partnership. (2019). Bird Aware Essex Coast. Retrieved from Bird Aware: <https://essexcoast.birdaware.org/home>

Essex County Council. (2017). Essex Organisation Strategy. Retrieved from Essex.gov.uk: https://www.essex.gov.uk/Documents/Organisation_Strategy.pdf

Essex County Council. (2012). Local Transport Plan. Retrieved from Essex County Council: <https://www.essexhighways.org/highway-schemes-and-developments/Local-Transport-Plan.aspx>

Essex County Council. (2016). Essex Joint Strategic Needs Assessment: Health and Wellbeing Report for Essex 2016. ECC.

Essex County Council. (2017). Greater Essex Growth and Infrastructure Framework: 2016-2036. AECOM.

Essex County Council. (2018). Essex Country Parks. Retrieved from Essex County Council: <http://www.visitparks.co.uk/>

Essex County Council & Place Services. (2018). Local Flood Risk Management Strategy. Collective Intelligence Sustainable Solutions.

Essex Health & Wellbeing Board. (2012). Joint Health & Wellbeing Strategy for Essex 2013-2018. ECC.

Essex Wildlife Trust. (2009). Analysis of Accessible Natural Greenspace Provision for Essex. http://www.essexbiodiversity.org.uk/app/webroot/files/PDF_files/EWT_ANGSt_document.pdf: Natural England.

Essex Wildlife Trust. (n.d.). Abberton Reservoir Visitor Centre. Retrieved from Essex Wildlife Trust: <http://www.essexwt.org.uk/reserves/abberton-reservoir>

European Economics. (2017). The economic benefits of woodland: A report for the Woodland Trust . Woodland Trust.

Fields in Trust. (2018). Revaluing Parks and Green Spaces: Measuring their economic and wellbeing value to individuals . www.fieldsintrust.org/Upload/file/research/Revaluing-Parks-and-Green-Spaces-Report.pdf : Fields in Trust.

Fields in Trust. (2015). Guidance for outdoor sport and play. Retrieved from Field in Trust: <http://www.fieldsintrust.org/guidance>

Forestry Commission. (2002). National Inventory of woodlands and trees: England; County Report for Essex. Forestry Research; Forestry Commission.

Forestry Commission. (2010). The Case for Trees in Development and Urban Environment. www.forestry.gov.uk/forestry/INFD-88NFN2: Forestry Commission England.

Forestry Commission. (2012). Economic benefits of greenspace: Research Report. <https://www.forestryresearch.gov.uk/documents/750/FCRPo21.pdf> : Forestry Commission England.

Forestry Commission. (2013). Air Temperature Regulation by Urban Trees and Green Infrastructure. Forestry Commission Research Note. <https://www.forestryresearch.gov.uk/research/air-temperature-regulation-by-urban-trees-and-green-infrastructure/>: Forestry Commission England.

Forests School Education. (2018). Forests School. Retrieved from Forests School: <http://forestschoools.com/>

Gen Consulting. (2006). Glasgow Green Renewal Benefits Analysis. Report to Glasgow City Council . Gen Consulting.

Gensler. (2011). Open Space: As asset without a champion?: Report for the Urban Investment Network. www.gensler.com/research-insight/gensler-research-institute/open-spaces-1: Gensler and the Urban Land Institute.

Gilbert & Norton, L. Wilson, R. Stevens, J.R. & Beard, K.H. (2010). A Meta-Analytic Review of Corridor Effectiveness. <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1523-1739.2010.01450.x> : Conservation Biology.

Gill, S., Handley, J. Ennos, A. & Pauleit, S. (2007). Adapting cities for climate change: the role of green infrastructure . Built Environment, 33 (1), 115–133.

Gov.UK. (2018). 2005 to 2016 UK local and Regional CO₂ emissions – data tables. Retrieved from Gov.uk: <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-2016>

Government. (2010). Healthy lives healthy people: our strategy for public health in England. Retrieved from Gov.uk: <https://www.gov.uk/government/publications/healthy-lives-healthy-people-our-strategy-for-public-health-in-england>

Government. (2018). 25 Year Environment Plan. Retrieved from Gov.UK: <https://www.gov.uk/government/publications/25-year-environment-plan>

Government. (2018). Draft Road Investment Strategy 2. Retrieved from Gov.UK: <https://www.gov.uk/government/publications/draft-road-investment-strategy-2-government-objectives>

GreenSpace. (2011). Understanding the Contribution Parks and Green Spaces can make to Improving People's Lives . https://moderngov.lambeth.gov.uk/documents/s56922/02%20value_of_green_space_report1.pdf : GreenSpace.

Gorundwork East. (2018). Wellies in the Woods: Lets play outdoors. Retrieved from Wellies in the Woods: https://www.welliesinthewoods.org.uk/?_sm_au_=iZVRHmtrDp5rqRN

- Houses of Parliament. (2013). Houses of Parliament Post Note: Urban Green Infrastructure. Parliamentary Office of Science & Technology, No 448, November 2013.
- Houses of Parliament. (2016). Houses of Parliament Post Note: Green Space and Health. Parliamentary Office of Science & Technology, No 538, October 2016
- Ibex Earth. (2018). The Benefits of Urban Greening. Ibex Earth; Interreg 2 Seas Mers Zeeen NSCitizS.
- ldwa. (2018). Long Distance Paths. Retrieved from Long Distance Walks Association: <https://www.ldwa.org.uk/index.php>
- Jarques, S. (2015). Economic Impact of Tourism Essex 2015, Destination Research. Retrieved from Visit Essex: <http://mediafiles.thedms.co.uk/Publication/EE-EssW/cms/pdf/Economic%20Impact%20of%20Tourism%20-%20%20Essex%202015.pdf>
- Landscape Institute. (2013). Public Health and Landscape Creating healthy places: Landscape Institute Position Statement. https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/migrated-legacy/PublicHealthandLandscape_CreatingHealthyPlaces_FINAL.pdf: Landscape Institute.
- Local Communities & Government, C. &. (2012). National Planning Policy Framework. Retrieved from Gov.UK: <https://www.gov.uk/government/publications/national-planning-policy-framework-2>
- Local Communities & Government, C. a. (2018). National Planning Policy Framework. Central Government.
- Metal. (2019). Metal Southend on Sea. Retrieved from Metal: <http://www.metalculture.com/about-us/southend-on-sea/>
- Met Office. (2009). UKCP09. Retrieved from UK Climate Projections: <http://ukclimateprojections.metoffice.gov.uk/21678>
- Montag, H. Park, Dr.G. & Clarkson, T (2018). The effects of solar farms on local biodiversity. Retrieved from www.solar-trade.org.uk
- National Trust, N. (2018). Our vision for the future of parks and Future Parks toolkit. Retrieved from National Trust: www.nationaltrust.org.uk/features/our-vision-for-the-future-of-parks
- Natural England. (2009). Natural England Technical Information Note TINo55: An estimate of the economic and health value and cost effectiveness of the expanded Walking Health Initiative scheme. Natural England.

Natural England. (2010). The National Archives: Accessible Natural Greenspace Standard (ANGSt). Retrieved from Natural England: https://webarchive.nationalarchives.gov.uk/20140605111422/http://www.naturalengland.org.uk/regions/east_of_england/ourwork/gi/accessiblenaturalgreenspacestandardangst.aspx

Natural England. (2015). Green Bridges: A literature review (NECR181) produced by LUC; Access to Evidence. Retrieved from Natural England.org: <http://publications.naturalengland.org.uk/publication/6312886965108736>

Natural Environment Research Council. (2019). Green Infrastructure Planning Policy Assessment Tool. Retrieved from Mainstreaming Green Infrastructure: <https://mainstreaminggreeninfrastructure.com/project-page.php?green-infrastructure-planning-policy-assessment-tool>

Natural Learning Initiative. (2012). Benefits of Connecting Children with Nature: Why Naturalize Outdoor Learning Environments. Natural Learning Initiative | College of Design | North Carolina State University.

Naylor, L. H. (2018). Appendix four:Greening the Grey: a framework for integrated green grey infrastructure (2017). Retrieved from University of Glasgow: <http://eprints.gla.ac.uk/150672/42/150672Appendix4.pdf>

Office for National Statistics. (2018). Deaths registered by area of usual residence, UK. Retrieved from Office for National Statistics: <https://www.ons.gov.uk/releases/deathsregisteredbyareaofusualresidenceuk2018>

Office for National Statistics. (2014). Census 2011. Retrieved from Office for National Statistics: <https://www.ons.gov.uk/census/2011census>

Office for National Statistics. (2016). Subnational Population Projections, 2014-based Projections. Office for National Statistics.

OpenNESS. (2017). Draft - Testing the resilience of biodiversity offsetting to climate change in Essex. University of Oxford: University of Oxford and Guy Duke, The Environment Bank Limited.

PERFECT. (2018). PERFECT Expert Paper 1: health, wealth and happiness - the multiple benefits of green infrastructure. Retrieved from Interreg Europe: https://www.interregurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1535017470.pdf

Place Services. (2017). Essex State of the Environment: Essex Natural Capital Asset Check Base Line report. ECC.

Place Services. (2018). Essex Woodland Project. Retrieved from Essex Woodland Project: <https://www.essexwoodlandproject.org/>

Public Health England. (2018). Public Health Outcomes Framework: Wider Determinants of Health Tool; . Retrieved from Public Health England: <https://fingertips.phe.org.uk/profile/wider-determinants/data#page/0/gid/1938133043/pat/6/par/E12000006/ati/102/are/E10000012>

QAResearch. (2016). Essex Resident Survey 2016 for Essex County Council. QA Research.

Qian, Y. & Follett, R.F. (2002). Assessing Soil Carbon Sequestration in Turfgrass Systems Using long-Term Soil Testing Data. Agronomy Journal, 94, 930-935.

Southend On Sea Borough Council. (2016). Physical Activity Strategy 2016-2021. Southend On Sea Borough Council.

TCPA. (2019). Garden city Principles. Retrieved from Town and Country Planning Association: <https://www.TCPA.org.uk/garden-city-principles>

TGIC. (2017, August 24). The Greening Permit In Paris. Retrieved from The Green Infrastructure Consultancy: <https://greeninfrastructureconsultancy.com/the-greening-permit-in-paris/>

The Ramblers & TCPA. (2018). Walking in urban parks and green spaces. The Ramblers and the Town and Country Planning Association .

Trinomics, Alterra, Arcadis, Regional Environment Centre, Risk & Policy Analysis, Stella Consulting (2018). Green Infrastructure in the Energy Sector. Retrieved from European Commission: http://ec.europa.eu/environment/nature/ecosystems/pdf/Green%20Infrastructure/GI_energy.pdf?_sm_aui=iZVnktSjRrHSJRQJ

UK Habitat Classification Working Group (2018). UK Habitat Classification. Retrieved from UK Habitat Classification Working Group: <http://ecountability.co.uk/ukhabworkinggroup-ukhab/>

VisitBritain. (2013). Overseas Visitors to Britain's Parks and Gardens Spend £7.8 Billion. <https://travelpnews.com/visitbritain-overseas-visitors-to-britains-parks-and-gardens-spend-7-8-billion-53245678976578/travel-press-release/2013/06/11/> : Visit Britain.

Woodland Trust. (2017, May). Space for People: Targeting action for woodland access: Policy Paper. Retrieved from Woodland Trust: <https://www.woodlandtrust.org.uk/publications/2017/06/space-for-people-woodland-access/>

Worcestershire County Council. (2015). Viability, valuation and funding of green infrastructure on new development sites. Worcestershire County Council.

List of Appendices

Appendices Part A

- Appendix A1 – Public Consultation - Residents Highlights
- Appendix A2 - Public Consultation - Organisations and Community Groups Highlights
- Appendix A3 - Stakeholder workshop
- Appendix A4 - Strengthening the Essex Green Infrastructure Strategy workshop

Appendices Part B

- Appendix B1 – Glossary
- Appendix B2 – Map of Productive Spaces and the Agricultural Land Classification
- Appendix B3 – Environmental Character of Greater Essex
- Appendix B4 - Green Infrastructure Asset Data
- Appendix B5 – The Essex Context
- Appendix B6 – Percentage of Green Infrastructure and Graded Agricultural Land in each Local Authority Area
- Appendix B7 - Green Infrastructure Asset GIS Analysis
- Appendix B8 – The Benefits to Essex from Green Infrastructure
- Appendix B9 - Access and Inclusivity to Green Infrastructure Provision
- Appendix B10 – Green Infrastructure Recommendations
- Appendix B11 – Map of the Proposed Development Sites in Essex
- Appendix B12 – Map of Public Rights of Way & Cycle Network
- Appendix B13 – Potential Funding Sources

Appendices Part C

- Appendix C1 – Technical Research Paper – Green Infrastructure Spatial Analysis by University of East Anglia
- Appendix C2 – Health Impact Assessment

This information is issued by

Essex County Council

Contact us:

environment@essex.gov.uk

Environment and Climate Action

Essex County Council

Chelmsford

CM1 2QH

Visit us at:

www.essex.gov.uk



Essex_CC



facebook.com/essexcountycouncil

The information contained in this document can be translated,

and/or made available in alternative formats, on request.

Published 2020

Essex Green Infrastructure Strategy

Consultation Summaries

A strategy that champions for high quality green space and green infrastructure in Essex

2020



Image: Essex CC



Essex County Council

Contents

13

Introduction		3
Appendix A1	Public Consultation - Residents Highlights	4
Appendix A2	Public Consultation - Organisations and Community Groups Highlights	16
Appendix A3	Stakeholder Workshop	25
Appendix A4	Strengthening the Essex Green Infrastructure Strategy Workshop	58



Chapter 13 Introduction

This report provides an overview of the public and stakeholder county-wide consultation undertaken on the draft Essex Green Infrastructure Strategy (formally known as Green Essex Strategy). Consultation on the strategy was undertaken from Friday 3 May until Friday 5 July 2019 for a nine-week period. Comments were submitted through formal representations on Essex County Council website, email, post and via the stakeholder workshop. This consultation will help inform the further development of the Essex Green Infrastructure Strategy and help identify priority actions for delivery, ultimately influencing the protection, improvement, creation and connectivity of our green infrastructure to a wider network across Greater Essex and potentially neighbouring boundaries.

The purpose of the consultation was to invite comments from interested parties on the proposed vision, objectives and proposals for the strategy to deliver high-quality multi-functional green infrastructure. To also understand how people across Essex use green spaces for leisure, work, commuting and pleasure and equally if they don't use green spaces why not and what are the barriers in place stopping them.

The consultation methods carried out involved:

- a stakeholder workshop,
- online consultation through the Essex County Council's website,
- hard copies of the strategy and questionnaire available at the 12 strategic Libraries across Essex,
- Development of a communication plan:

- press advertisement/news articles (in local newspapers).
- social media (posts on Councils' Facebook and Twitter pages).
- promoted through communication media networks out to the Local Authorities and Community Groups.
- internal newsletters and blogs (i.e. staff One News intranet page).
- online content for ECC website and affiliates sites including Place Services and Country Parks website.
- presented at a number of Internal Services and Board meetings and to external Partner Organisational and Community Groups (such as Essex Local Access Forum, Essex Planning Officer Association)
- strengthening the Essex Green Infrastructure Strategy Workshop.

We received:

- 931 responses from residents
- 39 responses from organisations and community groups
- 39 email enquiries of which 9 were more detailed written responses from organisations.
- The short promotion video release on Facebook received 15,000 views, 177 shares, 37 likes and 80 comments.
- 35 participants at the stakeholder workshop.
- 20 participants at the Strengthen Essex Green Infrastructure Strategy Workshop.

The responses from the online consultation and workshop are summarised on the following pages and are not intended to be exhaustive. All comments received were analysed and considered when preparing an update and edits of the strategy.



Appendix A1 - Public Consultation - Residents Highlights Essex Green Infrastructure Strategy: Consultation Report

Research and Citizen Insight
Residents

July 2019

Image: Essex CC

Contents

Introduction	6
Executive Summary	7
Who gave their views	9
Findings	10

Introduction

Essex County Council have produced a draft Essex Green Infrastructure Strategy that raises the importance of developing quality green infrastructure and green spaces across Essex to accompany planned growth in the county over the next twenty years.

Green infrastructure is made up of natural and semi-natural assets and habitat types, of green and blue spaces, and of other environmental features that maintain and enhance ecosystem services. It provides multi-functional benefits integral to the health and wellbeing of our communities and to the ecology and economy of the county.

Green infrastructure for this strategy includes the following assets:

- Parks and gardens
- Natural and semi-natural open spaces
- Ancient Woodlands
- Reservoirs, lakes and ponds
- Coastal features
- Waterways (watercourses)
- Greenways (Public Rights of Way, footpaths, cycleways and tracks, byways, bridleways)
- Outdoor Sport Facilities (Sport pitches)
- Open spaces and premises (Educational premises open space and sport pitches)
- Cemeteries and churchyards
- Allotments, community gardens and city farms
- Agricultural land and meadows
- Public realm/civic spaces (urban greenning - urban and street trees, road verges, green walls, sustainable urban drainage and natural flood management)

The strategy aims to take a positive approach to enhance, protect and create an integrated network of high-quality green infrastructure in Essex. Just as importantly, it will help ensure funding opportunities are maximised in the delivery of multi-functional natural assets which will provide a range of benefits, including;

- helping mitigate the impact of climate change
- improving public parks, play areas and other green spaces,
- the development of greenways (e.g. Public Rights of Way)
- enabling active travel and recreational opportunities
- contributing to the attractiveness of a place to attract new businesses to the area

The Strategy has been prepared by an Essex County Council cross directorate Steering group and a range of key stakeholders have been engaged at various stages to inform the initial consultation version.

In order to gain the views and feedback of Essex residents about the strategy a questionnaire was developed. This questionnaire was open to all Essex residents for a period of 9 weeks.

This consultation was open to all Essex residents, Organisations, Community groups and users of green spaces within Essex. This report considers the responses from residents, people that work in Essex but don't live here and people who didn't declare who they were responding as.

Key Conclusions

Of the 931 people that responded to the Green Essex survey, 705 (75.72%) people stated that they use green spaces for leisure time. 627 (67.34%) use green spaces for health reasons, whilst 397 (42.64%) use green spaces for dog walks.

There were 216 people that selected other. Of these, 108 people stated that they use green spaces for horse riding or caring for a horse.

When asked what would encourage you to use green spaces more often, 542 (58.21%) advised that easier access would increase their use. Feeling safe is an important factor in using green spaces more, with 453 (48.65%) people selecting this option.

Of the 931 respondents, 493 (52.95%) agreed with both the vision and the objectives of the Essex Green Infrastructure Strategy.

When asked for the 2 main pressures or threats to Green Infrastructure in Essex, 317 (34.04%) selected fragmentation of habitats due to increases in housing and transport development, 314 (33.72%) people selected deficiencies in green spaces provision as the population grows and 302 (32.43%) people selected development growth.

When asked for the most important proposal within the PROTECT objective, 248 (26.63%) people believe supporting the recognition and appropriate designation of new green infrastructure to be the best course of action.

Of the 931 respondents, 341 (36.62%) believe that better management of green infrastructure to benefit locally native species, focussing on recognised nature conservation priorities would best meet the IMPROVE objective.

When asked which proposal is most important within the CREATE objective, 267 (28.67%) believe using planning policy to secure multi-functional green spaces within and beyond development site boundaries through the application of biodiversity net gain, biodiversity off-setting and the creation of compensation habitat to be the best proposal.

Of the 931 respondents, 515 (55.31%) believe restoring and promoting the Essex promoted paths (The Forest Way, The St Peter's Way, The Essex Way, The Roach Valley Way, The Stour Valley Path, The Thames Estuary Path, The Fitch Way, The Saffron Way, Black Water Rail Trail, John Ray Walk, Emerging Coast Path) would be the best proposal to meet the CONNECTIVITY objective.

When asked which proposal is most important within the INCLUSIVITY objective, 254 (27.28%) believe exploring environmental therapies and challenges aimed at developing young people to be the most important. Of the 931 respondents, 381 (40.92%) believe that developing and promoting Healthcare and Wellbeing through green infrastructure activities is the most important proposal within the HEALTH objective.

When asked which proposal is most important within the SUSTAINABILITY objective, 321 (34.47%) believe that creation of a Green Essex Fund for endowments, fund raising and donations would be the most important. When asked if the overall objectives and proposals are deliverable, 378 (40.60%) people believe that they are, with 111 believing that they are not.

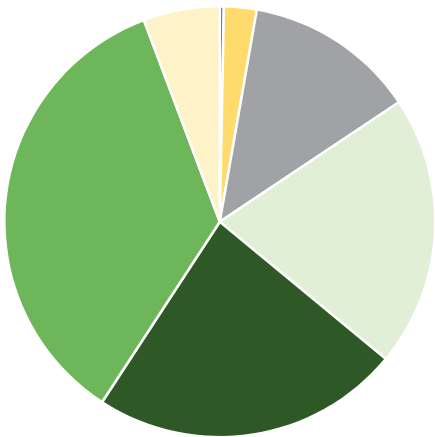
The Respondents



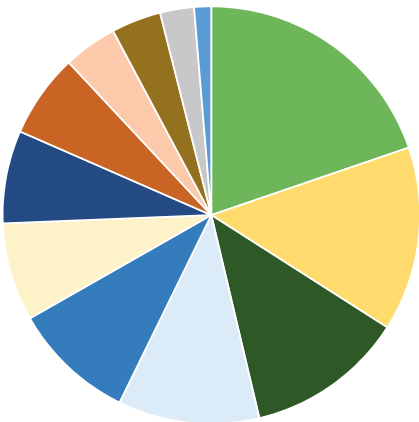
Male
27.81%



Female
62.47%



Under 18	0.31%
18-29	2.45%
30-39	12.88%
40-49	20.35%
50-59	23.21%
60+	35.07%
N/A	5.73%



Colchester	19.5%	Basildon	7.1%
Chelmsford	14.1%	Castle Point	6.4%
Braintree	12.1%	Uttlesford	4.1%
Rochford	10.8%	Tendring	3.8%
Epping Forest	9.4%	Brentwood	2.6%
Maldon	7.5%	Harlow	1.3%

10.02% of respondents did not state where they live



Residents
97.9%



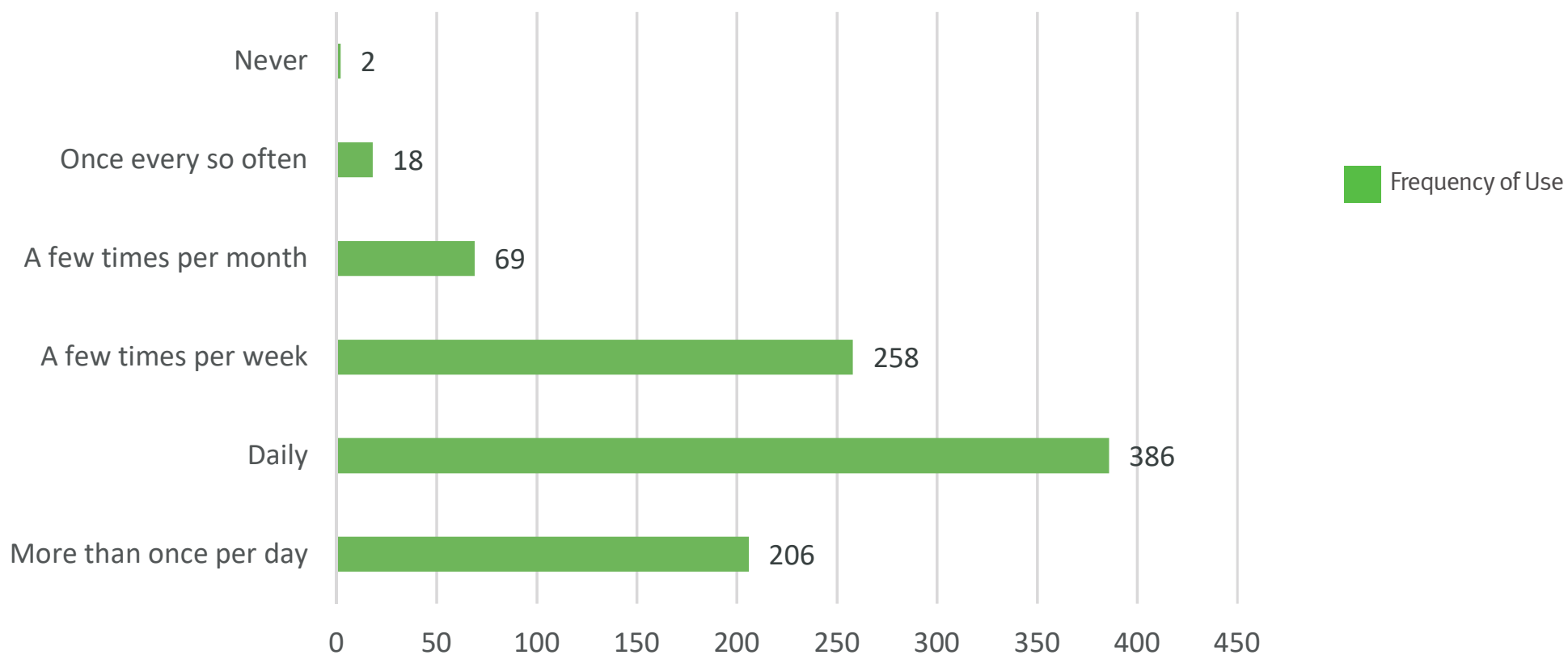
Works Here -
Does Not Live Here
0.9%



Not Answered
1.3%

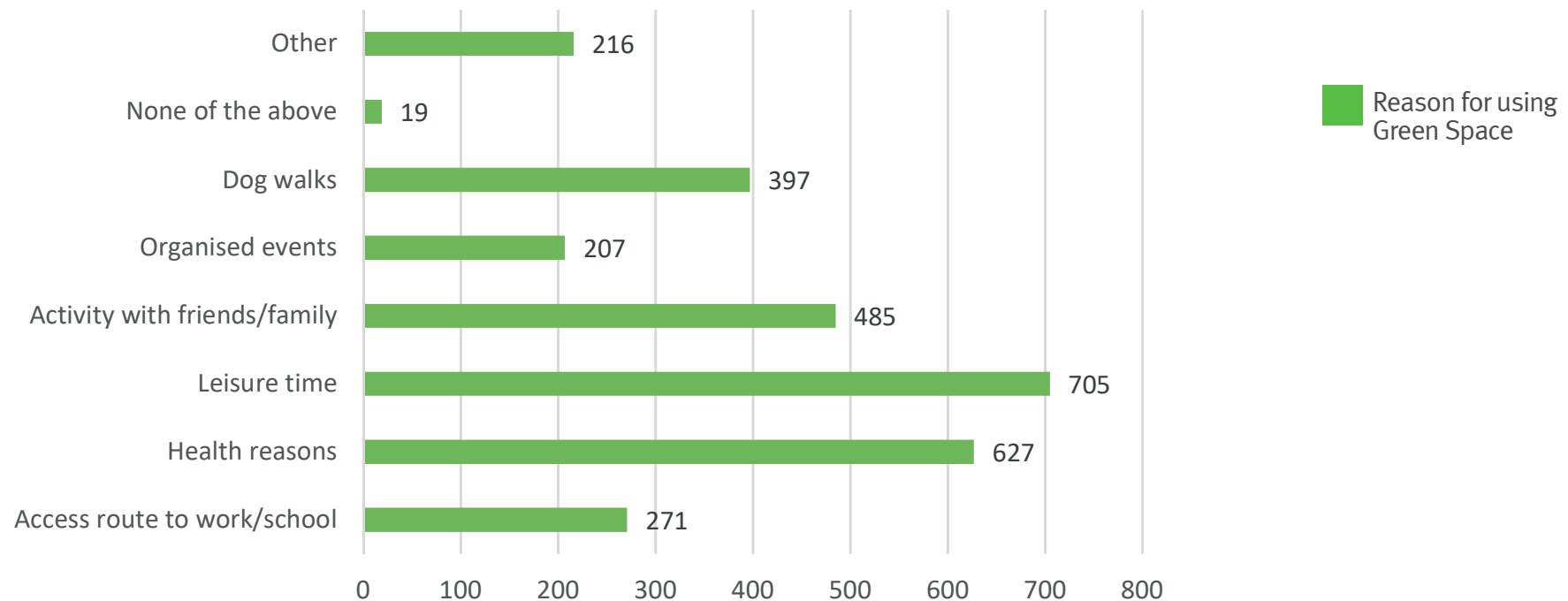
Frequency of Use

A total of 931 people completed the Green Essex Survey, 386 of which use green spaces on a daily basis. 258 respondents use green spaces a few times per week and 206 respondents use green spaces more than once per day.



Why is it Being Used?

When asked what are the main reasons for using green spaces, 705 respondents selected leisure time, 627 stated health reasons, 485 advised it was to spend time with friends and family and 397 use green spaces to take their dog for a walk.



Of the 931 total respondents, 216 selected other. This provided a free type box to capture further detail. Of the comments received, 80 were split across the above categories. 130 comments were split into the categories right:



Most Popular Objective Proposal

PROTECT

Support the recognition and appropriate designations of new green infrastructure eg. Local wildlife sites

IMPROVE

Encourage better management of green infrastructure to benefit locally native species, focusing on recognised nature conservation priorities

CREATE

Use planning policy to secure multi-functional green spaces within and beyond development site boundaries through the application of biodiversity net gain, biodiversity offsetting and the creation of compensation habitat

CONNECTIVITY

Restore and promote Essex promoted paths

INCLUSIVITY

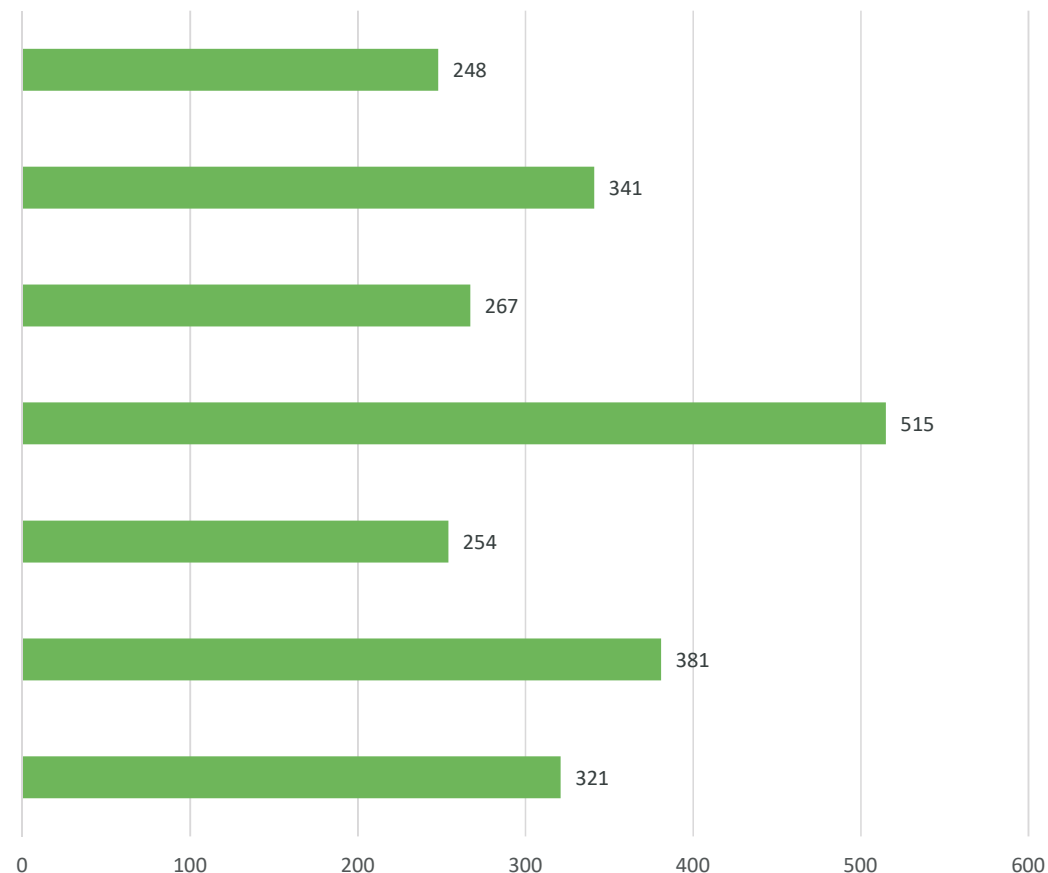
Explore environmental therapies and challenges aimed at developing young people

HEALTH

Develop and promote Healthcare and Wellbeing through green infrastructure activities

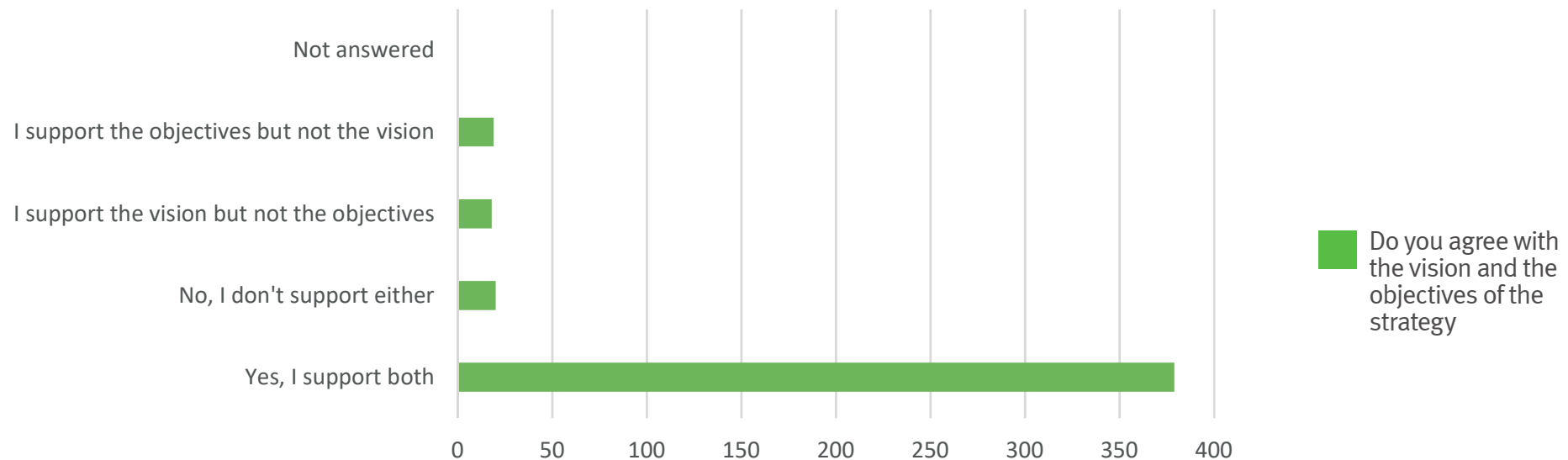
SUSTAINABILITY

Create a Green Essex Fund for endowments, fund raising bid, donations etc.



Objectives and Vision

Whilst 379 respondents agreed with both the vision and the objectives of the Essex Green Infrastructure Strategy, 18 disagreed with the objectives, 19 disagreed with the vision and 20 respondents disagreed with both.



Respondents were able to provide a comment for why they did not agree with either the vision or the strategy.

Comments could be grouped into the following categories:

- Jargon / unclear
- Resource (including money)
- New building
- Wildlife

Comments included:

"No mention on how self-sustainability is achieved with no further comments on that".

"I think both statements are rather jargon heavy".

"the objectives should include identifiable outcomes (metrics) to ensure they are capable of monitoring".

Objectives and Vision

“No mention on how Self-Sustainability is achieved with no further comments on that - I could envisage the council adding in charges to access these areas which contravenes the main reason why people use them.”

“The Objectives should include identifiable outcomes (metrics) to ensure they are capable of monitoring. For example the Strategy should set a target for the number of trees planted throughout the County - people remember these things more than anything else. For example if the Objectives said “we will oversee the planting of one million trees in Essex by 2025” that would capture people’s attention.

Essentially there needs to be headline deliverables rather than just “improve, protect, connect” which are noble objectives but also very forgettable.”

“Vision strategy could end up funding small strips of green land, that are in less than ideal places and may see little use, but will cause funds to be diverted from enjoyable green spaces.”

“I think both statements are rather jargon heavy but the objective do not address the serious need to curb the amount of house building which is ruining and seriously undermining the future for our county. You need to include limiting building to brown field sites only, then they might be more effective.”

Opportunities

“Green roofs on new builds and incentives for existing buildings, green roof incentives on existing beach huts and eco walls on public buildings such as libraries, factories, office blocks, etc. which, with fast growing creepers, would soon form good habitat for insects, and birds.

Planning restrictions on all development to ensure gardens are not covered in non-permeable materials; i.e. paving slabs, as this reduces available water (runs off to drains instead of seeping into the water table) and reduces habitat, thus insects, birds, plants.”

“By connecting PROW’s and maintaining the paths on a more regular basis than currently done. Ensuring waymarkers, footbridges and finger posts are replaced when required not on a 5 year maintenance programme. Fingerposts to contain more information ie Distance to next village. Many people do not read maps so have no idea where they might end up by following a sign that just says Public Footpath. This is especially helpful for visitors to the area and would encourage people to explore a wider area.”

“Bridleways being reinstated or improved. Essex has the highest population of horses than any other county yet riders are not supported, either because of misconceptions about horse owners or the greater voice of other user groups.

Bridleways benefit walkers, cyclists and riders and with fantastic organisations such as Essex Bridleways would know precisely where

opportunities are. The coast path is an amazing idea and as a path serves all groups, this would be such a fantastic boost for locals and tourists.”

“Green Spaces need to have good access and parking available, we don’t mind paying.”

“Encourage guardianship and maintenance of hedgerows, gardening for wildlife, work with voluntary groups/charities plus parish councils and schools on looking for local gaps in the footpath network, creating pocket parks, allotments etc . As well as the biggies like the coast path”

“Every local authority’s Local Plan should identify and promote these opportunities throughout the county, following an agreed strategic plan co-ordinated by the County Council.”

“Instead of creating expensive new areas, smaller measures everywhere and all the time would make a big difference for wildlife:

- All new buildings should have green roofs, solar power etc
- Business parks and industrial areas could easily be greened up
- Plant more trees. Everywhere. And make it more difficult for mature trees and hedges to be felled
- Create ponds
- Create wildlife corridors and bridges to avoid the current road casualties
- Clear litter
- Stop mowing verges and hedges so brutally. Be aware of the needs of wildlife in terms of food, shelter etc
- Embed wildlife friendly principles in all planning decisions”

This information is issued by:

Research and Citizen Insight
Strategy, Insight and Engagement
Essex County Council
EUG County Hall, Chelmsford, Essex, CM1 1QH

You can contact us in the following ways:

citizeninsight@essex.gov.uk

Visit Essex Insight information hub: www.consultations.essex.gov.uk

Visit our Council website: www.essex.gov.uk

Full appendices are available upon request



Essex_CC



facebook.com/essexcountycouncil

Published 2020



Appendix A2 - Public Consultation -
Organisations and Community Groups Highlights

Essex Green Infrastructure Strategy: Consultation Report

Research and Citizen Insight
Organisations & Community Groups

July 2019

Contents

Introduction	18
Executive Summary	19
Findings	21

Introduction

Essex County Council have produced a draft Essex Green Infrastructure Strategy that raises the importance of developing quality green infrastructure and green spaces across Essex to accompany planned growth in the county over the next twenty years.

Green infrastructure is made up of natural and semi-natural assets and habitat types, of green and blue spaces, and of other environmental features that maintain and enhance ecosystem services. It provides multi-functional benefits integral to the health and wellbeing of our communities and to the ecology and economy of the county.

Green infrastructure for this strategy includes the following assets:

- Parks and gardens
- Natural and semi-natural open spaces
- Ancient Woodlands
- Reservoirs, lakes and ponds
- Coastal features
- Waterways (watercourses)
- Greenways (Public Rights of Way, footpaths, cycleways and tracks, byways, bridleways)
- Outdoor Sport Facilities (Sport pitches)
- Open spaces and premises (Educational premises open space and sport pitches)
- Cemeteries and churchyards
- Allotments, community gardens and city farms
- Agricultural land and meadows
- Public realm/civic spaces (urban greenning - urban and street trees, road verges, green walls, sustainable urban drainage and natural flood management)

The strategy aims to take a positive approach to enhance, protect and create an integrated network of high-quality green infrastructure in Essex. Just as importantly, it will help ensure funding opportunities are maximised in the delivery of multi-functional natural assets which will provide a range of benefits, including

- helping mitigate the impact of climate change
- improving public parks, play areas and other green spaces,
- the development of greenways (e.g. Public Rights of Way)
- enabling active travel and recreational opportunities
- contributing to the attractiveness of a place to attract new businesses to the area

The Strategy has been prepared by an Essex County Council cross directorate Steering group and a range of key stakeholders have been engaged at various stages to inform the initial consultation version. In order to gain the views and feedback of Essex residents about the strategy a questionnaire was developed. This questionnaire was open to all Essex residents for a period of 9 weeks.

This consultation was open to all Essex residents, Organisations, Community groups and users of green spaces within Essex. This report considers the responses from residents, people that work in Essex but don't live here and people who didn't declare who they were responding as.

Key Conclusions

Of the 39 organisations and community groups that responded to the Green Essex survey, 28 (71.79%) advised that easier access would increase green space use. Feeling safe is an important factor in using green spaces more, with 20 (51.28%) organisations and community groups selecting this option. Of the 39 respondents, 35 (89.74%) agreed with both the vision and the objectives of the Essex Green Infrastructure Strategy.

When asked for the 2 main pressures or threats to Green Infrastructure in Essex, 23 (58.97%) selected fragmentation of habitats due to increases in housing and transport development and 22 (56.41%) selected development growth.

When asked for the most important proposal within the PROTECT objective, 12 (30.76%) people believe supporting the recognition and appropriate designation of new green infrastructure to be the best course of action.

Of the 39 respondents, 15 (38.46%) believe that better management of green infrastructure to benefit locally native species, focussing on recognised nature conservation priorities would best meet the IMPROVE objective.

When asked which proposal is most important within the CREATE objective, 14 (35.89%) believe using planning policy to secure multi-functional green spaces within and beyond development site boundaries through the application of biodiversity net gain, biodiversity off-setting and the creation of compensation habitat to be the best proposal.

Of the 39 respondents, 18 (46.15%) believe restoring and promoting the Essex promoted paths (The Forest Way, The St Peter's Way, The Essex Way, The Roach Valley Way, The Stour Valley Path, The Thames Estuary Path, The Fitch Way, The Saffron Way, Black Water Rail Trail, John Ray Walk, Emerging Coast Path) would be the best proposal to meet the CONNECTIVITY objective. When asked which proposal is most important within the INCLUSIVITY objective, 18 (46.15%) believe exploring environmental therapies and challenges aimed at developing young people to be the most important. Of the 39 respondents, 27 (69.23%) believe that developing and promoting Healthcare and Wellbeing through green infrastructure activities is the most important proposal within the HEALTH objective.

When asked which proposal is most important within the SUSTAINABILITY objective, 26 (66.66%) believe that the development of new facilities to generate income would be the most important.

When asked if the overall objectives and proposals are deliverable, 28 (71.79%) organisations and community groups believe that they are.



Community Groups

48.71%



Councillors

43.58%



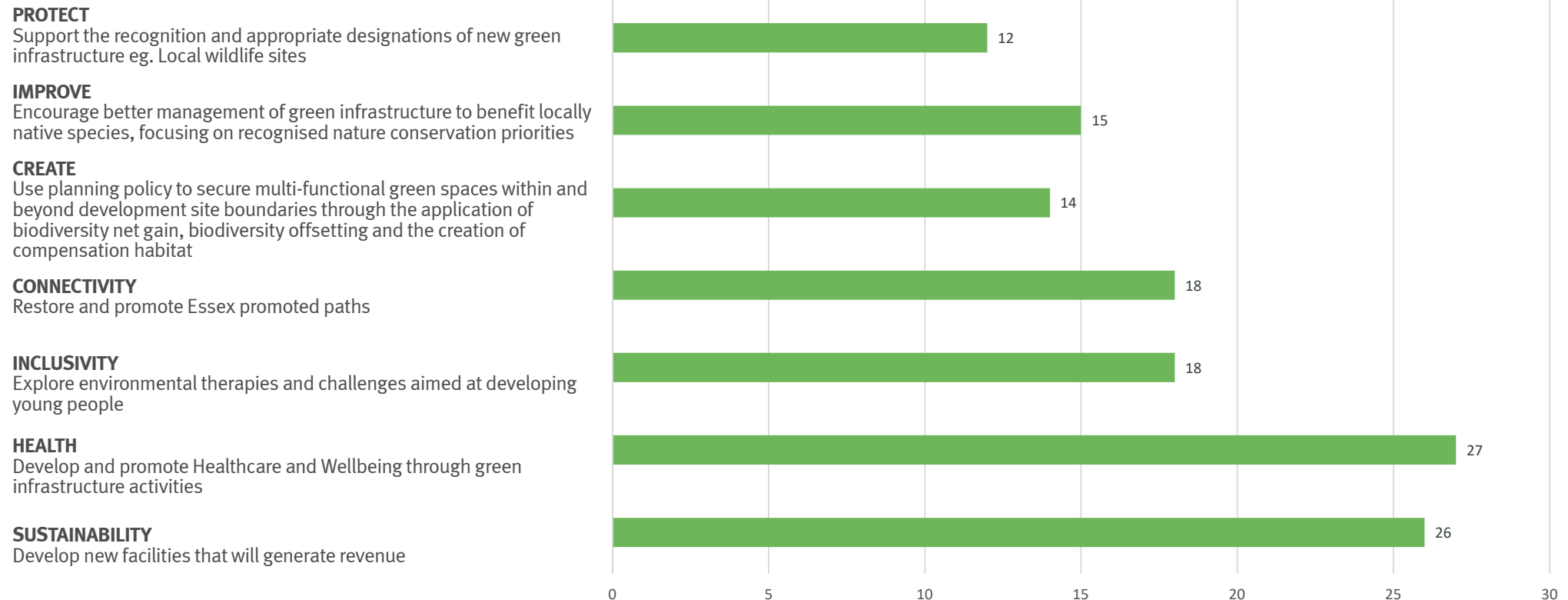
Businesses

7.69%

Most Popular Objective Proposal

When asked which of the proposals for each of the seven objectives were most suitable, the responses from organisations and community groups in figure 1 almost mirror the proposals selected by residents as seen in figure 2

Figure 1: Organisations and Community Groups Responses



Residents felt that setting up a Green Essex Fund would be the preferred proposal under “Sustainability”, Organisations and Community Groups were more in favour of developing new facilities to generate revenue.

Figure 2: Both residents and organisations and community groups popular responses

PROTECT

Support the recognition and appropriate designations of new green infrastructure eg. Local wildlife sites

IMPROVE

Encourage better management of green infrastructure to benefit locally native species, focusing on recognised nature conservation priorities

CREATE

Use planning policy to secure multi-functional green spaces within and beyond development site boundaries through the application of biodiversity net gain, biodiversity offsetting and the creation of compensation habitat

CONNECTIVITY

Restore and promote Essex promoted paths

INCLUSIVITY

Explore environmental therapies and challenges aimed at developing young people

HEALTH

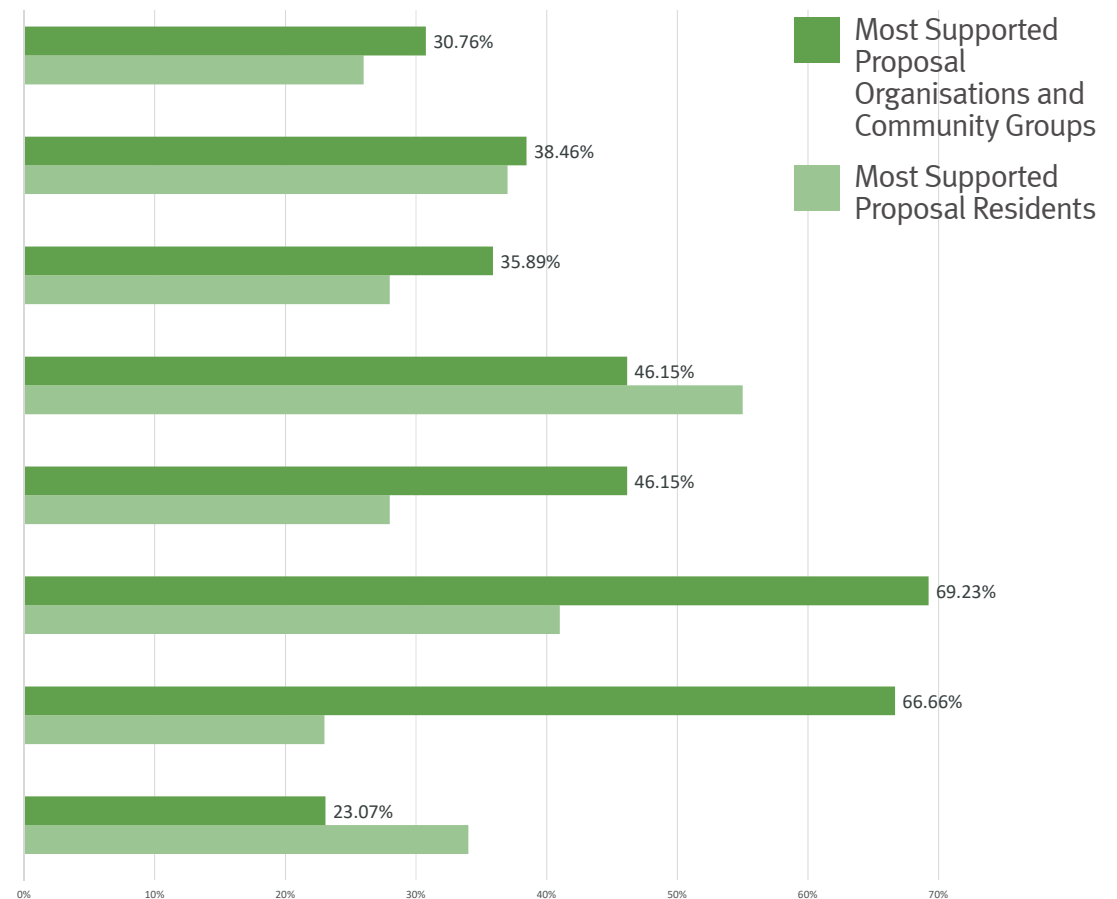
Develop and promote Healthcare and Wellbeing through green infrastructure activities

SUSTAINABILITY

Develop new facilities that will generate revenue

SUSTAINABILITY

Create a Green Essex Fund for endowments, fund raising bid, donations etc.

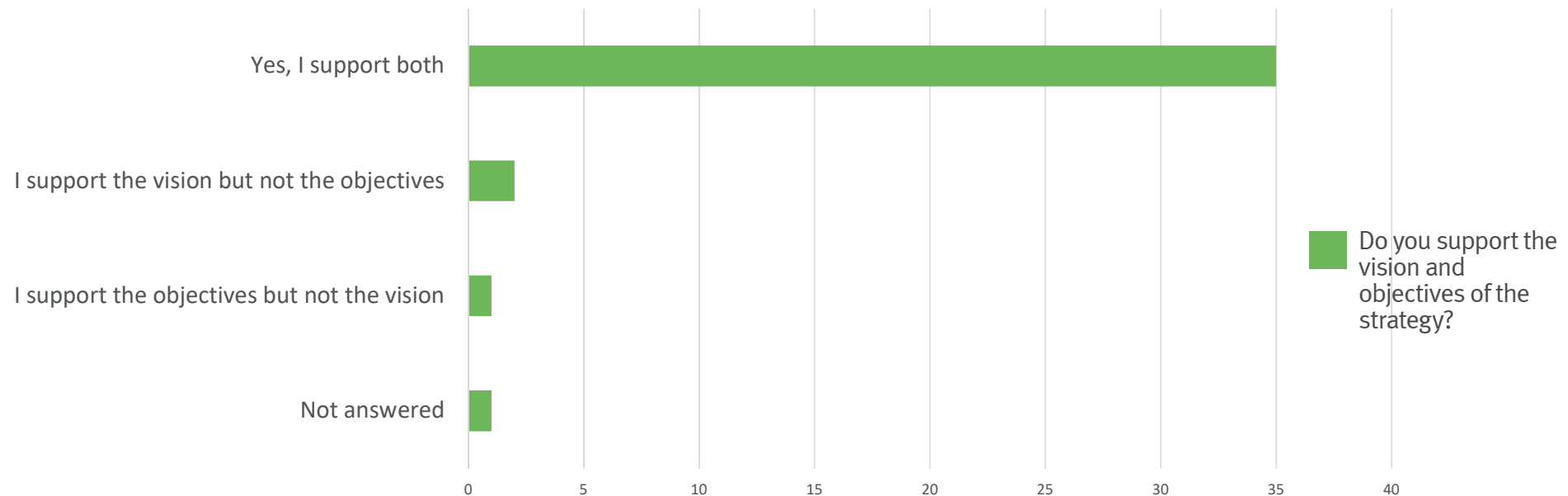


Objectives and Vision

Whilst 35 respondents agreed with both the vision and the objectives of the Essex Green Infrastructure Strategy, 2 disagreed with objectives and 1 disagreed with the vision. 1 Respondent did not answer the question.

Respondents were able to provide a comment for why they did not agree with either the vision or the objectives, with 9 of the groups / organisations sending detailed feedback.

This feedback covered areas such as terminology used within the strategy, improvements to the strategy, general concerns and additions



Vision

“It’s not that I don’t support it or I’m against it but development is inevitable and I would much rather city’s are developed and existing green space of towns and villages are retained with more rigour as that is why people chose to live in them.”

Objectives

“Without knowing specifics of what things like ‘Improve the connectivity of green infrastructure’ its hard to say I support the objectives. A lot of things could be achieved in the overarching view of the objectives which would be ultimately detrimental to other aspects of life.”

“I would like to see the ‘wildlife’ section of the vision more explicitly reflected in the objectives so that activities and outputs will flow from this.

Specifically to reflect considerations around green spaces often being shared spaces for people and wildlife so that thought is given to:

1. use of pesticides
2. leaving grass and verges to grow to promote wildflowers/ insects/pollinators
3. leaving hedgerows for nesting birds
4. protecting sites where badgers/foxes and other mammals live.
5. educating the public about these initiatives in parks and other public spaces with information signage etc”

Comments

“It is important to make sure that the Strategy complements and adds value to Chelmsford’s and any other district’s GI Strategies, such as Maldon as these strategies should not been seen in isolation. Currently it is not clear how or whether such strategies have helped inform this Strategy.”

“Chapter 11 refers to a ‘future action plan’ but it also includes an action plan on the subsequent pages. This could maybe be reworked a bit. There needs to be target dates and indications of how the actions will be prioritised. Further implementation plans are also needed. This will make the aspirations more realistic. It is also not clear whether the Strategy covers a particular time period. A longer-term strategy, up to 50 years, with interim target dates is preferable.”

“It may be helpful for the Strategy to consider links to neighbouring authorities to consider what happens at the borders and whether there are opportunities to link up with neighbouring GI plans or projects. This should include those beyond Essex.”

“The monitoring of the Strategy requires further work and should include some metrics to measure the success of the GI Strategy in delivering all of the key actions and has achieved the stated objectives.”

“All habitats created or enhanced as compensation measures should be protected from future development and managed in perpetuity. Only this will help secure net gain, value for money and public trust. A lesser duration risks the later loss of biodiversity gain.”

“It is important to note that some newly created habitats will take many decades to develop and cannot be considered at full value before this time.

Furthermore, many habitats rely on regular management to retain status and target condition e.g. species rich semi-improved neutral grassland. Therefore, long-term management for any net gain site must be secured if the net gain is to be retained.”

“In the first paragraph the Strategy ‘sets the scene’ as it were and advocates to ‘...enhance, protect and create an inclusive and integrated network of high-quality green infrastructure...’ With this we agree, although it is very evident from the detail contained within the document that its aims are far from inclusive to all user groups. Equestrians are not mentioned at all, and the document only contains a scant number of references to bridleways.”

“The objective should be re-named ‘Funding’, as the aim to secure funding for Green Infrastructure (GI) is not related to ‘economy’ as a topic. An additional objective related to the title ‘Economy’ should be considered, to recognise the importance of GI to the wider economy (eg tourism).”

“The RSPB recognises the important role GI can play for health & wellbeing and for supporting a thriving, sustainable economy, but as an environmental strategy first and foremost, it is important that this is given more prominence in the Foreword.”

“Clarity is needed between the terms ‘green infrastructure’ ‘greenspace’ and ‘open space’. All of these have developed established meanings through long use, including in the planning system, and diversion from established practice or tradition will likely cause confusion and error when the document comes into use. Within the strategy document there appears to be occasions when greenspace and GI are used interchangeably even though they have been defined in slightly different ways elsewhere.”

This information is issued by:

Research and Citizen Insight
Strategy, Insight and Engagement
Essex County Council
EUG County Hall, Chelmsford, Essex, CM1 1QH

You can contact us in the following ways:

citizeninsight@essex.gov.uk

Visit Essex Insight information hub: www.consultations.essex.gov.uk

Visit our Council website: www.essex.gov.uk

Full appendices are available upon request

 Essex_CC

 facebook.com/essexcountycouncil

Published 2020

Appendix A3 - Stakeholder Workshop

Green Essex and Essex Walking Strategies Workshop Summary

Summary of the findings from the Green Essex and Essex Walking Strategies Consultation Stakeholder Workshop

16 May 2019

Image: Essex CC

Contents

- 01 About the workshop
- 02 Speakers Presentations
 - 2.1** Opening and Welcome
 - 2.2** Green Essex
 - 2.3** Essex Walking Strategy
 - 2.4** Mapping Green Infrastructure
- 03 Registration Activity: Prioritising Objectives
- 04 Workshop Discussions
 - 4.1** General Feedback on Activity 1: SWOT.
 - 4.2** Essex Green Infrastructure Strategy Objectives review
 - 4.2.1** Protect existing green infrastructure, especially the most vulnerable
 - 4.2.2** Improve existing green infrastructure so it is better functioning
 - 4.2.3** Create more high-quality green infrastructure, especially in areas of deficiency
 - 4.2.4** Improve the connectivity of green infrastructure for people and wildlife
 - 4.2.5** Increase use and inclusivity of green infrastructure across all social groups and abilities
 - 4.2.6** Provide green infrastructure facilities to promote health and wellbeing
 - 4.2.7** Secure funding for new and existing green infrastructure to ensure their sustainability
 - 4.3** Essex Walking Strategy Objectives review
 - 4.3.1** Promote walking for leisure
 - 4.3.2** Enabling physical activity and walking for health
 - 4.3.3** Enhance walking in neighbourhoods and priorities walking in new communities
- 05 Next steps
- 06 Annex 1: Agenda

1 About the Workshop

A half day workshop was held on 16 May 2019 at Anglia Ruskin University, Chelmsford to gather stakeholder views on the Essex Green Infrastructure Strategy and Walking Strategy, building upon the online consultations.

The purpose of the workshop was to introduce both the strategies' objectives and proposals and the work undertaken by University of East Anglia on developing a Green Infrastructure (GI) Geographic Information System (GIS) Mapping Model. It provided stakeholders the opportunity:

- to review the 7 Green Essex objectives, 3 of the Essex Walking Strategy objectives and their proposals,
- to discuss any existing schemes/projects,
- explore the challenges and opportunities and priorities, and
- identify potential collaborations and partnership working in taking forward the proposals within the strategies.



2 Speakers Presentations

2.1 Opening and Welcome - Councillor Simon Walsh, Cabinet Member for Environment and Waste, Essex County Council (ECC)

Simon opened and welcomed everyone to the workshop. He commented on the importance of sharing knowledge and expertise across a wide range of organisations, sectors and services, especially since the environmental agenda is gaining ever increasing traction; in part driven by young environmental activists such as Greta Thunberg but also backed up by hard facts and figures from reports such as the UN Environmental Annual and the recent UN Intergovernmental Panel on Climate Change (IPCC). The Government's 25 year Environment Plan, Department for Transport's Cycling and Walking Investment Strategy and the updated National Planning Policy Framework are showing renewed commitment to developing the policies, plans and strategies that address health inequalities, meet climate change and other environmental challenges locally and nationally, especially in the face of growing population and development across Essex and neighbouring counties.

Councillor Walsh stated that we must manage our environment in a more integrated way and capture the benefits for people. We must empower people to take ownership of their environment.

Nevertheless, there are areas where there just isn't enough green space to face the challenges of increased flooding and overheating. And it will be of no surprise that, our most deprived areas are often also those with the worst quality or access to the natural environment. Research shows that people in the most disadvantaged groups in society are the least likely to travel to access the natural environment - so there is even more need to make sure we improve the quality of the environment where they are. Parks, green spaces and coastal and rural paths should be accessible and welcoming to everyone.

The Essex Green Infrastructure Strategy and Essex Walking Strategy are an important step in the right direction. There is a significant amount of overlap in the ambitions to both strategies to protect, enhance and promote GI and to encourage more people to be physically active through walking. While we want to increase walking for shorter trips as a mode of travel, we also want to encourage more people to walk for leisure and enjoy the benefits of green spaces which can have significant benefits for both mental and physical health. Therefore, it is also important to recognise that walking should be considered and encouraged as part of accessing GI.

Councillor Walsh ended by thanking the speakers, organisers and stakeholders.

2.2 The Essex Green Infrastructure Strategy - John Meehan, Head of Sustainability and Resilience

John chaired the day and gave a background summary of the Essex Green Infrastructure Strategy. The Essex Green Infrastructure Strategy describes the need for GI in the county and sets a vision taking into consideration the priorities from the District, City and Borough authorities. From this vision 7 objectives were identified and their key focus for each objective can be summarised as:

- Protect
- Improve
- Create
- Connectivity
- Inclusivity
- Health
- Sustainability

This strategy provides a plan to guide the future planning and delivery of green infrastructure in Essex in light of the growth in development, population, health inequalities and the challenges from climate change. There is significant evidence to demonstrate the benefits of GI, including the

GI GIS mapping model that has been developed by University of East Anglia (UEA). At its best GI can be designed to get the most benefit out of what nature provides us for free and provide multi benefits, such as health economic growth and investment, land regeneration, climate change mitigation and adaptation, ecology, education, tourism, recreation and stronger resilient communities.

There are approximately 25 proposals that have been identified against the objectives in which there are a set of actions, that will formulate an action plan. It will require partnership working across a number of sectors, such as Planning, Highways, Transport, Energy, Health and Education through a multi-disciplinary approach, as well as exploring a variety of funding sources to successfully delivery the proposals from the strategy.

John mentioned that a Green Essex Network will be established to meet quarterly and asked if anyone was interested to join to sign and let us know – environment@essex.gov.uk

Essex Green Infrastructure Strategy Consultation closes 14 June 2019 - <https://consultations.essex.gov.uk/rci/green-essex-strategy>

2.3 Essex Walking Strategy- Julian Sanchez, Active Travel Manager, ECC

Julian explained the Essex Walking Strategy is a refresh of the 2001 strategy and is a plan for pedestrians, to get more of us walking on our network of footways and paths in our rural areas, towns, cities and neighbourhoods. Julian highlighted the challenges such as 44% of car trips are under 2km, a quarter of people not walking across Essex, and that 1 in 5 car trips are to school. There is a significant opportunity for school walking. He mentioned the strong cycling networks and the need to replace driving for walking.

A vision was identified with an aim to normalise walking in everyday life and encourage walking champions like Jane Jacobs, an American-Canadian journalist from 1960's. Nine objectives and themes were developed from the vision which will translate into actions within an action plan.

The Essex Walking Strategy links to the Essex Green Infrastructure Strategy, since a lot of the walking infrastructure is also GI. It's important to consider the character of the place not just the materials used, but to think about the furniture, lighting, attractiveness and connection to the natural environment.

The Essex Walking Strategy consultation: <https://consultations.essex.gov.uk/rci/walking-strategy>

Q&A

Q1. Does the strategy link to the Local Transport Plan (LTP)?

A. The strategy does recognise the pedestrian/transport hierarchy. The LTP

version 3 has been refreshed to give certainty to the Local Plans, however the Essex Walking Strategy will feed into the LTP4.

Q2. Need to make walking and cycling a priority to make fundamental change

A. The aim is to capture the challenges with the consultation, so it can be presented to cabinet for more of an influence. One of the actions is identify walking champions as ambassadors.

Q3. How does this strategy link to Highways England?

A. Highways England sit on the Active Travel Steering Group. We are starting to have that conversation on how to improve the highway network to encourage walking to work etc. If anyone is interested to join the Active Steering Group to let Julian know - Julian.Sanchez@essex.gov.uk

Q4. Developers try to improve paths etc out of the red line – how are you going to achieve?

A. At this stage the issues are to link to places of interests. We will have to explore opportunities to develop a project to look at ways to solve this issue.

Other comments

- A need to engage health practices to flagship key schemes to help GPs prescribe walking to people.
- Create a website with walking maps for their district – a central point for information.
- Cycle County/Active County Conference is being held on 5-6 September 2019 at Anglian Ruskin University now open for registration <http://landor.co.uk/cyclecounty/home.php>

2.4 Mapping Green Infrastructure - Professor Andrew Lovett, Professor of Geography, School of Environmental Sciences, University of East Anglia

Andrew gave an overview of the approach taken to develop a Green Infrastructure layer for Essex, in partnership with Business & Local Government Data Research Centre and ECC. The aim was to look at different publicly available datasets (such as OpenStreetMap land cover) and use them to support local government in creating a GI layer at a regional level. The challenge is there is not a clear definition of what is GI and can be interpreted differently. The data available are in different formats, that needs to be formatted and use different categories for the types of GI. OpenStreetMap land cover database was used as a baseline, which was then overlaid with data on other GI assets and then these GI assets were classified into the UK Habitat categories (the new national classification). A broad definition of GI was used, which means that not all GI is necessarily accessible.

Andrew gave examples of the analysis undertaken and the GIS layers that have been produced showing:

- The number of GI functions and benefits they provide (showing how multi-functional and multi beneficial GI is)
- The proposed development sites from the local development plans,
- Evaluation of the current GI provision using:
 - the Natural England's Accessible Natural Greenspace Standards (ANGSt) regarding proximity to GI, and
 - distribution of social economic variation (e.g. population, Lower Super Output Areas and Index of Multiple Deprivation),
- Public Rights of Way and cycle network,
- A separate layer for graded agricultural land and other productive spaces such as meadows.

Andrew gave examples of the type of question that could be asked, for example:

- What is the percentage areas of each local authority defined as GI compared to productive spaces (agricultural land and meadows)?
 - There is a lower percent of GI, but higher percentage of productive spaces in the north
 - 21% of Essex is GI of which:
 - 40% is natural and semi-natural spaces
 - 13% is coastal features
 - In urban areas parks and gardens and sport facilities are important.

- What is the proximity of homes to GI using ANGSt¹? The analyses show that:
 - 50% of homes meet at least 3 or more of the 4 benchmarks²
 - A third meet at least 2 of the benchmarks
 - 2% meet none of the benchmarks
 - Similarly, this can be applied to new developments for instance, it highlights whether the potential developments sites larger than 50 hectares meet any of the benchmarks.
- What is percentage of GI in Low Super Output Areas categorised by deprivation score and population density?
 - The analysis showed that there is no strong linear association between deprivation score, population density and percentage of GI, for example:
 - Higher the population density and greater the affluence the less percentage of GI is in that area.
 - While moderate population density and higher deprivation has high percentage of GI is in that area (this does not mean that that GI is accessible).

Q&A

Q1. What is the reason arable land was not included in the GI layer?

A. The inclusion of arable land would dominate the results, so a separate layer was produced as it is recognised that arable land is an important land cover. Consideration was taken regarding publicising private land. A section on agriculture has been included within chapter 9 of the strategy.

Q2. Is it possible to separate accessible and non-accessible GI?

A. The issue is the confidence in the accuracy of the data available and the challenge of identifying ownership for instance, some natural and semi-natural spaces are owned by the National Trust while other are privately owned. If we were confident in the data then it would be possible, but time consuming.

Q3. Have hedgerows been captured?

A. No as there is no consistent data available, however data capture is coming for hedgerows.

Q4. How will this be update? Is there any commitment?

A. Nothing in place, however a clear method has been applied with accessible data sources, so there is nothing to stop any local authority to access and update.

¹ Tool developed by Natural England based on the minimum distances people would travel to green spaces.

² No person should live more than 300 metres from their nearest area of natural green space of at least 2 hectares (0.02km²) in size.
There should be at least one accessible 20-hectare (0.20km²) green space site within 2 kilometres from home.
There should be one accessible 100-hectare (1km²) green space site within 5 kilometres.
There should be one accessible 500-hectare (5km²) green space site within 10 kilometres.
At least 1 hectare (0.01km²) of Local Nature Reserve should be provided per 1,000 population

3 Registration Activity: Prioritising Objectives

Participants were asked upon registration to identify three objective's they feel were a priority. They placed the following dots against the Strategies objectives in order of priority:

Objective	Priority 1 RED	Priority 2 YELLOW	Priority 3 GREEN
Essex Green Infrastructure Strategy			
Create more high-quality green infrastructure, especially in areas of deficiency	8	1	1
Improve the connectivity of green infrastructure for people and wildlife	5	12	2
Secure funding for new and existing green infrastructure to ensure their sustainability	3	4	5
Protect existing green infrastructure, especially the most valuable	3	2	0
Improve existing green infrastructure so it is better functioning	1	1	4
Provide green infrastructure facilities to promote health and wellbeing	1	0	3
Increase use and inclusivity of green infrastructure across all social groups and abilities	0	2	0
Essex Walking Strategy			
Enhance walking in neighbourhoods & prioritise walking in new Communities	2	0	5
Enabling physical activity & walking for health	1	1	1
Promote walking for leisure	0	0	1

In summary the top three priorities were:

- Priority 1:** Create more high-quality green infrastructure, especially in areas of deficiency
Priority 2: Improve the connectivity of green infrastructure for people and wildlife
Joint Priority 3: Secure funding for new and existing green infrastructure to ensure their sustainability
Joint Priority 3: Enhance walking in neighbourhoods & prioritise walking in new Communities

- **RED DOT** - One
 ● **YELLOW DOT** - Two
 ● **GREEN DOT** - Three

4 Workshop Discussions

John introduced the discussion section of the workshop, which consisted of 2 activities. The purpose for the discussions was to gathering participants' thoughts on the objectives and their proposals from both strategies. The activities included:

Activity 1: S.W.O.T

Participants were asked 'Are the objectives the right objectives and are they feasible?' They were asked to consider the proposed objective(s) on their table from all angles and use their experience and knowledge as stakeholders to help to review the objectives using the S.W.O.T (Strengths, Weaknesses, Opportunities and Threats) assessment.

Activity 2: Word Banking, Joining and SMART

The participants were asked 'Are these the right proposals or has anything been missed?' This activity was divided into three parts:

Part A: Word Banking

Participants were asked to independently complete a word banking exercise. This is another form of word association where participants were asked to write down words, phrases, sentences and opinions or projects (existing or ideas) on post-it's that they associate with this objective.

Part B: Joining

The next part of this activity was a joining exercise to group together the word associations from Part A, by grouping together banked words that have a similar theme or focal point. Once the banked words were grouped together, participants explored how they can be developed into making sentences and proposals that are SMART (Specific, Measurable, Agreed upon and attainable, Realistic and Trackable/ tangible).

Part C: Comparing

Finally, participants were asked to review how their proposal compared with the objectives proposal within the strategies and to make any edits, amendments and add their new proposals identify in Part B.

4.1 General Feedback on Activity 1: S.W.O.T on the Green Essex and Walking Strategies

STRENGTHS	WEAKNESSES
• Multi benefits and cumulative benefits. • Good existing PROW, cycle networks. • Lots already happening regarding health and wellbeing related activities. • Improved health and wellbeing and social cohesion.	• Quality of GI. • How define quality of GI. • Lack of signposting – legibility on where routes go etc. • Poor communication. • Retrofitting to existing. • Maintenance issues
OPPORTUNITIES	THREATS
• Create local walking maps to be available online. • Improve destinations.	• Development pressures – sanitisation of green space/ increasing footfalls and external pressure. • Developers - many developers not committed. • How to make walking a priority – element of social exclusion.

The key feedback points for Activity 2 have been summarised in the next section.

Section 4.2 summaries the group discussion from both activities for each objective for both strategies.

4.2 Essex Green Infrastructure Strategy Objectives review

4.2.1 Protect existing green infrastructure, especially the most vulnerable

Activity 1: S.W.O.T.

STRENGTHS	WEAKNESSES
• Multi benefits and cumulative benefits– biodiversity, natural capital, amenity. • Mental health resilience. • Large open areas – wilderness. • Connectivity of habitats. • Protected/ forever for everyone. • Jewels in the crown for GI.	• Lack of knowledge/ value. • Possible anti-social behaviour. • Lack of connectivity. • Lack of funding. • Competition between NGO's.
OPPORTUNITIES	THREATS
• Developmental funding – RAMS. • Education to aid value/ increase knowledge. • Community involvement – volunteer schemes. • Public money for public services.	• Housing development – sanitising of green space/ Demand for housing – increasing pressure. • Lack of funding (creation, management long-term)/ inability to protect. • Poor green infrastructure – bad choices. • Changes to subsidiary funding. • Tree diseases/Inns (invasive species).

Activity 2: Word banking and Proposals Review

This activity was not completed for this objective.

4.2.2 Improve existing green infrastructure so it is better functioning

Activity 1 and Activity 2 was not completed for this objective.

4.2.3 Create more high-quality green infrastructure, especially in areas of deficiency

Activity 1: S.W.O.T.	
STRENGTHS	WEAKNESSES
- Data is available showing GI. - Essex has a high number of GI, PROW and coastal path. - Community focus.	- Not sure of the quality of GI (definition of quality and how to quantify). - Information exists but at district or local scale. - What is ‘quality’ and what is deficiency? - Different areas require different GI.
OPPORTUNITIES	THREATS
- Creation of the Garden Village communities. - Maximise connectivity of existing sites e.g. Thames Chase Community Forest. - Consider how larger green open spaces can connect with smaller and how PROW/cycle paths connect up. - Improved signage for PROW/cycle paths. - Use pubs/ community resources to signpost to PROW/ cycle path. - Maximises routes from coast path inwards	- Develops not co-operating. - Lack of funding. - On-going maintenance . - All above relate to money.

Activity 2: Word banking and Proposals Review

Part A & B: Word Banking and Joining

- Improve air quality
- Tree Planting (include urban tree planting)
- New hedging (planting new hedges in rural areas).
- New Parks
- Biodiversity (improving biodiversity in parks)

- Parks and amenity areas in residential areas/ Housing estates (this is what people would think GI is)
- Look for opportunities in existing areas with a deficit
- Trees
- Biodiversity

- Money to create new improved quality of existing GI and maintain
- New connecting green corridors (active travel corridors)
- Access work and leisure
- Lack of money – not able to maintain what we have now

- Unknown deficiency
- New footpaths/cycleways
- What is not accessible?
- Public access

- What does the community actually want?
Has anyone asked them?

- Which areas are deficient – GIs cannot differentiate between areas with public access and those without.

Part C: Proposals Review

Develop the coast path in Essex.

Increased access to the Outdoor Pursuits Centres.

Create green infrastructure in new developments such as Garden Communities, with best practice guidance on its design and management for multiple benefits.

Develop green infrastructure as part of Minerals and Waste restorations with reference to nature conservation priorities e.g. Pitsea Landfill.

Create town or village circular routes especially in areas of green infrastructure deficiency.

Strategically identify priority areas for the creation or improvement of green infrastructure that could provide most benefit for locally native species of recognised nature conservation priority.

Use planning policy to secure multi-functional green spaces within and beyond development site boundaries through the application of biodiversity net gain, biodiversity off-setting and the creation of compensation habitat.

Where possible, use new green infrastructure provision to buffer or extend existing designated sites.

New Proposals

Plant trees along new footpaths/cycle path routes to make them more attractive

ECC Highways to allow footpaths greater than 2 metres wide where there are trees/hedges , to enable the paths to remain useable when the hedges grow. Also, to stop unwelcoming “canyon” effect.

4.2.4 Improve the connectivity of green infrastructure for people and wildlife

Activity 1: S.W.O.T.

STRENGTHS	WEAKNESSES
- Existing network to build on. - Multiple benefit to society and wildlife. - Thousands of kilometres of PROW in Essex. - Wide network of GI assets. - Coast Path.	- PROW given low priority by developers and decision makers – results in realignment of existing routes etc. - Not safe to walk, ride, cycle on roads (especially rural roads). - Routes should be accessible to all user groups – walkers, cyclists, equestrians and disables. - Equestrians are left out in the strategy. - Local people do not always use the green spaces they live near. - Cost of maintenance of new infrastructure. - Poor quality of some of the existing infrastructure.
OPPORTUNITIES	THREATS
- Intergrade existing PROWs within developments. - Increase awareness make GI attractive to people and educate on benefits and options. - New crossings. - New PROW. - Change behaviour and attitudes. - Create local walking maps with key destinations, key routes and walking times. - Create circular routes linking to coast path. - Linking habitats together to aid movement of wildlife. - Improve walking network and signposting. - Increase number of safe off-road routes for all users (walk, ride and cycle)	- Balance between usage verses biodiversity/ecology. - Increasing connectivity could negatively impact on wildlife (e.g. increase recreational pressures on coastal SACs/ SPAs from England Coast Path. - Developer wanting to re-align historic footpaths on development sites to unlock development potential but reducing functionality of footpath network.

Activity 2: Word banking and Proposals Review

Part A & B: Word Banking and Joining

Barrier optimisation	- Dynamic - Biodiversity - Space for people and wildlife - Green corridors - Resilient - Walls	- Maintenance - Design - Legibility - Linking large open spaces with pocket parks
Access	- Communication - Education - Information - Communities	- Strategies and plans - Planning - Existing initiatives e.g. Thames Chase Community Forest - Cross- boundary working

Part C: Proposals Review

Develop the coast path in Essex.

Ensure access in a sustainable manner.

Develop inter connecting paths between green infrastructure.

Restore and Promote Essex promoted paths.

- The Forest Way
- The St. Peter's Way
- The Essex Way
- The Roach Valley Way
- The coast path (once designated as National Trail)
- The Stour Valley Path
- The Thames Eastuary Path
- The Flitch Way
- The Saffron Way
- Blackwater Rail Trail
- John Ray Walk

New Proposals

Map existing GI/paths to identify gaps to be prioritised (consider for wildlife and people separately).

Ensure design is resilient and sustainable and provides optimum habitat for wildlife and people.

Build in least restrictive access principle throughout.

4.2.5 Increase use and inclusivity of green infrastructure across all social groups and abilities

Activity 1: S.W.O.T

This activity was not completed for this objective.

Activity 2: Word banking and Proposals Review

Part A & B: Word Banking and Joining

Deprivation	Accessible to all	Special places for kids
Inclusivity is fundamental to enhancing walking etc.		

Part C: Proposals Review

Explore environmental therapies and challenges aimed at developing young people.	No old people, disabled, only young?
Promote youth orientated activities in green spaces e.g. mountain biking, Go Ape, Geocaching, etc.	As above

New Proposals

Raise awareness of GI and its benefits across all social groups.
Support to groups (social inclusion).
Ensure all support groups (e.g. Older people, disabled, young, ethnic minorities, families) are represented.

4.2.6 Provide green infrastructure facilities to promote health and wellbeing

Activity 1: S.W.O.T.

STRENGTHS	WEAKNESSES
• Wide range of users – dog walking/ horse riding/ cycling – family events. • Good atmosphere – family events – Improved health (physical and mental). • Reducing loneliness – becomes a strength once people are better connected. • Use of technology – Apps etc. • Wide range of age groups using GI • Free! • Good web resources – Walking for Health. • Initiatives such as ‘Couch to 5k’.	• Publicity/ lack of awareness. – Lack of information for users/ communication. • Groups having to fund themselves. – ECC Support? – Access to resources? • Reducing loneliness – becomes a strength once people are better connected. • Time to deliver improvements.
OPPORTUNITIES	THREATS
• Improve crime perception. • Behavioural changes. • Promotion as part of tourism? • Informing people of benefits, rules etc. of countryside access. • Facilities (cafes, toilets) at destinations. – Converted disused railway facilities etc. • Circular route – somewhere to start and finish. • Safe road crossings. • Health and wellbeing/ GI policies in Local Plans. • Positive working with developers (S106 etc) – improves by connecting developments with GI. • Increase journeys to school. • Garden Communities/Villages	• Developers: – Landscape is important e.g. greenways – Loss of landscape/other GI. • Access to car parking – more deprived areas having access to the GI? • Lack of joined-up thinking. • Reduction of funding.

Activity 2: Word banking and Proposals Review

Part A & B: Word Banking and Joining

- Inclusivity:
- Appreciation of GI benefits.
- Calm
- Mental Health
- Social (non-threatening) interactions.
- Feeling part of bigger picture.
- Active interests in small things.
- A lot of people will need encouragement/initiating especially that first time.
- Fully accessible to as many user groups as possible.
- Promote inclusivity.
- Be mindful of need to address inequalities in health.

- Health & Wellbeing:
- This is very timely – social prescribing.
- Need to convince e.g. developers, landowners of the value of them.
- Savings
- Being active.

- Air Quality improvements:
- Fresh air
- Clean air
- Should be easier to include in new development than in existing areas.
- Particulate matter uptake.
- Safe and traffic free.
- Less treated water.

Part C: Proposals Review

Explore environmental therapies delivered through mental health services.

Develop and promote Healthcare and wellbeing through green infrastructure activities.

New Proposals

Improve attractiveness of facilities by:

- Improved signage e.g. destinations information etc.
- Amenities – seats, toilets.
- Making them usable for less mobile people.

Increase marketing of the facilities – advertise locally, on the internet.

4.2.7 Secure funding for new and existing green infrastructure to ensure their sustainability

Activity 1: S.W.O.T

This activity was not completed for this objective.

Activity 2: Word banking and Proposals Review

Part A & B: Word Banking and Joining

- Maintenance & Management:
- Sustainability
- Wider community benefit (add value to developers).
- Value
- In-perpetuity – need funding for long-term, not just short-term maintenance.
- Ownership/responsibility
- Stewardship
- Increasing “ask” on the same people in local community who might be asked to undertake maintenance.

- Funding Plan:
- Development process and government funding.
- Viability
- Be clear on projects for funding prioritise!
- Limited opportunities to access EU funding streams – reduced pots of funding and increasing competition.
- Identify funding sources – multiple sources.

- Collaboration:
- Consider from outset Local Plans, planning applications.
- Out of the box
- Independent
- Maximise benefits from multiple sectors/ partners and long-term commitment to fund/ contribute to ongoing maintenance.

Part C: Proposals Review	
Develop new facilities that will generate revenues.	Include existing
Create a Green Essex Fund for endowments, fund raising bids, donations etc	

New Proposals
Partnering to provide/maintain green infrastructure.
Funding to manage volunteers/maintenance.
Create a distinct identify to get strong community engagement.

4.3 Essex Walking Strategy Objectives review

4.3.1 Promote walking for leisure

Activity 1: S.W.O.T.

STRENGTHS	WEAKNESSES
• It's free! • Improve health. • Existing PROW network. • Essex path to prosperity project – Visit Essex campaign in 2020. • No car parking costs.	• Peoples anxiety about walking in areas with poor signage (e.g. rural footpaths across farm land) e.g. will I get lost? Am I allowed here? How do I get back? What if I have an accident? • Signposting – lack of legibility – don't know where paths lead to/sight-lines. • Walking for leisure. • Time needed to walk to places. • Poor lighting on town paths/ routes especially in cut throughs/shortcuts – people don't feel safe. • Not enough information about areas to walk/routes • Traffic danger on roads especially in rural areas. • “Health walks” usually run during the week, not at weekends/ evenings so working people can't participate.
OPPORTUNITIES	THREATS
• Linking walking to destinations – such as country parks etc (county assets) or town centres etc. • Include walking information/maps in residential travel packs. • Create local walking maps and signposting. • Encourage people to walk for leisure who might then consider walking for transport. • Organised social walks – i.e. Parish Council's weekend routes in their area. • Increase awareness of benefits and what is available	• Balance between usage verses biodiversity/ ecology. • Parking too close to locations/ destinations. • Safety/ perceptions/ fear. • Increase in a number of cars on the roads make walking/cycling/ riding more dangerous.

Activity 2: Word banking and Proposals Review

Part A & B: Word Banking and Joining

• Health • Fitness	• Outdoors • PROW	• Sociable • Communities (existing and new) • Fun • Visualise
• Apps • Maps and signage • Information opportunity • Communications – Apps/Social Media	• Incentivise • Barrier ‘Optimisation’	

Part C: Proposals Review

Encourage social walks in Greenspace to link people to groups and reduce isolation	
Promote use of PROW, Coastal Path and Country Parks including links to Rail and Bus Operators	

New Proposals

Provision of good updated information (Apps, maps and signage).
Incentivise walking.
Developing walks of specified lengths.

4.3.2 Enabling physical activity and walking for health

Activity 1: S.W.O.T

This was completed jointly with the Green Essex Objective see 4.2.6: Provide green infrastructure facilities to promote health and wellbeing.

Activity 2: Work banking and Proposals Review

Part A: Word Banking

This was completed jointly with the Green Essex Objective see 4.2.6: Provide green infrastructure facilities to promote health and wellbeing.

Part C: Proposals Review

Enable residents to achieve two active 10's per day through everyday travel	
Collaborate with public health practitioners and stakeholders to raise awareness of walking for Health	See below for new proposal.
Support social prescribing to encourage walking as part of good mental health	Edit to read: Support social prescribing to encourage walking as part of good mental and physical health.
Promote Active Essex (Active Essex Strategy)	

New Proposals

Pilot project in GP surgery's (Rural?) – “Give person” to facilitate contact with walking groups and other users of green infrastructure.

4.3.3 Enhance walking in neighbourhoods and priorities walking in new communities

Activity 1: S.W.O.T.

STRENGTHS	WEAKNESSES
• Improved health and wellbeing. • Improved social cohesion. • Accessibility to services (e.g. transport, shops, schools etc.) and jobs (for all). • Development enabler – to existing communities. – Reduce driving. • Increased awareness/ appreciation of GI.	• Lack of political will. • Lack of public/ planning information. • Real or perceived costs. • Retro-fitting to existing infrastructure costs. • Maintenance cost in future.
OPPORTUNITIES	THREATS
• Promote good design. • Education opportunities. • Timely (Rise of environmental issues). • Making walking a social norm. • Marketing benefit.	• How will this affect those with medical etc. issues – social exclusion. • Shared space in new developments (lack of parking, safety). • Lack of density of developments – money.

Activity 2: Word banking and Proposals Review

Part A & B: Word Banking and Joining

• Social prescribing • Regular events	• Important health benefits. • Community focus and interactions. • Decease isolation	• Economic benefit – e.g. getting to work. • Access to services – rail etc. • Neighbourhoods
• Signposting • Education and awareness raising.	• Safety • 20 mph zones • Keep it clean	• Not deliverable – e.g. lack of connectivity of developments and wider community, need political will and policies.
• Local amenities and facilities. • Prioritise walking and cycling over other modes of transport.	• New walking routes. • Connect with existing walking routes.	• Convenience

Part C: Proposals Review

Active by Design – make walking the most convenient way to get around our local areas.	• Include safe – otherwise good proposal.
Develop Framework for improving walking at a neighbourhood level drawing on Healthy Streets Principals	• Healthy Streets Principle – clarify what does this mean? • Safe, convenient and attractive. • Otherwise good proposal.
Develop a framework for working with developers to ensure that walking (and cycling) is designed in to new housing and communities and provide links to existing destinations.	• Framework? Master plan – planning • What does this mean? • Should read new developments rather than new housing and communities as proposed.
Create better links to Walking Corridors from local neighbourhoods and new communities.	• ‘Corridors’ too linear: people like circular routes. • Suggested wording: ‘Improve the existing network and create better links to existing walking networks from local neighbourhoods and new communities.

New Proposals

Regular walking events.

Access information/ signposting/ education.

Improve attractiveness of routes: clean.

5 Next Steps

John summarised that all the feedback/comments raised within the workshop will be captured and collated with findings from the consultation. These will be taken into to consideration to help review and amended the strategies prior to being taken to cabinet for sign off this winter 2019. John thanked everyone for their participation and closed the workshop.



6 Annex 1: Agenda

Strategies Consultation Stakeholder Workshop Agenda

16 May 2019

Location: Corporate Suite (MAB 404) located on the 4th floor of Lord Ashcroft Building, Anglia Ruskin University, CM1 1SQ

Time: 9:00 - 14:00

9:00am	Registration Tea and coffee upon arrival
9:30am	Opening and Welcome By Councillor Simon Walsh, Cabinet Member for Environment and Waste, Essex County Council (ECC)
9:40am	Purpose for the Day By John Meehan, Heas of Sustainability & Resilience, ECC (Chair)
9:45am	Green Essex By John Meehan, Head of Sustainability & Resilience, ECC
10:00am	Essex Walking By Julian Sanchez, Active Travel Manager, ECC

10:15am	Green Infrastructure GIS Mapping Model By Professor Andrew Lovett, Professor of Geography, School of Environment Sciences at University of East Anglia
----------------	--

10:40am	Tea & Coffee Break
----------------	-------------------------------

WORKSHOP SESSION

10:55am	Introduction to the Workshop activities
11:05am	Activity 1: Are our Objectives the right objectives and are they feasible? Discussion and S.W.O.T. analysis
11:55am	Activity 2: Are these the right proposals or have we missed anything? Part A: Word banking exercises Part B: Joining exercises to create proposals Part C: Comparing proposals
12:45am	Workshop sessions feedback
13:00pm	Close and Lunch

Appendix A4 - Strengthening the Essex Green Infrastructure Strategy Workshop

Essex Green Infrastructure Strategy Policy/Proposal Workshop

7 November 2019

Purpose

The aim of the workshop was to strengthen the Essex Green Infrastructure Strategy with a focus on chapter 9, to ensure it will deliver high-quality green infrastructure (GI) across Greater Essex by identifying and designing policies that will also benefit multi-disciplinary/services priorities.

Attendees: Representative across Essex County Council Services and Functions

Welcome

John Meehan, Head of Sustainability and Resilience welcomed and thanked everyone for attending, especially Professor Alister Scott from University of Northumbria & Natural Environment Research Council Green Infrastructure Knowledge Exchange Fellow for leading the workshop. benefits integral to the health and wellbeing of our communities and to the ecology and economy of the county.

Essex Green Infrastructure Strategy

Jayne Rogers, Environment Office gave a brief update on the Essex Green Infrastructure Strategy and consultation. The aim of the strategy is to:

- Understand the values our current green infrastructure provides in terms of environmental, social and economic benefits,
- Encourage collaboration with internal and external partners and try to co-ordinate an approach that will protect and deliver high-quality green infrastructure.
- Help ensure funding opportunities are maximised in the delivery of multi-functional GI across Essex.

The strategy recognises the key role services can play in delivering and maintain the GI network, which was the focus of Chapter 9, looking at Planning, Highways, Greenways, Coast, Flooding, Health, Energy, Education and Agriculture.

The strategy went out to public consultation for a 9-week period in the Summer. The headline comments were:

- The most popular use for green spaces was for leisure time, health reasons, dog walking and for horse riding.
- Easier access and feeling safe were the most popular responses that would help more people use green spaces.
- The main threats or pressures to GI felt by people were fragmentation of habitats due to increase housing and transport development, development growth and deficiencies in green spaces provision as population grows.
- Other consistent concerns raised were
- Developers deprioritising GI,
- insufficient funding and resourcing available to deliver green infrastructure.
- Need to raise awareness, communicate, and advertise what we already have.
- Need to work collaboratively with landowners, businesses and communities, whilst finding a balance between providing access for people and protecting wildlife.
- Need to improve and utilise existing green spaces and paths better before investing in new green spaces.

GI Policy Planning Assessment

Professor Alister Scott gave a brief background to the methodology/approach to the GI Planning Policy Assessment matrix tool. He explained the concept of GI and the core ingredients of GI:

- Multi-functional – biodiversity/habitats, physical environment, access networks and green space managed as a network to deliver a range of multiple benefits
- Mainstreamed – normalised in the day to day work and decisions of other sectors away from the environment sector
- Stewardship – part of a wider place keeping ethic for long term management and maintenance
- Robust – GI needs to have good coverage (with the necessary evidence base) across all the above criteria and have strong policy wording with an impetus for action.

The pre-consultation version of the Essex Green Infrastructure Strategy was assessed and was found to be strong on placemaking, multifunctionality including Agriculture and Education. Areas for improvement included stewardship (long term management and maintenance) functions; recognising the role of Natural Capital, aesthetics and SuDS (access to watercourses); air quality and meeting the open space standards.

Hover the matrix revealed a lack of action-based policies or commitments to action with only weak elements at best. Alister recommended we build upon current political hooks, such as climate emergency, health and wellbeing, duty to cooperate and biodiversity net gain all featuring within the National Planning Policy Framework. However, the climate emergency also had national priority with the UK declaring a climate emergency. There was also an opportunity to use the UN Sustainable development goals as these also had been signed up to by the government.

This led to the idea to develop proportional policy responses to tie into the existing Vision -objectives-evidence - POLICY- to drive the delivery aspect of the strategy. – the purpose of this workshop.

Workshop Session

Workshop Activity : To strengthen the Essex Green Infrastructure Strategy through co-designing policies for the following 5 themes from Chapter 9 of the Essex Green Infrastructure Strategy:

- Planning for Growth
- Blue Infrastructure
- Public Realm
- Health & Wellbeing
- Rural

Participants had free choice of tables based on the themes, with an opportunity to move to another theme table half way through the workshop session. Each table discussed and worked together to develop policy ideas, sharing each of their policy priorities (from the prerequisite question asked prior the workshop:

1. From one of the following themes/areas can you identify a key policy priority? Themes: Climate Action/Emergency; Health and Wellbeing; Biodiversity; Place Making

Below is the summary of the feedback on key priority points and proposed policies by each table theme.

Planning for Growth

Covers - Supporting large and Small developments, GI into our Cities, Towns and Villages and Minerals and Waste Restoration

Discussion points:

- GI is often lost,
- Active GI,
- climate change,
- fundamental design,
- Green spaces are non-used space,
- Proactive planning of GI – place making,
- GI should be designed from the start.

Policy: 1

We expect green infrastructure to be planned at the earliest opportunity and address the multiple benefits (listed in the Essex Green Infrastructure Strategy).

Policy 2:

We would expect all development to set out the green infrastructure “checklist” showing how each element will be substantially addressed.

Checklist topics include: Biodiversity, active mobility, carbon sequestration etc.

Blue Infrastructure

Covers – Coast and Flooding

Due to attendance numbers and participants choosing themes, this theme was not discussed. However below are a few potential policies identified based on the GI Planning Policy Matrix.

Potential Policy 1 for Flooding:

All development proposal should incorporate the principles of SUDs and natural flood management techniques that demonstrate multifunctional green infrastructure solutions to flood management, biodiversity and open space provision, which will enhance biodiversity, natural capital and provide aesthetic and amenity value; and safe public access.

Potential Policy 2 for Coast:

Opportunities for multifunctional green infrastructure should be maximised by developments located within the developed areas of the coast and coastal projects in the restoration, enhancement, connection and protection of the watercourses and coastal areas providing environmental, economic and social benefits, in accordance with the guidance and actions set out in the Shoreline Management Plans, RAMS, Local Plans and South East Inshore Marine Plan.

Public Realm

Covers – Highways and Greenways (I.e. PRow, Cycle paths, towpaths, bridleway etc)

Discussion topics and group thoughts:

- Highways bounded by GI for example a green corridor running parallel to the highway network.
- Develop better greenways – more strategic with Public Rights of Way connecting to more high valued greenspaces and amenities. There were concerns that a few of the promoted paths were outdated, not fit for purpose and it was suggested to let those go and create new and better paths instead.
- Urban areas need more trees to help with climate change mitigation and adaptation.
- A need for better design with multi-functional GI into streets. Selecting species and design that is appropriate to ensure the GI does not have a negative impact (i.e. root damage, canyon)
- The policy to signpost to existing guidance like the Essex Design Guide.
- Connecting urban to rural and general better connectivity important.
- Improve and enhance existing highway networks through appropriate GI design and multifunctionality.
- Long distance trails connected to urban and rural communities and enhance existing greenways.
- New developments to consider better routes and linkages to amenities with cut throughs – so considering length of routes and accessibility. Often the walk to local amenities are long and winding so puts people of

from walking.

- Educating/raising awareness of politicians.
- Engagement/collaboration and building relationships with Parishes/communities to help implement and maintain greenways.

Groups priorities:

- Engagement and involvement of Parishes/communities
- Connecting urban to rural and new developments
- Sustain and improve existing networks (highways and Greenways)
- Design
- Accessibility

Policy 1: Highways and Greenways

Sustain and improve existing Greenways and Highways green infrastructure network working in collaboration with partners, whilst engaging and involving Parish Councils and communities.

Policy 2: Greenways

New development will use appropriate green infrastructure design and its multi-functions that will enhance the quality, ease of accessibility, inclusivity and connectivity to green spaces, local amenities and across the development.

Health and Wellbeing

Covers – Health and Education

The two groups that discussed this theme had very different priorities, one group focused on people and inclusivity, while the other group focused on place making as summarised below.

Group one:

Group priorities:

- A heavy people focus specifically those in social deprivation and requiring support i.e. elderly, residents with dementia, susceptible to getting into crime.
- Question 2 answers were primarily the focus was upon health and wellbeing followed by the place-making component.
- Active Essex – getting people outside to do exercise.

Discussion topics and group thoughts:

- Trying to understand how to commission projects that are/ include a GI focus.
- There was unanimous understanding that access and use of GI provide significant benefits health and wellbeing
- The major challenge and concern for the specific people focus – i.e. social deprivation and elderly was the free and easy access to the GI assets.
- Education-specific thoughts were primarily focus upon ECC staff:

- What are ECC doing about promoting this in terms of communication to colleagues?
- But also, with a view of how the employees volunteering days could support the longer-term maintenance challenges.
- The sustainability and longevity of this project was discussed in terms of how ECC can influence this.
 - With more and more houses being built how are we able to embed GI into the masterplan for the county and more importantly ensure that the remain in place and are the first pieces of land to be developed on.
 - Internal ECC maximising the engagement and influences of the district and boroughs.
 - But also, they recognised the importance and influence that the parish levels have on the local communities.
- Overall with respect to the health and wellbeing- the focus should lie equally with both health and education
 - From ECC perspective it is about mapping how this fit with existing projects
 - Understand of where else this could link within the organisation.

Policy: Time did not allow for the group to write a specific policy focusing upon health and wellbeing.

Group two:

Group priorities:

- Question 2 answers were more focus upon place making.
- Level of accessibility to GI assets
- Long-term cost-effective sustainable management of GI assets.
- Community engagement and use of GI assets.

Discussion topics and group thoughts:

- The main focus of the discussion didn't not explicitly revolve around the health and wellbeing components as with group one the benefits were unanimously understood.
- GI assets acting as enabler for communities coming together
 - To encourage ownership to bring people together
 - Making the asset more of a community
- In developing the community there was a very strong sense around the table that the health and wellbeing benefits will naturally evolve.
- For H&W understanding what the different communities want is critical as this by-in will determine how well the different assets are used, for this early community engagement is key.
- The link to how GI in new places i.e. garden communities, can also be utilised by the communities significantly impacted by the changes.
 - how are we communicating these communities?
- It was felt that community-led policies in this space would help prevent conflicting priorities.

Policy 1:

Promote community-led activity to enable (formal and informal use) inclusive use of green infrastructure. (With a view that this will organically provide the health and wellbeing benefits).

Rural

Covers – Agriculture and Energy

Group 1

The following priorities were identified

- Challenged focus on agriculture and forestry ; more needed on wider rural community development.
- Enabling communities to enhance GI based on their needs
- Role of being community led
- Ties into existing plans
- Ties into new plans
- Role of GI as a delivery mechanism but also through neighbourhood plans
- Role of GI to address health and wellbeing needs
- Needs to be inclusive
- Needs to be about creating, enhancing, maintaining and protecting.
- Farmers and businesses and landowners as producers of more accessible GI
- Role of energy diversification embedded in GI

Policy 1

Rural communities and associated stakeholders should be supported to create and enhance GI as a tool to address identified health and wellbeing needs. .

Group 2

- Too much focus on agriculture and forestry and energy without recognising and celebrating the identity of rural Essex
- Accessibility
- Better connectivity with PROW and biodiversity
- Improving the setting of heritage assets for GI
- Exploiting rural areas for renewable energies
- Overcoming social isolation using multifunctional GI
- GI as an enabler for activity – providing opportunities
- GI as a delivery mechanism for other policies

Policy 2

Policies and plans should maximise GI through making connections between (at least three or more of the following sectors: heritage assets; recreation and access; biodiversity ; social exclusion and energy

Additional points:

- There is still not a complete understand of the multifaceted component of the GI assets, attendees still had this sense that it was focused upon solely green space, it will be interesting to understand the conversation around the blue infrastructure
- In general, the task of writing a policy was challenging for all however it was a good mechanism to focus minds on the key components.

Next Steps

The proposed policies will be reviewed and added as key summary points to each section and look to do the same for each chapter where appropriate. Whilst policies were used as the focus of the workshop it is important to note that these can go into documents as statements of intent without attaching policy labels to them.

It is recommended to have a clearer navigation for the document with:

VISION

CHAPTERS

OBJECTIVES

POLICIES

EVIDENCE

DELIVERY

This information is issued by
Essex County Council

Contact us:
environment@essex.gov.uk

Environment and Climate Action
Essex County Council
Chelmsford
CM1 2QH

Visit us at:
www.essex.gov.uk

 Essex_CC
 facebook.com/essexcountycouncil

The information contained in this document can be translated,
and/or made available in alternative formats, on request.

Published 2020

Essex Green Infrastructure Strategy

Appendices Part B

A strategy that champions for high quality green space and green infrastructure in Essex

2020



Contents

2	Appendix B1 - Glossary
8	Appendix B2 - Map of the Agricultural Land Classification and Countryside Stewardship Schemes
12	Appendix B3 - Environmental Character of Greater Essex
18	Appendix B4 - Green Infrastructure Asset Data
20	Appendix B5 - The Essex Context
24	Appendix B6 - Percentage of Green Infrastructure and Graded Agricultural Land in each Local Authority Area
26	Appendix B7 - Green Infrastructure Asset GIS Analysis
33	Appendix B8 - The Benefits to Essex From Green Infrastructure
39	Appendix B9 - Access and Inclusivity to Green Infrastructure Provision
46	Appendix B10 - Green Infrastructure Recommendations
60	Appendix B11 - Map of the Proposed Development Sites over 50 Hectares in Essex
62	Appendix B12 - Map of the Greenways Network
65	Appendix B13 - Potential Funding Sources

Appendix B1 - Glossary



Term	Definition
Accessible Natural Greenspace Standard (ANGSt)	Tool developed by Natural England based on the minimum distances people would travel to green spaces.
AONB	Area of Outstanding Natural Beauty - an area of countryside considered to have nationally significant landscape value.
Ancient Woodlands and Ancient Semi Natural Woodlands	Ancient woodland is a woodland that has existed continuously since 1600, There are two types of ancient woodlands - Ancient Semi Natural Woodland are woods that have developed naturally with native tree species (not plantations) and Plantations on ancient woodland sites that were felled and planted with non-native trees.
Biodiversity	The total variety of all living things. This includes all plants and animals, as well as the places and spaces in which they live.
Biodiversity Offsetting	Conservation activities that are designed to give biodiversity gain to compensate for residual losses.
Blue infrastructure	Known as water infrastructure, is a network of water assets such as rivers, canals, ponds and ditches. Blue infrastructure is concerned with use, quantity and quality of water and other water-related issues including flood risk.
CIEEM	The Chartered Institute of Ecology and Environmental Management promotes the highest standards of practice for the benefit of nature and society.
Climate Change	Climate change is a large-scale, long-term shift in the planet's weather patterns and average temperatures. Climate change in Intergovernmental Panel on Climate Change (IPCC) usage refers to a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity.
Common Agriculture Policy	CAP is a system of subsidies and support programmes for agriculture operated by the European Union.
Community Forestry	Community forestry is a set of practices, techniques and methods to manage the forest and its natural resources. It is regulated by a specific legal framework that organises local communities' participation.
CIRIA	Construction Industry Research and Information Association aims to improve the performance, quality, efficiency and safety of the built environment through collaborative working.
Designated Sites	Nature sites and areas of countryside can be 'designated', which means they have special status as protected areas because of their natural and cultural importance.
Eco SERV - GIS	A Geographic Information System (GIS) toolkit for mapping ecosystem services at a county or regional scale. It uses input GIS/map data to generate fine-scale maps that illustrate human need or demand for ecosystem services as well as the capacity of the natural environment to provide them. (http://ecosystemsknowledge.net/ecoserv-gis)

Term	Definition
Ecosystem	A dynamic self-sustaining community comprised of interdependent organisms (plants, insects, and animals), their natural environment and their non-living environment interacting as a functional unit. It's all the living things in an area and the way they affect each other and the environment. It provides the food chain through which energy flows, and the biological cycles that recycle essential nutrients and wastes.
Ecosystem Services	Ecosystem services are the benefits provided by ecosystems in the form of goods and services that underpins our economy by producing value for people. These goods/services are classified along four functional categories: • Cultural services - the non-material benefits such as recreation, aesthetic and spiritual enrichment • Provisioning services – products obtained such as fresh water, food, energy, timber and wood fuel. • Supporting services – such as wildlife, nutrient cycle, water cycle, photosynthesis • Regulating services – protection from hazards such as the regulation of air quality, climate, flooding and erosion; water purification; disease and pest control and pollination.
Environment Therapies	Ecotherapy, also known as nature therapy or green therapy, provides individuals with an opportunity to explore their relationship with nature as a form to treat health and wellbeing issues.
Essex Natural Capital Asset Check	To support Essex County Council's 2014 -2018 environmental commissioning strategy a natural capital asset check (ENCAC) was commissioned from the Essex Place Services consultancy unit to provide a baseline of environmental resources and identify opportunities for their enhancement. Using the Eco SERV-GIS toolkit the natural capital asset check undertaken by Place Services aimed to identify and model ecosystem benefits at a county level.
Forest School	Forest School offers children and young people opportunities to achieve and develop their confidence and self-esteem through hands on learning experiences (usually) in a local woodland environment.
Green Belt	A policy and land use designation used in land use planning to retain areas of largely undeveloped or agricultural land surrounding or neighbouring urban areas. The main aim of Green Belt policy is to prevent urban sprawl by maintaining land permanently open.
Green Corridors	Green corridors can include railway embankments, river banks, heritage and cultural assets and roadside grass verges. Green corridors are linear routes offering recreational and travel opportunities, whilst facilitating wildlife migration.
Green roof & walls	A green roof or wall (also known as a living roof or wall) is where vegetation is intentionally grown and/or habitats for wildlife are established. Green roofs and walls provide different types of biodiversity habitats, water storage capacity, flood alleviation and energy saving potential.

Term	Definition
Green Spaces	Green Spaces are any vegetated areas of land and or water within or adjoining an urban area. Green Infrastructure is the network of different types of green spaces and assets.
Greenways	(Public Rights of Way, footpaths, cycleways and tracks, byways, bridleways), protected lanes, ancient roads, tracks and footpaths, all of which provide an invaluable resource for walking, riding and cycling.
GIS	Geographic Information System is a framework for gathering, managing, and analysing data. Rooted in the science of geography, GIS integrates many types of data. It analyses spatial location and organises layers of information into visualisations using maps
Grey Infrastructure	Traditional utilities infrastructure, e.g. roads, rail, sewers, pipes, etc.
Health Impact Assessment	HIA has the potential to be a useful tool to assess and address the impacts of development proposals. 'HIA is a means of assessing the health impacts of policies, plans and projects in diverse economic sectors using quantitative, qualitative and participatory techniques.' World Health Organisation - http://www.who.int/hia/en/
Infrastructure	The term 'infrastructure' means the basic facilities, services and installations needed for a functioning community, including transport, waste management, water supply, wastewater, flood risk, energy (including heat), health, community and cultural infrastructure and other local facilities.
IEMA	Institute of Environmental Management & Assessment is an international membership organisation, committed to global sustainability.
Lawton Principles	To make our network of sites bigger, better, and more joined up. This means: • Protecting what we have while improving its quality with better management; • Increasing the size of wildlife sites; • Enhancing connection by creating new wildlife corridors or stepping stones; • Creating new sites; • Reducing pressure on wildlife by improving the wider environment including through buffering wildlife sites
Local Plans	• A plan prepared by a local planning authority which sets the rules for how the local area will develop over time. The Local Plan, along with any Neighbourhood Plans, forms the overall development plan for the local area. Planning decisions must normally be taken in accordance with the development plan.
Local Wildlife Sites	• Local Wildlife Sites are areas of land that are locally important for their wildlife.

Term	Definition
Lower Layer Super Output Area	Layer Super Output Areas are a geographic hierarchy designed to improve the reporting of small area statistics in England and Wales.
National Nature Reserve	NNR are areas of land set aside for nature, to promote their conservation and enjoyment.
Natura 2000 sites	A network of nature protection areas in the territory of the European Union. It is made up of Special Areas of Conservation and Special Protection Areas designated respectively under the Habitats Directive and Birds Directive. The network includes both terrestrial and Marine Protected Areas.
Natural Capital	It is our ‘stock’ of waters, land, air, species, minerals and oceans. It underpins our economy by producing value for people in the form of goods and services often called ecosystem services. These goods/services include clean air & water, food, energy, wildlife, recreation and protection from hazards and is the foundation on which our economy, society and prosperity is built.
Natural & Semi-Natural Open Spaces	This type of open space includes woodlands (e.g. broadleaved, mixed, coniferous, ancient), urban forestry, scrubland, grasslands (e.g. commons, meadows), heathland, wetlands, nature reserves and wastelands (e.g. abandoned and derelict land and disused quarry) with a primary purpose of wildlife conservation and bio-diversity within settlement boundaries. Land, water and geological features which have been naturally colonised by plants and animals and which are accessible on foot to large numbers of residents.
Neighbourhood Plans	Neighbourhood plans are prepared by a Parish Council or Neighbourhood Forum for a neighbourhood area to establish general planning policies for the development and use of land in a neighbourhood. A way for communities to decide the future of the places where they live and work.
Open Spaces	Open Spaces is any open piece of land that is underdeveloped (has no built structures) and is accessible to the public and can include: green space, playground, public seating area, school grounds.
Particulate matter	Particulate matter is the sum of all solid and liquid particles suspended in air many of which are hazardous. This complex mixture includes both organic and inorganic particles, such as dust, pollen, soot, smoke, and liquid droplets.
Productive Spaces	Agricultural land and meadows – Spaces and land producing goods and services.
Public Rights of Way (PRoW)	All rights of way are legally highways, and anyone may use them at any time. There are different types, such as paths, byways and bridleways. The permanence of a PRoW is guided by the principle “once a highway, always a highway”, so it remains a highway until there is a legal event to close, divert or extinguish it as a PRoW. A PRoW can be established in one of three ways: • Express dedication - where the landowner has given the public a right of use over their land; • Presumed dedication - where the public have used a right of way for a longer time than anyone can remember; or • Deemed dedication - where a right of way has been in use for 20 years or more.

Term	Definition
Ramsar sites	Ramsar sites are wetlands of international importance designated under the Ramsar Convention.
Self-sustaining	The ability for the green infrastructure to maintain and continue in a health state independently, without (or very little) outside assistance – through a source of revenue and maintenance cycle.
Sites of Special Scientific Interest	SSSIs are those areas of land and water that are considered to best represent the natural heritage in terms of their: flora – i.e. plants; fauna – i.e. animals; geology – i.e. rocks; geomorphology – i.e. landforms etc.
Special Area of Conservations	Special Areas of Conservation (SACs) are established under the European Union Habitats Directive (92/43/EEC).
Special Protection Areas	Sites designated under the European Union's Birds Directive (2009/147/EC). 1 The aim of Special Protection Areas (SPA) is to safeguard the European bird species considered to be of particular importance and therefore listed in Annex I of the Birds Directive, as well as regularly occurring migratory bird species which are not necessarily listed in Annex I.
Special Roadside Verges	Special Roadside Verges (otherwise known as Roadside Nature Reserves) are often remnants of old hay meadows and are recognised for their floristic diversity.
Sustainable Drainage (SuDS)	A sequence of water management practices and facilities designed to drain surface water in a manner that will provide a more sustainable approach than the conventional practice of routing run-off through a pipe to a watercourse.
Supplementary Planning Documents (SPDs)	Provide additional information on planning policies in a development plan.
Thames Terrace invertebrates	Flagship species of a distinctive community of spiders, bees and wasps, beetles, bugs and flies, such as, Shril Carder Bee, Brown-banded Carder Bee and Red-tailed Carder Bee. Many of these species can also be found living in places such as quarries, gravel pits, waste ground and fly-ash lagoons, but these are often very temporary habitats under constant threat of development.
Sustainable development	Sustainable development means encouraging economic growth while protecting the environment and improving people's quality of life - all without affecting the ability of future generations to do the same.
UK Habitat Classification	The UK Habitat Classification is a new, free-to-use, unified and comprehensive approach to classifying habitats that is fully compatible with existing classifications.
Urban Greening	Urban greening refers to public landscaping and urban forestry that create mutually beneficial relationships between people and their environments. Urban greening refers to all forms of vegetation such as street trees, open parks and gardens, shrubs, green walls, green roofs, lawn and pervious soils.
Volatile organic compounds (VOCs)	VOCs are compounds that easily become vapours or gases. VOCs are released from burning fuel such as gasoline, wood, coal, or natural gas

Appendix B2 - Map of the Agricultural Land Classification and Countryside Stewardship Schemes



The green infrastructure asset map does not include productive spaces (such as meadows and the agricultural land in Essex) due to the scale of coverage. The map in figure 1 demonstrate that the agricultural land and farming makes up 68% of the land use in Essex. Credit 3: School of Environmental Sciences, University of East Anglia (2018).

It is important to be aware that not all green spaces or environmental features necessarily qualify to be part of green infrastructure. In rural areas, intensively managed agricultural lands would not normally form part of a green infrastructure network unless it were specifically managed in a way that supports local biodiversity or that encourages a more multifunctional land use which combines food production with other benefits, like recreation or water purification, which is often the case for agricultural land graded 4 to 5. In this instance where graded agricultural land has been identified as another green infrastructure typology such as a nature reserve or woodlands then they have been separated out from the agricultural land classification and included within the relevant green infrastructure typology. Although agricultural lands and their practices can play a significant role in maintaining the natural heritage in rural communities and are aesthetically pleasing, it is often the case these lands are inaccessible. This is not to say nothing cannot be done, however many farmers are engaged in environmental and countryside stewardship activities and already adopt management practices that include green infrastructure features and contribute to the wider green infrastructure network in the County as shown in figure 2.



Figure 1: Map of the graded agricultural land

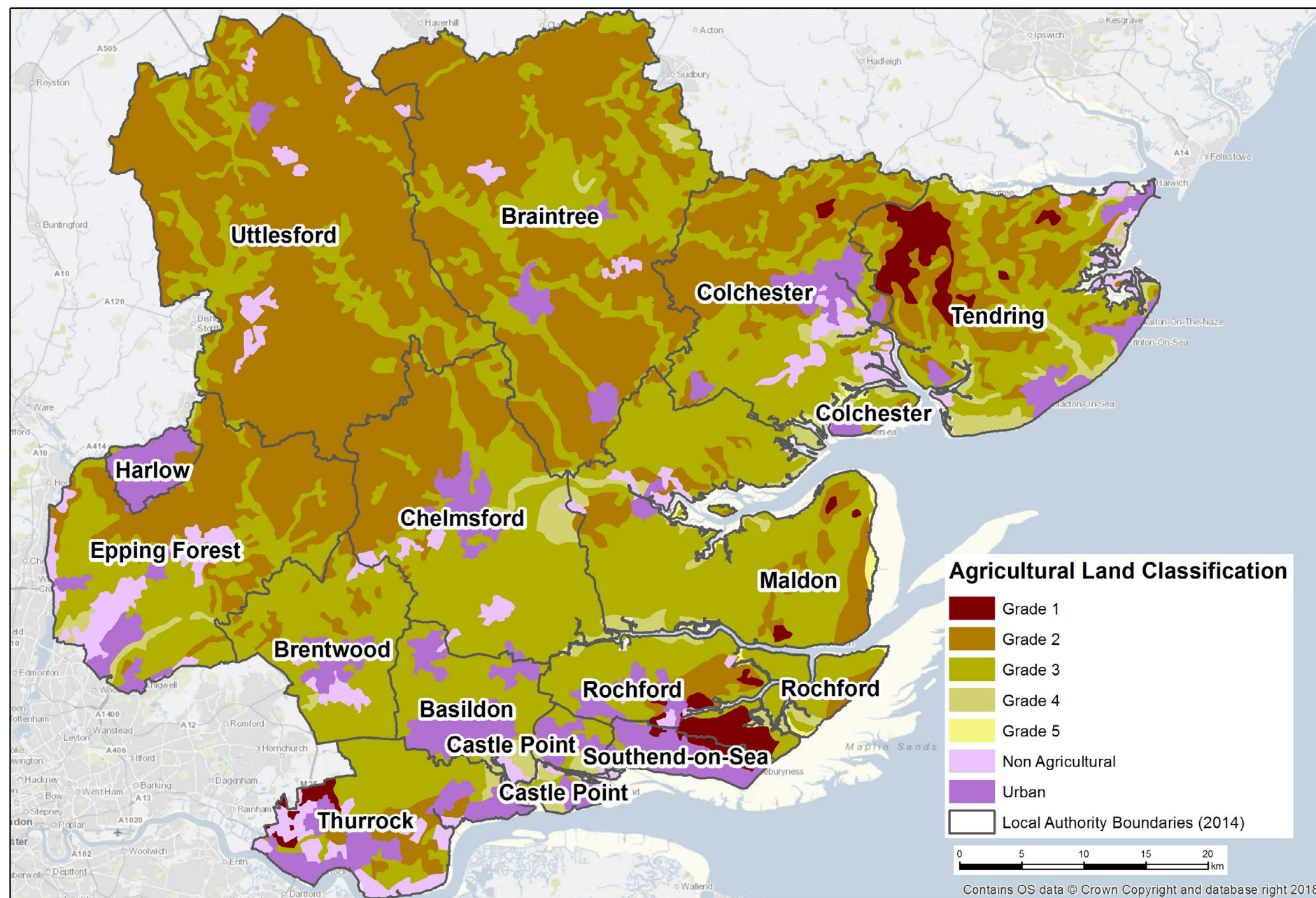
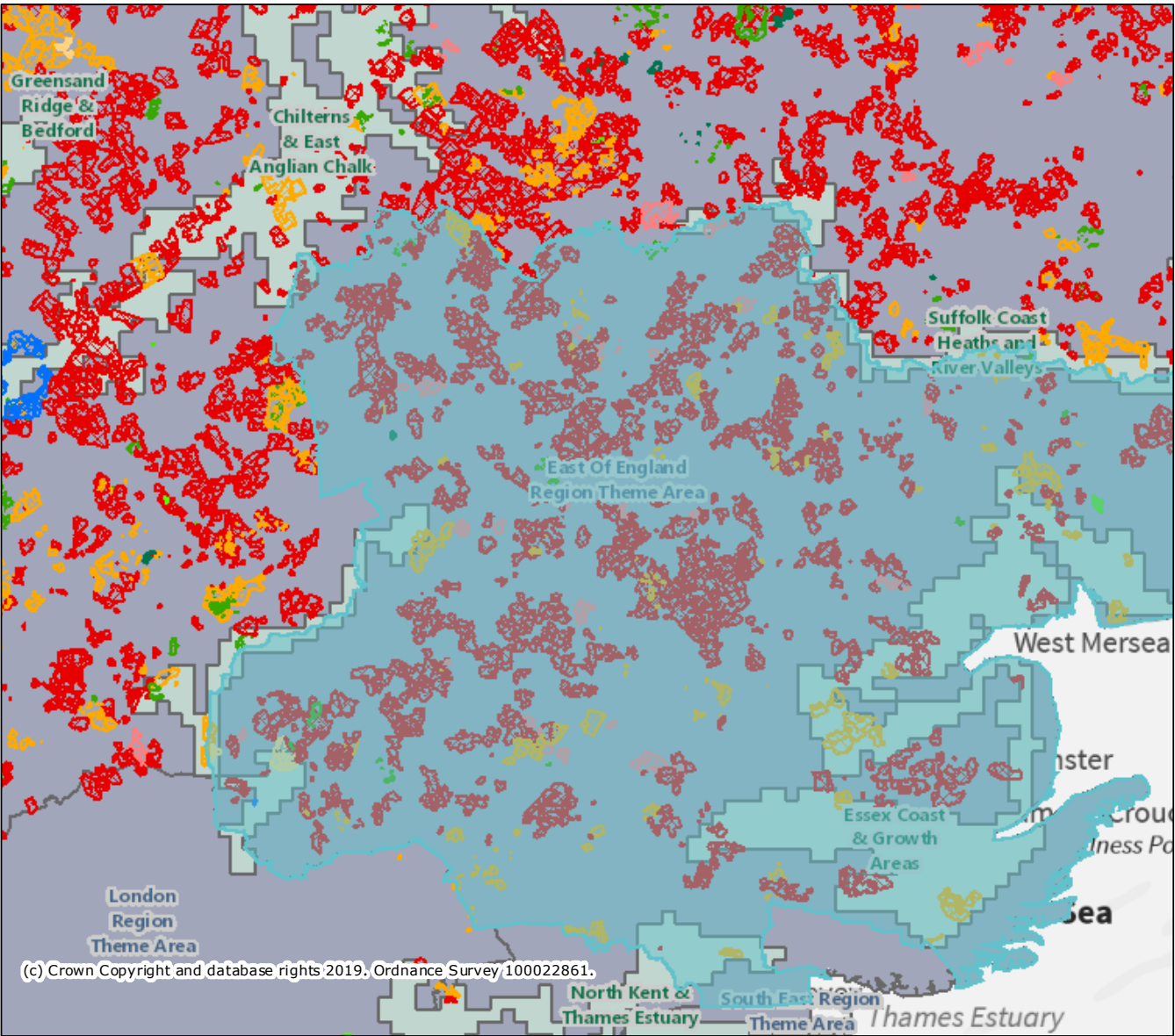


Figure 2: Map of the Countryside Stewardship Scheme by Magic Map, Natural England

MAGiC

Magic Map



Legend

Countryside Stewardship Agreement Management Areas (England)

- Countryside Stewardship (Middle Tier)
- Countryside Stewardship (Higher Tier)
- Countryside Stewardship - Arable Offer (Middle Tier)
- Feasibility Study and Historic Building Restoration
- Hedgerows and boundaries
- Implementation plan
- Woodland Creation Grant
- Tree Health Improvement
- Tree Health Restoration
- Woodland Management Plan
- Higher Level Stewardship Target Areas (England)
- Higher Level Stewardship Themes (England)

Projection = OSGB36

xmin = 482600

ymin = 181200

xmax = 653200

ymax = 260200



Map produced by MAGIC on 27 November, 2019.
Copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of the information that is being maintained or continually updated by the originating organisation. Please refer to the metadata for details as information may be illustrative or representative rather than definitive at this stage.

Appendix B3 - Environmental Character of Greater Essex



Landscape

Greater Essex has a rich and varied landscape of expansive plateaus and wooded hills. The countryside rural in character that has been shaped by a long history of settlement and farming. Over 68% of the county is graded agricultural land not included as part of green infrastructure. Agriculture is the major land use in Essex and has considerable influence on landscape character and natural habitats. The grading classification of agricultural land is shown in the map in Appendix 2. The county retains many historic landscape features and has one of the longest coastlines in the country, much of which is of international significance for wildlife. The Greater Essex coast is extremely diverse in nature, varying from a largely open rural landscape with numerous historic and archaeological features, to the more heavily built up environment which exists around Harwich Port and Clacton. It is also highly valued water and land-based resource providing opportunities for recreation, tourism, agriculture, shellfisheries and many other forms of employment. It is broadly an open maritime landscape of marshes, creeks and eroding cliffs. Table 1 shows the broad habitats that make up the landscape and land use of Essex.

There are 4 Natural England's National Character Areas in Essex, each of which is distinctive with a unique 'sense of place'. These broad divisions of landscape form the basic units of cohesive countryside character, on which strategies for both ecological and landscape issues can be based along with each local authority own local level Landscape Character Assessment. The Essex National Character Areas are:

- Greater Thames Estuary
- Area of Outstanding Natural Beauty (AONB) to be designated – Suffolk Coast and Heath includes part of Essex
- South Suffolk and North Essex Clayland
- Northern Thames Basin.

Table 1: Land use and landscape (Place Services, 2017)

Broad Habitat (Grasslands merged)	Area (km ²)	% cover of ECC admin area A
Arable and Horticulture	2,103	59
Broad leaved, mixed and yew woodland	237	6.4
Built up areas and gardens	335	9.4
Coniferous woodland	9	0.3
Heathland	0	0.0
Fen marsh and swamp	0	0.0
Open Freshwater	29	0.8
Improved grassland	662	17.9
Inland Rock	7	0.2
Littoral Rock	1	0.0
Littoral Sediment	93	6.0
Salt water	17	0.5
Supra-littoral sediment	0	0.0
Grassland with conservation value	74	2.0

Natural Environment

Greater Essex hosts a variety of important lowland habitats, such as the saltmarshes, mudflats and grazing marshes of the coast, which is recognised as one of the most important for wildlife in the UK. 13.4% (496km²) of Greater Essex receives some level of protection through national and international designations (such as, Special Areas of Conservation, Special Protection Areas [SPA], Ramsar and Sites of Special Scientific Interest [SSSIs]) mainly due to the large numbers of wildfowl and wading birds that visit the coast and estuaries in winter.

Whilst inland there are other internationally important habitat sites including the wood-pastures that are ‘present or found’ (either) within the ancient woodlands of Epping and Hatfield Forest and Hockley woods; and the wetlands of Abberton Reservoir and the Lee Valley.



There are 1,978 designations, which include:

- 2 Areas of Outstanding Natural Beauty
- 12 Special Protection Areas
- 86 sites of Special Scientific Interest
- 11 Ramsar sites
- 3 Special Areas of Conservation
- 7 National Nature Reserves
- 1,707 Local Wildlife Sites
- 1 Community Forest
- 49 Local Nature Reserves
- 100 Special Roadside Verges

Several of the SSSIs are mainly associated with the large coastal estuaries of the Crouch, Blackwater, Colne, Stour, Roach and Orwell. There are numerous other areas of habitats across Greater Essex, such as the invertebrate habitats of the Thames Terraces and further woodland types include the river valley cricket bat willow plantations, the occasional conifer plantation and new broadleaf plantations. Scattered amongst the arable farmland and sometimes extending into urban areas, are rivers, woodlands, and brownfields that provide important places for wildlife. Greater Essex also has over 100 sites across the county that have been designated as Special Roadside Verges that provide an invaluable habitat for wild flowers and other native species. The Essex Biodiversity Action Plan 2010-2020 identified 19 priority habitats for their long-term management.

Trees and Ancient Woodlands

Trees, woodlands and hedges are a significant feature of the Greater Essex countryside that improves the quality of life for residents through their contribution to the natural beauty, biodiversity and economy of the County in addition to providing a recreation resource and a natural cooling system for towns. Greater Essex has many ancient and veteran trees which are of huge value for biodiversity, supporting many species, in addition to their cultural and social significance.

The Forestry Commission's Inventory of Trees and Woodlands (2002) estimates the woodland cover of Greater Essex is 5.3% (195km²) of total land area, of which 3.5 % (128km²) is defined as ancient woodlands over 2 hectares in size. Of these 73km² is Ancient Semi Natural Woodlands (ASNW), which are woods that have been continuously wooded since at least 1600AD. It is believed that the total for ancient woodlands and ASNW is an underestimate as the majority of woodlands under 2 ha in size, totalling about 40km² (1.1%) of the total land area may not have appeared on the Ancient Woodland Inventory because they were not registered as woodlands on the historic maps used in the study, due to their low tree density. All ASNW are identified as Local Wildlife Sites and only a small proportion of ancient woodlands have any statutory protection by SSSI (approximately 15%) or Tree Preservation Order.

Based on the National Tree Map data there are over 5 million trees in Essex (BlueSky, 2017), but the Forestry Commission inventory estimates that there are just over 1.5 million trees outside woodland in rural Essex.

It is anticipated that there are a similar number of individual trees within urban Essex. The amount of hedgerow in Essex is estimated to average about 36m per hectare (total of 12,500 km).

Historic Environment

The variety in the geology and soils, as well as the rich and complex historic environment has played an important role in shaping the landscape, wildlife and economy of the County. The historic environment has a positive physical presence and powerful influence on peoples' sense of identity, their well-being, and quality of life. It has developed through a history of human activity spanning over 450,000 years with some of the resource lying hidden beneath the ground in the form of archaeological deposits. Other elements, such as the area's historic landscape; the pattern of fields, hedges, grazing marsh, woodlands, farms woods and tracks, which are of ancient origin, are a highly visible record of past human activity. The 'built' part of the historic environment is equally rich, with the character of towns, villages, hamlets, farms, roads and ports having been shaped by their historic buildings.

Essex has a significant number of ports and landing places, along with its proximity to London and to the coast has meant that for many centuries transport, trading-links and communications routes across the county have been of great importance. The basic layout of modern Essex in terms of principal roads such as the A12 that runs from London to Ipswich, via Chelmsford and Colchester and its towns is Roman in origin; Colchester is the oldest recorded town in Britain.

Green Spaces

There is a wide and varied amount of green space in Greater Essex (as shown in figures 2 and 3 of the strategy) that represents a green infrastructure network of green, blue and sometimes brown components that lie within and between towns and villages and can cross Local Authority areas. Green Spaces are any vegetated areas of land or water within or adjoining an urban area. It is comprising of country parks, village greens, woodlands, cemeteries, churchyards, playing fields, reservoirs, private airfields, urban and historic parks, common lands, floodplains, river valleys, cycleways, outdoor recreation facilities, nature reserves and beaches.

Essex County Council manages seven of its own country parks and over 25 woodlands. It also plays an active role in the Thames Chase Community Forest, Lee Valley Regional Park, and Dedham Vale Area of Outstanding Natural Beauty and works in partnership with the Woodland Trust at Hainault Forest. There are also country parks and nature reserves in most districts, owned and managed by the local authority or conservation charities such as the Essex Wildlife Trust, RSPB, National Trust, the Land Trust and Woodland Trust. Hadleigh Country Park is home to the Olympic 2012 mountain bike track, which is has been adapted to suit all abilities and ages, as well as offering other multi-functional benefits.

Water

Essex has several river catchments, the Stour, Blackwater, Lee, Chelmer (of which are also navigable rivers and canals) and Colne; and coastal streams of the Crouch, Roach and Dengie. These are complicated and vulnerable catchments because of the low-lying land and coastal squeeze issues, combined with the development needs and protection of SSSI's and Ramsar sites. The southern catchments tend to flow into the Thames, and the northern to the east coast estuaries and the North Sea.

In the floodplains of the principal estuaries are extensive expanses of alluvial marshland, such as Dengie, Canvey, Tilbury and the Valleys of the Rivers Crouch, Roach and Mardyke, which are increasingly managed for nature conservation and contain large wetland areas. The Valleys of the Rivers Crouch and Mardyke are also surrounded with clay uplands., The Lee Valley Regional Park provides a hub for waterborne recreation and was the base for the 2012 Olympic event for white water canoeing.

Essex also has significant reservoirs, which serve millions of households: Ardleigh, Abberton, and Hanningfield, and that also provide habitats for wetland wildlife, which are successfully managed by the Essex Wildlife Trust for conservation offering multi-functional of use. There are also agricultural reservoirs that have been developed across the eastern part of the county to supply water for crop irrigation and have the added benefit of commercial use such as providing fishing lakes. Essex has ten designated bathing water sites along Essex coast.

Public Rights of Way (PRoW)

The Public Rights of Way network in Essex comprises approximately 6,531km of footpaths (84%), bridleways (12%), restricted byways (0.01%) and byways (4%), which provide access to the countryside and links between green spaces, towns, villages and places of employment.

There are 8 long distance paths in Essex. All are individually marked, and several are promoted (although their level of promotion is varied) by Essex County Council. They are as shown in table 2:

A new long-distance trail (the England Coast Path) is being implemented by Natural England in Essex running the full 350 miles of the Essex coast. The first section of this path has been granted permission to be created from Burnham-on-Crouch to Maldon.



Table 2: Long distance paths - Essex (ldwa, 2018)

Path	Length (km²)	Length (m)
Forest Way	39.5	24.5
Flitch Way	25.4	15.8
Saffron Trail	112.5	69
The Essex Way	131.7	81.8
Roach Valley Way	37.4	23.2
Stour Valley Way	101	62.8
St Peters Way	66.1	41.1
Thames Estuary Path	44	26
Total	557.6	344.2

Appendix B4 - Green Infrastructure Asset Data



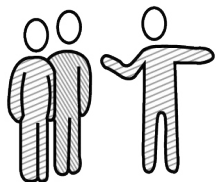
Table 3: Types of green space (km²)

Local Authority	Parks and gardens	Natural and semi-natural open space	Ancient Woodlands	Coastal features	Greenways	Outdoor sports facilities	Amenity green spaces	Cemeteries and churchyards	Allotments, community gardens and city farms	Open space and premises	Reservoirs, lakes and ponds	Waterways	Total GI Classes	Authority Area	GI % as of authority
Basildon	3.6	15.2	0.4	5.3	0.5	3.9	0.1	0.3	0.1	12.7	0.1	0.0	42.2	110	38.4
Braintree	5.1	51.4	12.7	0.1	4.8	6.2	0.1	0.7	1.4	4.5	0.3	0.0	87.3	612	14.3
Brentwood	8.3	22.8	4.5	0.0	0.9	7.4	0.0	0.3	0.2	3.8	0.0	0.0	48.2	153	31.5
Castle Point	3.1	4.0	0.0	4.1	0.2	2.5	0.0	0.1	0.1	7.9	0.0	0.0	22.0	45	48.8
Chelmsford	8.6	31.9	8.2	0.8	2.9	5.9	0.1	0.4	1.2	6.5	3.6	0.0	70.1	342	20.5
Colchester	4.6	41.1	4.8	14.3	2.1	3.6	0.1	0.6	1.0	9.8	5	0.0	87.0	333	26.1
Epping	17.3	36.9	15.9	0.0	2.7	8.9	0.0	0.5	0.7	10.1	2.2	0.0	95.2	339	28.1
Harlow	2.3	2.8	0.0	0.0	0.1	1.8	0.0	0.2	0.2	6.6	0.0	0.0	14.0	31	45.9
Maldon	3.0	25.0	4.2	27.4	2.1	4.5	0.0	0.3	0.7	1.2	0.0	0.0	68.4	359	19.1
Rochford	1.3	12.3	1.7	24.5	1.2	2.7	0.0	0.2	0.3	1.9	0.5	0.0	46.6	169	27.5
Southend	1.5	1.0	0.0	0.4	0.0	3.0	0.0	0.4	0.3	4.9	0.1	0.0	11.6	42	27.8
Tendring	2.0	20.2	5.5	16.8	1.7	4.2	0.1	0.6	0.6	4.7	0.8	0.0	57.2	338	16.9
Thurrock	5.8	19.9	0.1	7.8	0.6	4.5	0.1	0.3	0.4	11.0	0.9	0.0	51.4	163	31.5
Uttlesford	10.5	42.8	14.8	0.0	6.2	2.9	0.1	0.5	0.8	0.1	0.2	0.0	78.9	641	12.3
Outside Local Authority Boundaries	0.04	0.18	0.01	0.2	0.01	0.01	0.0	0.0	0.0	0.02	0.0	0.1	0.3	0	70.3
Grand Total	77.1	327.8	72.9	101.5	26.2	62.0	0.7	5.5	8.1	85.9	13.9	0.1	781.7	3,689	21.3

Appendix B5 - The Essex Context



People and Projections



1,820,900 people live in Greater Essex (2017). The county's population is expected to increase to 2,133,100 by 2041. The greatest increases are currently projected in Colchester, Basildon and Chelmsford.

1,013,100 females and 891,900 males live in Greater Essex (2017).

13.3% of the population are from ethnic backgrounds.^a

The number of households with dependent children in Essex in 2014 has been projected to increase from 174,000 to 213,000 in 2039^b

Data Source: a: From an ONS 2016-based subnational population projections

Data Source: b: Joint Strategic Needs Assessment (2016) & Joint Health & Wellbeing

Strategy for Essex(2017)

Development Growth



In 2016 there's approximately 784,000 households across Greater Essex local authorities.

179,657 homes are needed across Greater Essex by 2036.

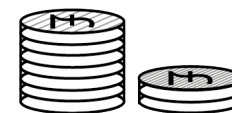
137,663 homes are planned in Greater Essex to be developed by 2036.

Greater Essex has 103 Km of Motorways (64mi); 838 miles of A Road Highway (1,348km); 3,900 miles (6,300km) of Public Rights of Way (Byway 3.80%; Restricted Byway 0.01%; Bridleway 12.34%; Footpath 83.86%).

Walking and cycling infrastructure across Greater Essex varies with good provision in the larger settlements but fewer formal facilities in the smaller towns and villages.^c

Data Source: c: Greater Essex Growth Infrastructure Framework (2017)

Economic Growth



Greater Essex generates £36bn Gross Value Added (GVA) and supports over 816,000 jobs.

79,000 additional jobs are needed as forecasted by the East of England Forecasting model (2016 run).^c

3.4% of Essex population aged 16+ are unemployed.^d

12,616 people (or 2.3 per 1,000 population) of working age (16-64) were claiming Jobseekers Allowance (JSA) in April 2016, that is 1.2% of Greater Essex's working age population. Tendring (2.6%) and Harlow 2.2%) experience the highest level of JSA claimant rates.^c & ^d

Key high performing economic and growth sectors include advanced manufacturing; low carbon and renewable energy; transportation and logistics; life sciences and healthcare; digital, cultural and creative industries; finance and business services; education; and wholesale and retail trade.^c

Data Source: c: Greater Essex Growth Infrastructure Framework (2017)

Data Source: d:Public Health Outcomes Framework: Wider Determinants of Health Tool

Data Source: c: Greater Essex Growth Infrastructure Framework (2017)

Data Source: d:Public Health Outcomes Framework: Wider Determinants of Health Tool

Data Source: c: Greater Essex Growth Infrastructure Framework (2017)

Social and Health



In Essex, two-thirds (66.3%) of adults aged 16+ are either overweight or obese (2013-15). While 20.9% of children in reception and 31.8% of children in year 6 are obese. ^(d) The projected annual increase in obesity rate is 2% in adults and 0.5% in children. ^b

The mortality rate from causes considered preventable in Essex was 164.1 per 1,000 population in 2014-16, while the mortality rate in under 75's from is: ^d

Disease	Essex	Region
Cardiovascular	63.5 per 1,000	64.7 per 1,000
Respiratory	29.3 per 1,000	28.4 per 1,000

Data Source: b: Joint Strategic Needs Assessment (2016) & Joint Health & Wellbeing Strategy for Essex(2017)

Data Source: b*: Census, 2011

Data Source: d: Public Health Outcomes Framework: Wider Determinants of Health Tool

Data Source: f: Essex Natural Capital Asset Check (2017)

Data Source: g: Sports & Physical Activity Profile: Greater Essex (2017)

Data Source: h: (Economic Impact of Tourism Essex 2015, Destination Research, 2015); i:

Space for People (2017).

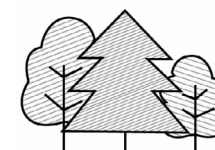
17.1% of residents have a disability or long-term health issues. ^{b*}

Some of the most deprived areas in England are within Essex: six in Tendring and two in Basildon. ^b 14.1% of children under 16 are in low income families, with 12% of r people are living in income deprived households in Greater Essex. ^d

Over 150,000 Essex residents are expected to be living with a mental health illness, with almost 50% of them having developed this condition in their early teens. In 2015/16 4.5% of people reported to have long term mental health problems. It is estimated that 8.7% of 5-16-year olds and 137,017 of 18-64-year olds to have a mental health disorder. ^g The prevalence of dementia, which increases rapidly with age, is projected to increase by 38% by 2021. ^b

In Essex in 2014, 57.9% of people had the recommended amount of physical activity (2.5 hours a week). ^b Although fewer women take physical activity, at least 33.3% of females are active once a week compared to 38.3% of males. The Active Lives Survey (2017) highlighted that 65% of people are active, whilst 22.1% of people are inactive. The total cost of physical inactivity in Essex to the NHS is estimated to be £58,213,764 per year. ^g

Environment



56.9% of Greater Essex is arable or horticulture

9.1% built up areas 6.7% Woodland ^f

In 2017 18% of the population in Essex live near accessible woodlands, while 36% inaccessible woodlands at least 2 ha in size are within 500 meters of where they live ⁱ. In Greater Essex there are:

- 2 Areas of Outstanding Natural Beauty (AONBs):
- 86 Sites of Special Scientific Interest (SSSI)
- 12 Special Protection Areas
- 3 Special Areas of Conservation
- 11 Ramsar Sites
- 7 National Nature Reserves
- 1,707 Local Wildlife Sites
- 49 Local Nature Reserves
- 1 Community Forest
- 100 Special Roadside Verges
- 117km² of land managed/owned for conservation
- 40 registered parks and gardens of Special Historic Interest
- 3 of the best-preserved medieval forests in Britain (Hatfield, Epping and Writtle)
- 14,000 legally protected listed buildings and 320 Scheduled Monuments.

- 117km² of land managed/owned for conservation
- 40 registered parks and gardens of Special Historic Interest
- 3 of the best-preserved medieval forests in Britain (Hatfield, Epping and Writtle)
- 14,000 legally protected listed buildings and 320 Scheduled Monuments.
- 1,651km Main rivers
- 3 major reservoirs. ^f

Essex Wildlife Trust manage 87 nature reserves, 2 Nature Parks and manage 8,400 acres of land

RSPB manage 10 reserves

Between March 2015 and February 2016, 19.2% of people in Essex utilise the outdoor space for exercise/health reasons, compared to England's average of 17.9% and region's 18.7%. ^d

59% of primary pupils and 47% of secondary pupils walk to school. ^g

The total number of visitors in 2015 to Essex (day and staying trips) was 50,305,616 with an estimated total tourism value of £3,026,159,150. 1.3 million visitors per annum used the seven country parks, a visitor farm and a heritage site as well as 40 smaller open spaces and woodlands managed by Essex County Council. ^h

Climate change and flood risk



The annual concentration of human made fine particulate matter (air pollution) in Essex in 2016 was 9.6µg/M³ (adjusted to account for population exposure) compared to England's average of 9.3 µg/M³. ^c

To maximise the capacity of our natural environment for Essex to cope with climate change, the green infrastructure network needs to be as robust and resilient as possible to current conditions and to mitigate the impacts of extreme weather events through its design solutions (e.g. shading and natural cooling).

Essex is one of the top 10 areas at risk of surface water flooding in UK. The number of houses in Greater Essex at risk from:

- Surface water is approx. 36,000
- Rivers is approx. 10,000
- Sea is approx. 50,000

Essex can generally expect more frequent extreme weather events (such as storms, extreme cold weather); milder and wetter winters; and hotter drier summers by 2080. ^e

The Essex coastal estuaries are important for UK biodiversity and these areas may be the most affected by coastal change. Coastal zones, semi natural grasslands, wetlands and freshwater habitats are particularly vulnerable to changes in water availability and species range shifts. Biodiversity is likely to face increasing pressure due to changes in soils and invasion of non-native species and diseases.

Data Source: c: Greater Essex Growth Infrastructure Framework (2017)

Data Source: d: Public Health Outcomes Framework: Wider Determinants of Health Tool

Data Source: e: UK Climate Projections 2009

Data Source: f: Essex Natural Capital Asset Check (2017)

Data Source: g: Sports & Physical Activity Profile: Greater Essex (2017)

Data Source: h: (Economic Impact of Tourism Essex 2015, Destination Research, 2015); i: Space for People (2017).

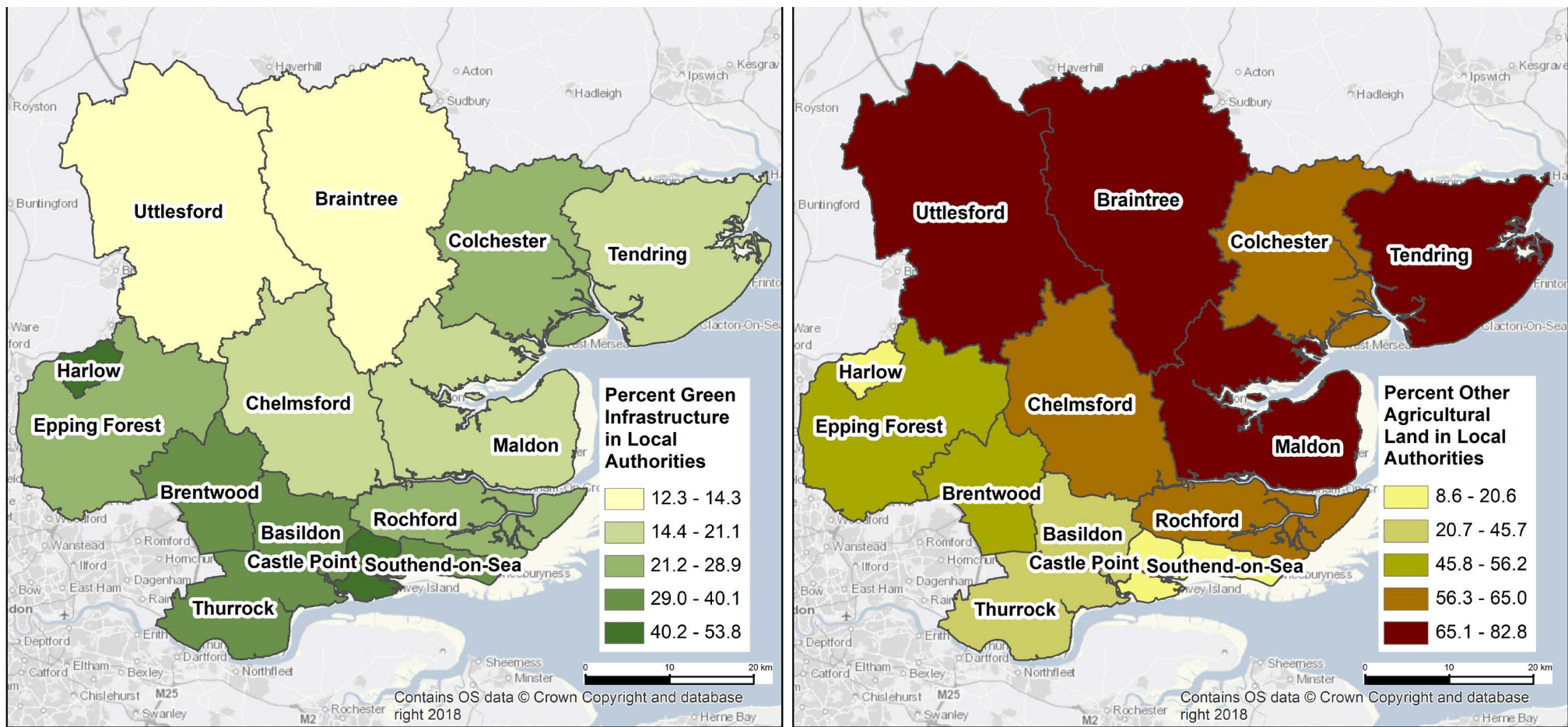
Appendix B6 - Percentage of Green Infrastructure and Graded Agricultural Land in each Local Authority Area



The maps below show that the percentage of green infrastructure in each local authority area varies from 16% (in Tendring) to 42% (in Castle Point and Harlow). Higher values tend to occur in the south of Essex, partly reflecting the higher proportions of agricultural land in the north of the county.

The total percentage land area of green infrastructure is only one consideration to give an idea on the overall provision of green infrastructure in Essex, but it says nothing about the quality or local importance of the green infrastructure.

Figure 3: The percentage of green infrastructure and graded agricultural land for each local authority area



Appendix B7 - Green Infrastructure Asset GIS Analysis



Green Infrastructure Types (Assets)	Green Infrastructure Typology	Green Infrastructure Functions
• Urban park • Pocket park • Neighbourhood park • Community park • District park • Regional park • Country park • Garden • Vegetated garden • Un-vegetated garden	Parks and Gardens	• Recreation • Green travel route • Habitat Provision • Heritage and cultural asset • Pollution absorption and removal • Flood attenuation and water resource management • Cooling effect • Access to nature
• Woodland: ancient	Ancient Woodland	• Linked to Natural and semi-natural open spaces
• Grasslands • Heathland • Scrub • Woodland • Woodland; broadleaved • Woodland; mixed • Woodland; coniferous • Abandoned ruderal and derelict areas • Vacant/derelict land • Disused quarry • Wetlands	Natural and semi-natural green space	• Recreation • Habitat Provision • Heritage and cultural asset • Food production and productive landscapes • Pollution absorption and removal • Flood attenuation and water resource management • Cooling effect • Access to nature • Heritage and Cultural Assets
• Green access route • Riparian routes • Road island/verge • Railway corridor	Green Corridors	• Recreation • Habitat Provision • Pollution absorption and removal • Access to nature • Heritage and Cultural Assets

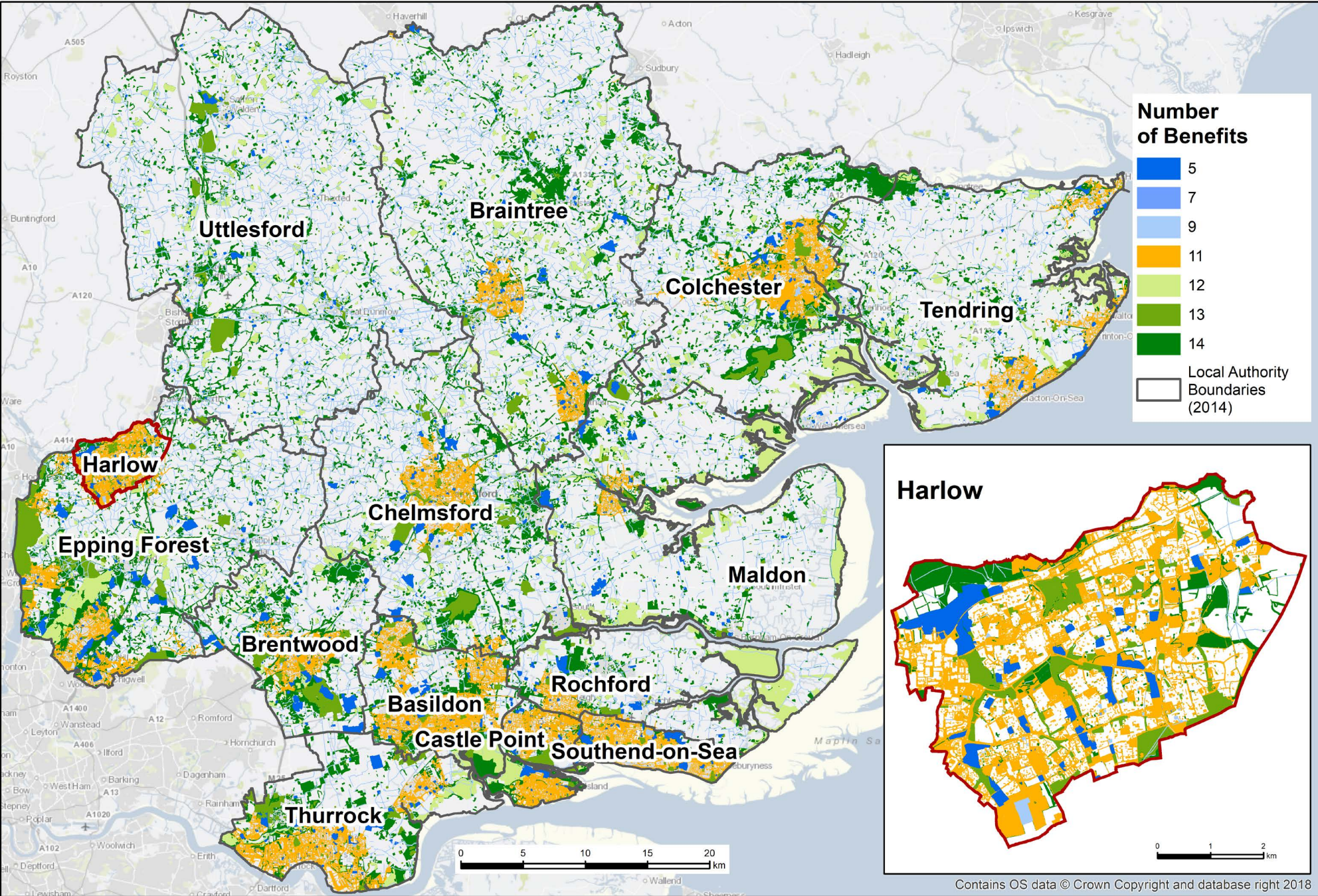
Green Infrastructure Types (Assets)	Green Infrastructure Typology	Green Infrastructure Functions
• Sports pitches • Natural sports pitches • Artificial sports pitches • Recreation ground • Ball courts • Natural ball court • Artificial ball court • Golf course • Race course • Bowling green • Equestrian centre • Other recreational	Outdoor sports facilities	• Recreation • Grassed areas - Flood attenuation and water resource • Cooling effect • If bounded by trees - Pollution absorption and removal • Habitat • Heritage or cultural assets • (These features were difficult to distinguish based on the OS data sources used to map the GI assets).
• Green roof • Extensive green roof • Intensive green roof • Brown roof • Green wall • Ground based green wall • Facade-bound green wall • Balcony green • Ground level planters • Flower bed • Introduced shrub • Tree • Mature tree • Young tree • Tree avenue/alley • Hedgerow • Bioswale • Rain garden	Public realm/civic spaces (No data available)	• Habitat Provision • Pollution absorption and removal • Flood attenuation and water resource management • Cooling effect • Access to nature

Green Infrastructure Types (Assets)	Green Infrastructure Typology	Green Infrastructure Functions
- Children's Play Space - Children's Play Space; natural - Children's Play Space; non-permeable - Outdoor gym - Natural outdoor gym - Non-permeable outdoor gym - Adventure playground - Natural adventure playground - Non-permeable adventure playground - Youth area - Village greens	Amenity green spaces	- Recreation - Heritage and cultural asset - Flood attenuation - Cooling effect
- Cemetery - Churchyard	Cemeteries and churchyards	- Habitat Provision - Heritage and cultural asset - Access to nature
- Educational premises open space - Natural educational sports pitches - Artificial educational sports pitches - Other educational open space - Municipal premises open space - Commercial premises open space - Housing estate open space	Open space around premises	- Recreation - Habitat Provision - Pollution absorption and removal - Access to nature
- Fresh water body - Natural lake or pond - Artificial lake or pond	Reservoirs, lakes and ponds	- Recreation - Habitat Provision - Food production and productive landscapes - Flood attenuation and water resource management - Access to nature
- Coastal - Beaches and sand dunes - Foreshore/rocks - Tidal water - Open saline water	Coastal features	- Recreation - Green travel route - Habitat Provision - Flood attenuation and water resource management - Coastal storm protection - Access to nature

Green Infrastructure Types (Assets)	Green Infrastructure Typology	Green Infrastructure Functions
• Watercourse • Natural watercourse • Artificial watercourse	Waterways	• Habitat Provision • Food production and productive landscapes • Pollution absorption and removal • Flood attenuation and water resource management • Heritage and cultural asset
• Walking/cycling route • Bridleway • Public Rights of Way • Byways • Bridleways	Greenways	• Recreation • Green travel route • Habitat Provision • Access to nature
• Small-scale food growing • Allotments • Orchard • City farm • Community garden	Allotments, community, gardens and city farms	• Recreation • Habitat Provision • Food production and productive landscapes • Pollution absorption and removal • Access to nature • Heritage and cultural asset

Direct or indirect impacts on functions		Environment						Economy							Social					
		Climate Change adaptation and mitigation	Flood alleviation and water management	Environmental quality and aesthetics	Biodiversity	Heritage preservation	Quality of place	Land and property values	Economic growth and investment	Labour productivity	Tourism	Products from the land	Inward investment	Cost Savings	Health and well-being	Recreation and leisure	Sense of Place	Community Resilience	Education	Encourage Sustainable travel
Function	Recreation	I		D		I	D	I	I	I	D		I	I	I	D	D	I	I	I
	Green travel route	I		D	I		D	I	I	I	I	I	I	I	I	D	D	I		D
	Habitat Provision	D	I	I	D	I	I	I	I	I	I	I	I	I	I	I	D	I	D	I
	Heritage and cultural asset	I		I	I	D	D	I	I	I	D		I	I	I	D	D		D	
	Food production and productive landscapes				I			I	D	I		D	I	I	I				I	
	Pollution absorption and removal	D	D	D	I		D	I	I	I	I	I	I	D	I		D	D		I
	Flood attenuation and water resource management	D	D	I	I		I	I	I	I	I	I	I	D	I		I	D		I
	Coastal storm protection	D	D	I	I		I	I	I	I	I		I	I	I		I	D		
	Cooling effect	D		I	I		I	I	I	I	I		I	I	I			D		
	Access to nature			D	I		I	I	I	I	I		I		I	D		I	D	

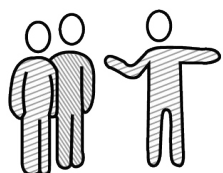
Figure 4: Mapping by UEA showing the number of benefits performed by the green infrastructure typology and an insert of Harlow



Appendix B8 - The Benefits to Essex From Green Infrastructure



There is further increasing evidence that green infrastructure has significant potential to contribute to delivering the benefits to the people of Essex as summarised below:



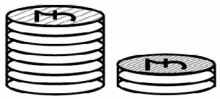
People

- Improves quality of life for people
- Creates cohesive communities - cleaner, safer and greener.
- Benefits children's intellectual, emotional, social and physical development, giving them the best possible start in life through connecting children with nature and green spaces.^a
- A study to improve playgrounds known as 'Super grounds' found that 99 % of the participating schools said the programme had a lasting impact on teaching practice and attitudes to learning.^b
- A survey with over 4,000 UK adult residents participating enable to differentiate average Willingness to Pay values between various socio-demographic groups. The Willingness to Pay value of parks and green spaces:
 - For lower socio-economic groups doubles when welfare weighted for income, increasing from £2.00 to £4.32 per month.
 - To BAME communities also increases significantly when welfare weighted from £3.05 to £5.84 per month.
 - Urban residents value parks and green spaces higher than the UK average Willingness to Pay value at £2.89 per month, and this value increases after welfare weighting to £3.93.^d



Development and Growth

- Increase in land and house prices, for instance it is estimated:
- 3- 20 % premium added to value of land near green space (based on average of what developers would be willing to pay).^h
 - Having a well-managed green space nearby was found to result in average property premiums of 2.6% to 11.3%.ⁱ
 - Living within 600m of a park in London adds 1.9 to 2.9% to property value, while a high-quality park could add 3-5%.^e
 - Up to 7% premium for property in areas with trees, while city parks can add 10%; local parks 8% and amenity spaces 2.6% to value of nearby property^j
- They can encourage further property development in an area and increase local council tax receipts as a result.ⁱ
- Reduction in insurance premiums.
 - Green infrastructure can mitigate the impacts of extreme weather events, therefore decreasing the insurance risk.
- Provide capital savings
 - The integration of green infrastructure into traditional grey infrastructure and in part replace can significantly lower construction costs and maintenance through the introduction of measures such as swales, rain gardens, and green roofs and the disconnection of downpipes to reduce the volume of storm water entering wastewater drains.



Economic growth

Green infrastructure is vital to key sectors such as tourism and agriculture.

- Visitor spending in 2013 saw that 1 in 3 visitors to UK visit parks or gardens, more than museums, castles, historic houses or art galleries
- Visitors to parks spend on average £7.8 million ⁿ

Half a million people a year volunteers in green spaces in the UK, creating an estimated £30 million in value. ^o

- The annual UK economic value of the work of community groups in parks and green spaces ranges between £17 million and £35 million. ^o
- Between 2007 and 2008 BTCV volunteers put in 540,178 workdays. If these are valued at a typical unskilled labour rate of £50 a day, the total contribution amounts to over £27 million. ^o

BTCV estimated that for every £1 invested in environmental volunteering in the UK can lead to a return of up to £4 (400% returns). ^p

Increase in economic activity such as:

- Growth in the occupancy of vacant commercial and industrial space.
- Small businesses choosing a new business location rank open space, parks and recreation as a top priority.
- Good-quality public environment could improve commercial trading by up to 40% by attracting more people into the area, while generating significant private sector investment. ^k

- The investment into green infrastructure of the redevelopment of Riverside Park Industrial Estate in Middlesbrough attracted new, high profile, occupants and saw occupancy grow from 40% to 78%, and levered over £1 million of private investment. 28 new businesses started up. Over 60 new full-time equivalent (FTE) jobs created. ^l

Job creation and New employment opportunities from inward investment.

- Creating new economic opportunities for training, re-skilling and new business ventures in land management and natural environment related careers.
- Regeneration of Glasgow Green generated £8 million in additional salaries, and 35 FTE jobs. Increase in jobs was 28% 1998-2006. Increase in employees in other parts of the city for the same period was 13%. ^m

Reduced illness and absenteeism, improving labour productivity.

- Workers with access to green infrastructure are healthier and more productive. ^l

Managed woodland is often in productive use such as timber for construction and chip board and are also sources of raw materials such as lignin and cellulose –the output of forestry goods with a market value tends to increase by over £200 a year with each additional hectare/0.01km² of woodland.

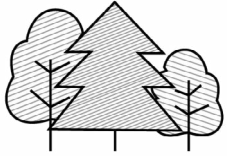
The forestry and primary timber processing sector in 2010 contributed £1.7bn in gross value added and employed around 14,000 people directly. ¹



Social and health

- Reduction in health service costs.
 - The estimated saving to the health service could be in the order of £2.1 billion per year in England from good access to green spaces. ^c
 - Parks and green spaces alone are estimated to save the NHS around £111 million per year based solely on a reduction in GP visits. ^d
- Increases physical activity
- Where people have good perceived and/or actual access to green space they are 27% more likely to be physically active. ^{c & d} At a national level, levels of physical activity are higher in areas with more accessible green space with people achieving the recommended amount of physical activity. ^{e & f}
- A correlation has been observed between those living closest to green spaces and reduced levels of mortality caused by cardiovascular disease, obesity and obesity-related illnesses. ^e Studies in the Netherlands have linked increased green space to increased perceived health and reduced prevalence rates of a few diseases, such as diabetes. ^g
- A link has been observed between areas with more accessible green spaces are associated with better mental and physical health. ^{eg}.
- Across the UK an estimated £34.2 billion worth of wellbeing benefits per year are delivered by frequent use of parks and green spaces. ^d Almost 90 % of the 108 people taking part in a Mind study said that doing physical exercise outdoors in a natural environment was either important or very important in determining how they felt. ^b

Source: B: Landscape Institute, 2013); C: (Natural England, 2009); D: Fields in Trust, 2018); E: (Houses of Parliament Post Note, 2016); F: (E. Coombs, 2010); G: (Houses of Parliament Post Note, 2013);



Environment

- The contribution of parks and green spaces worth up to £1.2 billion, significantly more than £16 million for management and maintenance
- Through a natural capital accounting approach of Sheffield's public parks, Vivid Economics also found that for every £1 spent on public parks, society receives £34 of services – 60% of which is to physical and mental health.^q
- Green infrastructure can provide a recreation and visitor resource
 - Encouraging more outdoors lifestyle
 - For instance, a new coastal walking routes and open space that will extend the length of Essex's coastline will be a major tourist attraction as well as local resource.
- Enhance and improve biodiversity
 - Species movement between habitat patches was approximately 50% greater if corridors were in place compared to patches that were not connected by corridors.^r
 - Streets with trees can contain a higher number and diversity of birds and invertebrate if they connect directly to a green space.
 - A mature oak can host up to 5,000 different species of invertebrate that will form the basis of a healthy food chain that benefits birds and mammals.^s
- Helping to divert and manage pressure from landscapes which are sensitive to climate change.
- Reducing soil erosion - using vegetation to stabilise soils that many be vulnerable to increasing erosion
- Reduce noise pollution
 - Grass surfacing alone can reduce noise levels by up to 3 decibels compared to concrete paving
 - A border of trees and shrubs 30 metres wide can reduce noise levels by 5-10 decibels. While 10 meters wide can reduce noise from traffic by 3-8 decibels - more effective than man-made barriers.^j
- Improve Air pollution
 - Urban vegetation could contribute to 9.1% of suspended particles removal, 5.3% of Sulphur Dioxide (SO₂) and 2.6% of Nitrogen Dioxide (NO₂).
 - 12 %of air pollution in urban areas is attributable to the Urban Heat Island effect due to temperature dependent formation of pollutants such as VOCs and Ozone, therefore the planting of street trees to reduce air temperature can also have a significant effect on air pollution.^t
 - A study suggested that doubling tree cover across the West Midlands could reduce the concentration of fine particulate matter by 25%, preventing 140 premature air pollution-related deaths in the region.^j
 - Landscape – the 4 Natural England's National Character Areas in Essex, each of which is distinctive with a unique 'sense of place' form the basic units of cohesive countryside character.
- Intrinsic character and beauty



Climate change

- Moderating temperatures to ensure that towns and cities continue to be attractive and comfortable places to live, work, visit and invest. Vegetation creates shade, which reduces the risk of heat stroke and exhaustion. ^e
 - Urban parks are on average 1°C cooler than built-up areas during the day. ^b
 - 4.5°C warmer inside buildings in the winter and cooler in the summer because of green roofs and walls provide an insulating effect that reduces the transfer of heat between the external and internal environment, reducing the internal heating and cooling costs. ^u
 - Despite projected effects of climate change, adding 10% green space in high density urban areas will maintain current summer temperature levels up to 2080. ^v
 - If green cover in urban areas is reduced by 10%, surface temperatures will be 7°C or 8.2°C warmer by the 2080s. ^v
 - Vegetation can reduce the Urban Heat Island effect and cool the air by between 2°C and 8°C. ^w
- Managing water resources and reducing flood risk and surface water.
 - Green infrastructure can provide water storage and retention areas, reducing and slowing down peak flows, and thereby helping to alleviate flooding.
 - Green infrastructure can help to manage surface water and sewer flooding by reducing the rate and volume of water runoff; it intercepts water, allows it to infiltrate into the ground, and provides permanent or temporary storage areas.
- A 10% increase in green cover could also reduce the volume of surface water runoff in extreme rainfall events by 14%, while 10,000 trees can retain approximately 35m litres of water per year, reducing flood risk. ^e
- Green space could reduce run-off in residential areas by 5% and increasing tree cover by the same amount could cause a further reduction of 5.7%. ^v
 - Adding green roofs to all buildings in town centres, retail and high-density residential could reduce run off by 17 - 20%. ^v
 - Capital costs of traditional drainage can be more than that of Sustainable Urban Drainage Systems (SuDs), yearly maintenance costs are 20-25% cheaper for SuDS and around half the cost over a 60-year life span. ^x
- Carbon storage and sequestration
 - In a year, 100 mature trees remove 53 tons of carbon dioxide and 430 pounds of pollutants from the air and catch 538,000 gallons of rainwater.
 - They can save homeowners 20% on air conditioning costs and 2% on heating costs.
 - A study on Leicester estimated that 3.16kg of carbon is stored per one square metre of urban vegetation. ^y
 - While a carbon sequestration study in the USA estimated that the urban green spaces sequester 12 to 15 million tons of carbon per year. ^z
- Helping other species to adapt –
 - Providing a more vegetated and permeable landscape through which species can move to new ‘climate spaces’.

Appendix B9 - Access and Inclusivity to Green Infrastructure Provision



A standard developed by Natural England, the Accessible Natural Greenspace Standard (ANGSt), sets out benchmarks aiming to ensure there is adequate accessible green space provision near to where people live. The Natural England's ANGSt sets out recommended distance to accessible green space as follows:

- No person should live more than 300 metres from their nearest area of natural green space of at least 2 hectares (0.02km²) in size.
- There should be at least one accessible 20-hectare (0.20km²) green space site within 2 kilometres from home.
- There should be one accessible 100-hectare (1km²) green space site within 5 kilometres.
- There should be one accessible 500-hectare (5km²) green space site within 10 kilometres.
- At least 1 hectare (0.01km²) of Local Nature Reserve should be provided per 1,000 population (Natural England, 2010).

Most of the local authorities in Essex that have developed green infrastructure strategies or equivalent had set out provision requirement standards for new developments. The Essex Growth Infrastructure Framework (2017) set this out as shown in table 6, where available, the provision standards for each type of green space in each local authority per 1,000 new population (ECC, 2017).

* includes new woodland provision

** provision standard 0.63ha/1000 Managed Open Space (including Parks & Gardens and Amenity Green space)

***provision standard 0.47ha/1000 Informal Recreation Grounds (a variation on the previous PPG17 classification for amenity green space)

****includes recreation grounds

Table 6: Table 6: Open Space Standards and Assessed Provision from the Essex Growth Infrastructure Framework (ECC, 2017)

Hectares per 1,000 population				
	Natural & Semi Natural open spaces	Parks & Gardens	Amenity Garden space	Allotments
Basildon	2.47	1.67	1.19	0.05
Braintree	2.00	1.20	0.80	
Brentwood	2.00			0.18
Castle Point	2.38	3.04	0.58	0.06
Chelmsford	1.00	1.65****	0.40	0.30
Colchester	5.00	1.76	1.10	0.20
Epping Forest	8.45*	0.32**	0.79***	0.33
Harlow	2.50	2.25	2.99	0.25
Maldon		1.16	1.16	0.20
Rochford	3.00		0.30	0.20
Southend-on-Sea	1.00	1.00		0.21
Tendring	3.87	0.13	1.66	0.22
Thurrock	2.00	0.70	0.80	0.16
Uttlesford	7.00		1.00	0.25
Essex Average	3.28	1.35	1.06	0.20

As a result, the Essex Growth Infrastructure Framework local benchmarks found that most areas have sufficient natural and semi-natural green space, parks and gardens, except for Rochford, Tendering and Thurrock. While the provision of more informal amenity space is lacking across Essex. This is particularly the case in more built up areas and is exacerbated by the fact that the supply of green infrastructure is not matched up with areas that are most at risk in terms of health and deprivation (ECC, 2017).

Furthermore, the analysis undertaken by the Essex Wildlife Trust in 2009s of the accessible green spaces in Essex, using the Natural England's ANGSt, found the proximity to open spaces varied across the districts and, across Essex, there is a relatively low provision of small, local sites between 2 and 20 hectares (0.02-0.2km²):

- 29% of households had access to a site of at least 2 hectares (0.02km²) within 300 metres.
- 68% of households had access to a site of at least 20 hectares (0.20km²) within 2 kilometres.
- 72% of households had access to a site of at least 100 hectares (1km²) within 5 kilometres
- 14% of households had none of the Natural England's ANGSt targets met (ANGSt) (EWT, 2009).

The analysis undertaken by UEA mapped the green infrastructure against the ANGSt benchmarks across Essex as shown in figure 5, and found that only two polygons met the ANGSt criterion of a 500-hectare site. In total, just over 50% of Greater Essex residents lived in locations meeting at least three of the access benchmarks, another 33% attained two benchmarks and 2% none at all. 40% of residents living in places in Braintree, Tendring and areas of Chelmsford and Uttlesford are achieving no more than a single benchmark.

In some areas the percentage of accessible green spaces is low due to deficiency of green spaces in the first place, in many instances the provision of green spaces may appear sufficient, but they remain inaccessible or access maybe limited. Rural communities were identified as being particularly affected by lack of access despite being in close proximity to more natural areas (ECC, 2017) (EWT, 2009). On the basis of Figure 5 there are parts of northern Braintree, northern Chelmsford, eastern Tendring and eastern Uttlesford that could merit further investigation of GI provision (BLGDRC, Lovett & Sünnerberg, 2019).

Some areas may not always be well served due to settlement evolution and the presence of barriers to access, such as motorways, trunk roads and railways, as well as people's perception of accessibility, facilities available and its inclusivity. These issues are particularly relevant to many parts of Essex. There are certain groups in society that are particularly vulnerable to social exclusion. These include people with disabilities, ethnic minorities, young people, older people and those at an economic disadvantage.

An ethnic and diversity study undertaken in 2005 reviewed the perception of under-represented groups¹ within inner cities in accessing the countryside and found that while there were specific barriers to each group the majority were put off due to cost from lack of transport and any fees on site, fear for their safety, fear of segregation, accessibility due to lack of facilities and that they are not entitled to be there or not welcome to visit. The study revealed that disabled people, ethnic minorities and young people were keen to access outdoor recreation once they had 'tasted' the experience, although young people needed more active engagement. However, lack of information, economic circumstances and confidence were key factors preventing independent access (Countryside Agency, 2005). While, a separate study from 2010 found the green space that mattered most to people was the local park, which accounted for 90% of the green spaces all people used (CABESpace, 2010).

The UEA analysis also mapped the distribution of green infrastructure across 1,076 Lower Super Output Areas (LSOA) across Essex and compared the pattern of current green infrastructure provision against socio-economic variables, such as Index of Multiple Deprivation (IMD), population ethnicity and age distribution. The LSOAs were classified according to their values on two or more of the socio-economic characteristics and divided into three equal groups on the basis of their IMD and population density values. The results indicated that the less affluent areas in the middle third of population density of the LSOAs (e.g. suburban areas) have a higher provision of green infrastructure, while the more affluent and densely populated areas of the LSOA has the lowest provision of green infrastructure. It implies that there are some differences in the distribution of the green infrastructure and accessibility according to the social-economic characteristics of areas. Figure 6 shows the green infrastructure clusters for 93 LSOAs identified with the lower provision of green infrastructure of which 53 of these LSOAs are concentrated geographically in Southend and Tendring, suggesting opportunities for further investigation (BLGDRC, 2019, See Appendix C1). Given that less than a third of households in Essex have access to such green space site within 300 metres, improved access and safety will have a huge effect on the number people from under-represented groups using the existing green spaces. For these groups, the potential that green space has for enhancing social cohesion is especially important.

Small changes in design, for example, locating crossings and cycle routes in relation to green space entrances, can help improve accessibility. Since 68% of Essex households have access to a site of at least 20 hectares (0.2km²) within 2km, the improvement of connectivity to and creation of cycle routes and other greenways could encourage more people to switch their short car trips (under 5kms) to cycling or walking therefore promoting a modal shift towards sustainable access to these sites, as well as making these green spaces more inclusive reducing the cost to travel and easier to access.

Furthermore, an Essex Resident survey undertaken on behalf of Essex County Council in 2016 found that 78% of people of the 5,535 respondents were generally satisfied with the parks and open spaces in Essex, however since 2014 there was a decrease in people's views of ease of access to these parks and open spaces. When asked if these could be improved 48% thought the parks and open spaces should be promoted better, 47% believed the facilities should be improved, 33% wanted to make the access easier with public transport and 29% wanted them to be made safer (Q A Research, 2016). Further to this a UK-wide on-line survey on understanding public attitudes towards walking in urban parks and green spaces was conducted in May 2018. 1,000 people with regards to improving green spaces and accessibility found that 35% of people aged over 75 would walk more often if there were more benches available and 67% would walk more often if green spaces were better maintained (The Ramblers & TCPA, 2018).

It is important that the potential benefits of existing green spaces are fully realised to support growing and changing populations. By exploring the existing green and open space in Essex to see if there are new opportunities to transform them into biodiversity rich and people friendly green spaces. This may require improved management, promotion and greater multifunctionality of green spaces. While impacts from development will need to be mitigated not only through the provision of new strategic green spaces but also by enhancing the quality of the existing sites, improving access and wider landscape management practices (ECC, 2017).

Figure 5: ANGSt benchmark result for Greater Essex - Note: Calculations based on a gridded population surface derived from 2011 Census headcounts

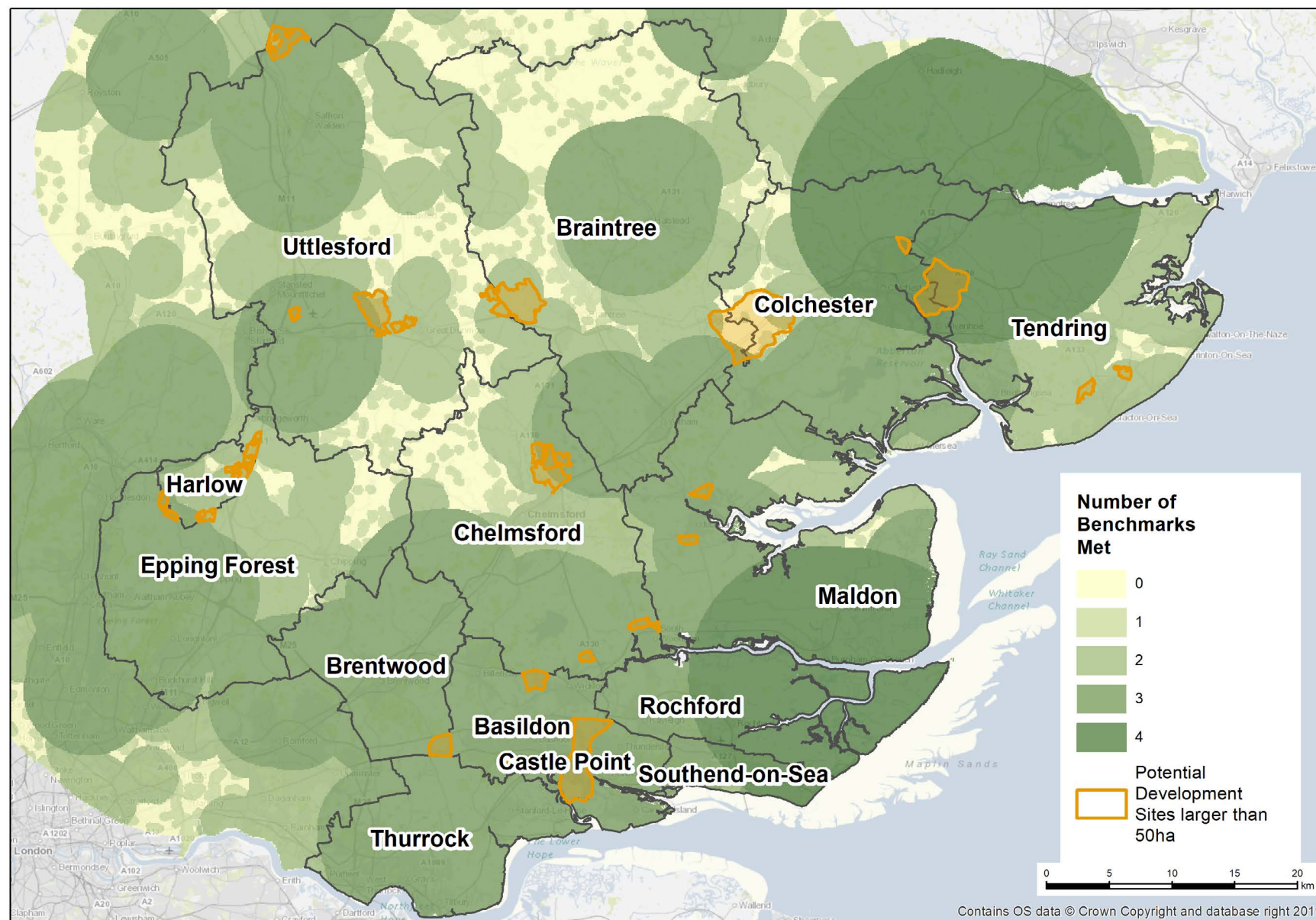
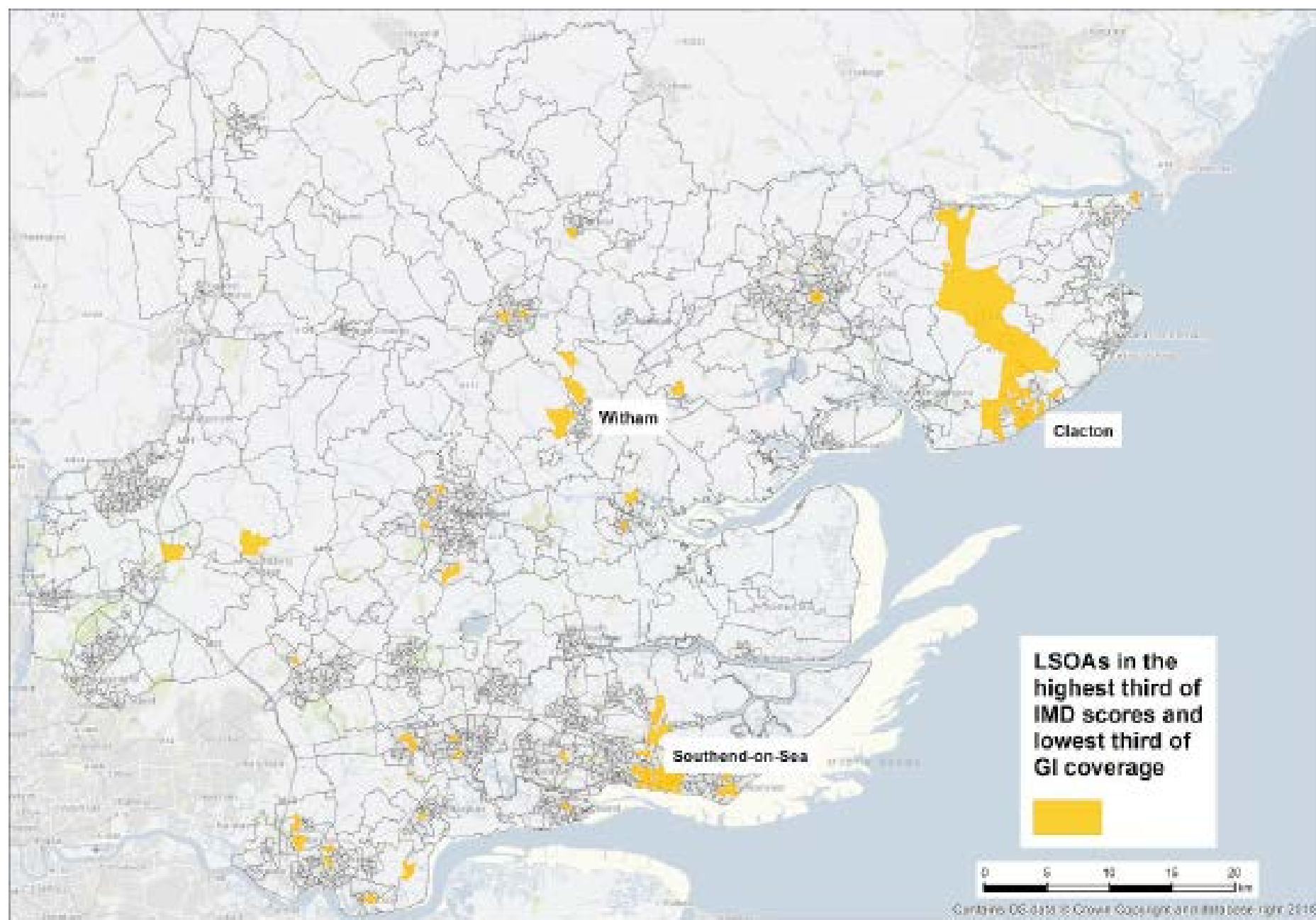


Figure 6: The distribution of LSOAs with higher IMD scores and a lower percentage coverage of green infrastructure assets

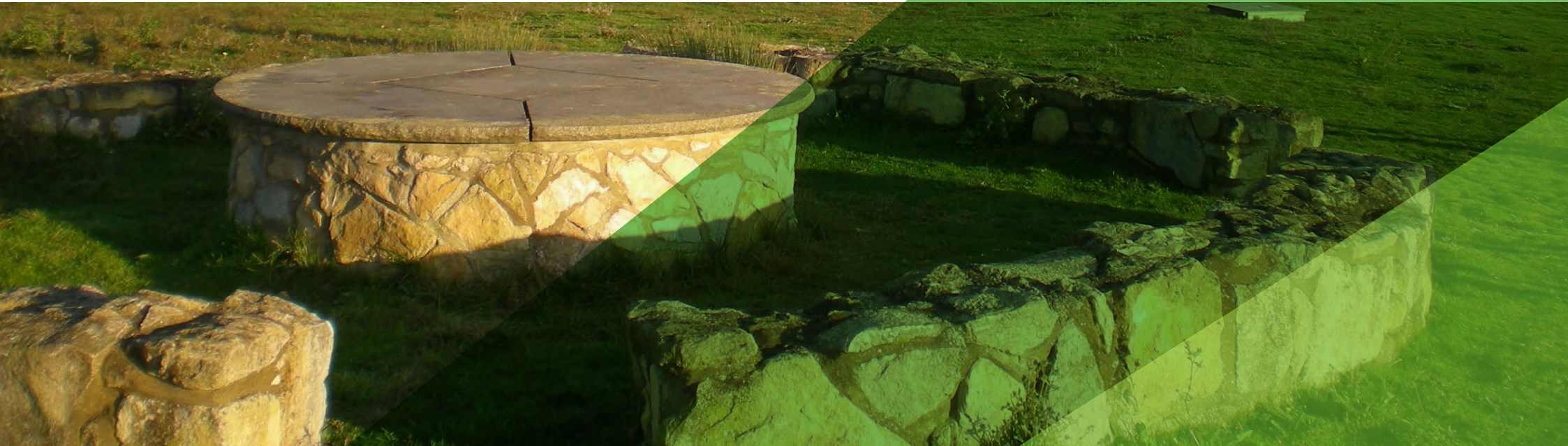


Simple measures that developers, landowners, private, public and third sector authorities such as planners, parks, conservation and highways could consider in improving existing green infrastructure for example:

- Protect, maintain and enhance the ecological and heritage value of green infrastructure and foster sense of place
- Undertake an audit of public or private green infrastructure to assess their functionality and benefits against the community needs. Which might suggest creative ideas to be incorporated into grounds maintenance contracts such as new paths and benches.
- Look to improve the quality of existing green infrastructure through remedial work such as removing litter or graffiti, tackle invasive plant species or re-claim areas which had become wild or inaccessible.
- Seek opportunities to get communities and the third sector more involved in the development and maintenance of their local green spaces, through a variety of creative approach, such as:
 - Competitions
 - Litter Champions projects in schools
 - Path tidies
 - Formation of 'Friends Of' groups.
- Increase functionality and benefits from existing green infrastructure assets by:
 - Reviewing location of playing and sport facilities to assess opportunities to reduce habitat fragmentation in key wildlife corridors.
 - Improving the connectivity and network of greenways through target physical improvements to greenways routes that can also be promoted for local and visitor use.
 - Reviewing existing management plans for green spaces to look at multifunctional opportunities including a focus on biodiversity enhancements.
 - Establishing a culture and processes for long term management of green infrastructure.
 - Explore alternative models for managing open spaces to minimise overall costs to maintain or to become increasingly more economically self-supporting.

Appendix B10 - Green Infrastructure Recommendations

The concept of green infrastructure is firmly supported through national, regional and local policy and its wide-ranging benefits well evidenced. Despite this, in practice the green infrastructure is still undervalued and at worst viewed as a constraint on development and our public realm. Nevertheless, green Infrastructure is more than aesthetic, but fundamental part of our natural environment, which improves biodiversity, social interaction and our health and wellbeing. It is the essential ingredient that go into place-making and ensuring that place works effectively now and in the future. Therefore, the value of the green infrastructure needs to be at the heart of decision making for all those with a role in shaping, changing and managing the public realm and natural environment.



10.1 Planning

Consideration for strategic planning and development management policies and decisions should seek to achieve the following recommendations as a matter of good practice, or mitigation:

Recommendations: Planning
Protection and enhancement of existing urban natural green spaces and amenity open spaces
Adequate access to natural green space for new developments, in accordance with ANGSt, Building with Nature or similar standard, wherever possible. This can be delivered either through on-site provision or financial contribution as appropriate
Adequate access to amenity open spaces for new developments, in line with NPPF, Local Plans and local green infrastructure, open space strategy or equivalent. This can be delivered either through on-site provision or contribution to a scheme within close proximity to the site.
Financial contributions to be sought for ongoing maintenance when new green infrastructure assets are provided on-site within a development scheme.
Provision of additional natural green space, outdoor amenity open space, green corridors and greenways to meet the needs generated by new development and linked to the wider green infrastructure network.
Protection and enhancement of existing green corridors and ‘green lungs’/ ‘fresh air corridors’ (including Green Wedges, Green Edges and Strategic Gaps)
Promotion of new green corridors as part of new developments.
A development site is rarely an island and will require a review of what’s going on outside the red-line planning boundary. Consider if there are other green infrastructure features that can be linked. Ensuring the creation of coherent, direct, safe, comfortable and attractive greenways linking to green spaces and green infrastructure.
Protection and enhancement of existing water courses and open bodies of water.

Promotion of new water courses and open bodies of water as part of new developments.
Protection of existing street trees and promotion of additional planting as part of new developments and designated street planting priority areas.
Greenspaces and trees recognised as essential elements in urban surroundings with ‘minimum net increase’ for loss of existing sites and trees due to development proposals (rather than no net loss).
Incorporation of landscape planting that provides shelter for buildings in exposed locations and shading in urban environments.
Implementation of small-scale green infrastructure measures and features on an individual level by housing and buildings such as green roofs, green facades, rain gardens and ponds.
Incorporation of environmental and biodiversity net gains and offsetting within development and landscape schemes for ‘linking features’; such as transport and utilities infrastructure.
Green infrastructure policy should embrace a diverse, inclusive and comprehensive understanding of green infrastructure at different scales: the local authority areas, whole cities and towns down to single neighbourhood areas. It should aim to improve the multi-functional impacts of green infrastructure to maximise the benefits delivered to communities.
Consideration in marrying green infrastructure design with other strategies and masterplans proposal such as surface water management strategies and habitat networks (e.g. strategic drainage engineers, ecologists, landscape architects, utilities) to coordinate delivery and implementation.
Think about multi-functionality – green infrastructure works in multiple dimensions in several ways, for example a green roof provides a home for nature, has thermal benefits for the building, sound proofing, storm water retention, visual amenity, and pollution control. When looked at in this context the business case really does stack up for green infrastructure. It’s not just about drainage or nice to have!

10.1.1 Supporting large and small developments

The key to planning and managing green infrastructure in new development is to consider the site in its context. This includes considering the features of the site and the networks of habitats, sustainable transport routes and water courses that surround it. General recommendations for planners when assessing proposals for new developments:

Recommendations: For planners	
Make use of existing assessment and evidence of the state of the green infrastructure and the opportunities identified to enhance and connect with it.	Ensure adequate access to natural green space for new development is in accordance with ANGSt, wherever possible. This can be delivered either through on-site provision or financial contribution as appropriate
Green infrastructure principles should be embedded from the start; site appraisal through to the design stages in developing masterplans. Rather than being something extra that has to be provided separately through developer contributions/obligations.	Protection of existing street trees and promotion of additional planting as part of new developments and designated street planting priority areas.
New development proposals should be required to demonstrate how the landscape proposals connect with wider ecological networks and help to make these more resilient	Encourage the incorporation of landscape planting that provides shelter for buildings in exposed locations and shading in urban environments.
Ensure that communities have the opportunity to engage with their local green spaces in new areas	Encourage the implementation of small-scale green infrastructure measures and features on an individual level by housing and buildings such as green roofs, green facades, rain gardens and ponds.
Where a proposed development has an impact on existing green infrastructure, ensure that the function and benefits lost through the development are offset.	Ensure that masterplans consider the design and layout of a green spaces for example:
Avoid development that would lead to the fragmentation of habitats. utilising existing features such as watercourses and future proposals such as transport corridors.	
Consider compensatory provision to be made for the loss of existing green infrastructure from a proposal to provide for the provision of new and/or enhancement of green infrastructure on-site or off-site. Where appropriate, the local planning authority will seek to secure via planning obligation provision for the future management and/or maintenance of green infrastructure.	

Welcoming • Include natural entrance and gateway features such as trees • Use natural features such as rivers or other natural landmarks as key part of the design to make it easy to find way around • Make good use of views to help to create places with a positive image.	Distinctive • Reinforcing local landscape character and identity. • Using unique design features i.e. SuDS, green corridors and green facades • Use green infrastructure to create a sense of place
Easy to navigate • Connections for people through the development to join up to existing networks. • Connections for wildlife; integrate and enhance surrounding habitats where appropriate. • Where best to make green links and connections to strengthen and enhance the green infrastructure network.	Safe and pleasant • Well located; linking into wider green infrastructure network. • Address risks through design , such as lighting of a greenspace, boundary features to help define public and private spaces, SuDS, etc. • Delivering high quality design and maintenance.

10.1.1 Supporting large and small developments

Recommendations: For developers			Secure the long-term management of existing and new habitats so that communities are engaged in the management and to enable further investment to be secured
Development proposals need to consider how they can integrate and assist with the delivery of green infrastructure objectives and make contributions to delivery either on-site or off-site.			Development should facilitate evaporative cooling and shading in order to increase amenity and reduce heat load.
An assessment of the capacity of nearby sites to absorb additional recreational use without causing detriment to the environment should be completed for new development sites. Access into these areas and buffering of the nearby sites should be incorporated into the design of new developments.			Development which facilitates safe access to watercourse, whilst improving water quality and opportunities for leisure and biodiversity.
Assess sites for their context, identity and connection:			To strike an appropriate balance between the need to minimise land, energy and transport requirements in new developments and integrating sufficient green spaces and other GI elements.
Context - Location and surroundings - Natural features - Views - Topography - Hydrology - Microclimate (wind, heat etc) - Wider green network	Identity - Landscape character - Green and blue corridors - Green spaces - Biodiversity - Habitats	Connection - Pedestrian movement (greenways) - Vehicular movement, existing roads and transport connections - Habitat allowing species migration. - Water flow.	The establishment of green active travel routes (walking and cycling) which minimise the need for motor vehicle movements, ensuring new developments are located where they can be linked to services and facilities
Protect and enhance existing biodiversity assets.			Dissection of the linear network of cycleways, public rights of way, bridleways and ecological corridors such as ancient woodlands, hedgerows, ditches and water environments are prevented. Developments should protect and enhance existing cycling and walking routes.
Seek opportunities to improve habitat connectivity within sites and with ecological networks beyond development sites.			Maintain and, where appropriate, contribute to the network of green infrastructure i.e. public and private playing fields, recreational open spaces, parklands, allotments and water environments;
Integrate biodiversity opportunities within new development			Contribute to improving the health and well-being of the local and wider community;
Make decisions informed by the best available ecological information and data			Incorporate either improvements to existing green infrastructure or the restoration, enhancement or creation of additional provision/areas, delivering multiple functions and benefits.
			Incorporate either improvements to existing trees, woodland, landscape features and hedges or the restoration, enhancement or creation of additional provision/areas;

Create new green infrastructure either through on-site provision or financial contributions. Where on-site provision is not possible financial contributions will be required and be negotiated on a site by site basis;
Green infrastructure to be discussed in the pre-application consultations with the community, local planning authority and key agencies to help shape the masterplan at an early stage.
The long-term management and sustainability of green infrastructure should be considered when incorporating these features into a development. Where the long-term management of the business park or industrial development would typically be undertaken by a management company, it would normally be possible to integrate green infrastructure maintenance with standard arrangements, however where management and maintenance are more fragmented this would need to be considered.
Specifying the green infrastructure requirements into the standard engineering specifications to ensure it gets considered. Making the information as clear and detailed as possible makes for accurate costings, reducing the likelihood of elements such as green infrastructure being value out.
Ensure that the appropriate and relevant level of expertise, tailored to each project, is involved at the appropriate time (usually as early as possible).
Developing strong & mutually beneficial relationships/ partnerships with local partners such as The Wildlife Trusts can assist in design, delivery and speedy approvals through planning.
Developing strong & mutually beneficial relationships/ partnerships with local partners such as The Wildlife Trusts can assist in design, delivery and speedy approvals through planning.

When planning green infrastructure, it is vital to consider, from the earliest stage:

- revenue funding – to pay for the long-term care of the green infrastructure;
- capital funding – to pay for creating the green infrastructure; and
- the design of the green infrastructure – which will affect the cost of maintaining it as well as the cost of creating it.

(ref: Green Infrastructure and Housing Development 2016)

10.1.2 Green Infrastructure in Cities, Towns and Villages

Recommendations: Green Infrastructure in Cities, Towns and Villages

Protect and enhance existing green infrastructure, including natural green space, amenity open space, green corridors and vegetation.

Balance the need for inner-urban development or urban extensions with the potential impact on microclimate and the need to provide urban green space.

Seek opportunities to address identified deficiencies in access to natural green space or outdoor amenity open space within existing communities.

Increase urban green space to counter the urban heat island effect, including lining streets with trees and shrubs, providing open water bodies, developing green roofs and walls and minimising large areas of hardstanding. This is particularly pertinent in deprived neighbourhoods, which are typically less well endowed with green space and tree cover.

Protect and enhance existing green corridors, green wedges, green edges and strategic gaps (as designated in the Local Plan) from development and create new interconnections as fresh air corridors for the main built up areas.

Protect and develop small-scale greenspaces as fresh air filters for adjacent neighbourhoods where opportunities arise.

At the neighbourhood level it is important to think about how green infrastructure will integrate with existing roads, paths and surrounding development.

Create opportunities for easy access into the green network including accessible entrances in the right places and suitable paths. Making it easy to access will encourage residents and workers to use the green network for short journeys rather than using cars, helping reduce emissions and promoting active lifestyles.

Derelict sites due to delays in development - these stalled sites have potential to have a negative impact on local neighbourhoods, affecting the place's appearance and image. Temporary greening may be an appropriate way to create safe and attractive places until development can come back on stream.

Establish and sustain an effective maintenance programme for urban green space and trees to ensure vegetation thrives, particularly as climate change stresses increase.

10.1.3 Minerals and Waste Restoration

Recommendations: Minerals and Waste Restoration

Consideration should be given to how the site can contribute to the county's identified green infrastructure networks.

Ensure that new or extended minerals and waste related uses do not damage or destroy the county's existing environmental and natural assets, but that opportunities are taken (including via restoration) to enhance existing and planned green infrastructure networks and to support the identified landscape character areas of the county.

Minerals and waste development should seek to achieve a net gain in natural assets and resources, through:

- delivery of wider environmental benefits in the vicinity where development would adversely affect locally designated sites or other features of local interest,
- protecting and enhancing green infrastructure and strategic biodiversity networks.

Sites connecting or adjacent to identified habitat areas and green infrastructure networks should be restored in a manner which promotes habitat enhancement, biodiversity net gains and multiple functions and benefits.

It is important that access is provided to green space following the restoration of sites and this can be secured in perpetuity by dedicating new public rights of way or open access areas.

Mineral and waste operators should consult the ANGST standard for the area within which they are located to identify whether their project has opportunities to address deficiencies.

Some restored areas may need access management to avoid the public conflicting with nature conservation interests.

Operators to develop restoration plans and to consider mitigation and enhancement opportunities which take into consideration:

- Climate change adaptation and mitigation (i.e.
- Creation of wetland or woodland habitat for storage of carbon.
- Provision of rainwater storage i.e. Reedbed etc.
- Planting with water purifying plants
- Orchards for food provision
- Green infrastructure provision
- Ecological network expansion through ensuring habitats on-site provide links to surrounding habitats allowing for species association and movement.

10.2 Highways

The existing road network could be improved through for example:

Recommendations: Highways
Stronger protection for landscape and heritage from road schemes.
Enhancements to the road network should be of high design standard, responding to a local sense of place, provide environment net gains and wherever possible be in harmony with the natural, built and historic environments.
Green bridges to connect wildlife areas across busy roads.
Consider retrofitting green infrastructure solutions to existing roads, dealing with the effects that roads have on nearby people, places, the historic environment and biodiversity, and potentially making best use of the land around the road network.
Use vegetation to limit traffic speeds by limiting excessive forward visibility, whilst maintaining appropriate driver sightlines.
Tree planting to improve flood protection and cut pollution.
‘Hotspots’ for air pollution are typically un-vegetated areas. For instance, large roofed areas and car parks. The provision of improved green Infrastructure could focus on these key hotspot areas; for example, tree planting, ground cover planting, hedge troughs, green roofs and green walls.
Use existing information from Surface Water Flood Management Plans and Critical Drainage Areas on priority outfall, soak away, culvert and flood risk hotspots to develop a programme of interventions.
Better provision for walkers, cyclists, equestrians and bus passengers linking in to the existing Public Rights of Way and cycle network to make non-motorised movement easier.

Improve our knowledge of our green infrastructure assets along our road network to form an environmental baseline to identify existing environmental problems that can be improved. For example: Identify works that will halt the loss to biodiversity and contribute to the ambition of environment net gains; such as reviewing opportunities for contributing to restoration areas and designated nature sites.

Explore opportunities to work in partnership with Highways; England, the Districts, City and Borough Councils and two unitary authorities to coordinate the delivery and management of green infrastructure within the road network in line with Highways; England’s Road Investment Strategy (Government, 2018).

When planning green infrastructure, the expected future maintenance and upkeep should always be included in calculations (life-cycle costs). For instance, consider:

- Selecting plants that are sufficiently resistant to urban stress factors or can be kept vibrant and healthy in the long term through appropriate maintenance measures.
- Green infrastructure projects that combine aesthetic appeal and planting that is valuable to the urban ecology with underlying conditions of low maintenance costs to achieve cost transparency.
- Differential mowing regimes (perhaps coupled with native wildflower planting) could improve the biodiversity value of highway verges, as often they are relatively undisturbed and can provide corridors for wildlife. In addition, swathes of wildflowers will create more attractive roadsides.

10.2.1 Greenways

Recommendations: Greenways
Including green infrastructure in Environmental Impact Assessments and Strategic Environmental Assessments for transport projects or programmes.
Creation of coherent, direct, safe, comfortable and attractive greenways linking existing and new green spaces, communities and places.
Working with partners to identify funding and mechanisms for the implementation and long-term maintenance of green infrastructure along our transport network.
Identify opportunities for connecting with new developments to existing greenways (i.e. Public Rights of Way and cycle paths) and green spaces.
Every effort to be made to ensure that connections between different sites are achieved to ensure that routes make sustainable connections that people will choose to use for local trips instead of the car.
Expand network within the county and cross border by working with neighbouring authorities to enhance the greenways routes, and ensure their quality is improved and maintained to encourage an increase in cycling and walking within and through Essex.
Work alongside the Essex Rights of Way Improvement Plan, Local Transport Plan, Local Walking and Cycle Infrastructure Plans and walking strategies to maintain and improve routes and enhance the green infrastructure network.
Review the Local Transport Plan and Essex Rights of Way Improvement Plans to provide an opportunity to identify and deliver network links and embed green infrastructure solutions to active travel and sustainable transport within mainstream transport planning.
Maximise management of existing and new Public Rights of Way, cycleways for wildlife.

Manage the railway path (Flitch Way) to provide a quality multifunctional green corridor for community and wildlife.	
Key characteristics to consider in creating new greenways, include:	
Connectivity	What was being connected? people, wildlife, water
Width	Floodway, floodplain, other riparian areas (tributaries etc.)
Access	For whom and how much? recreation, transportation, wildlife protection
Trail type	Wide and hard, narrow and soft?
Level of development	Appropriate to surroundings and land use plan

10.3 Greenways

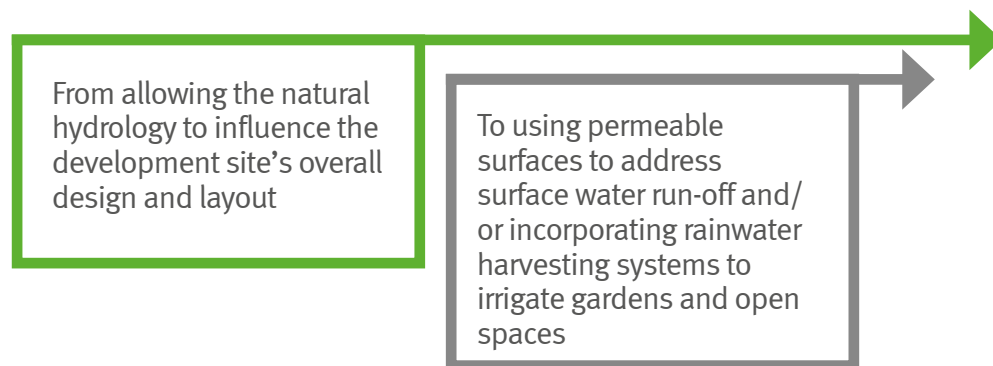
The existing road network could be improved through for example:

Recommendations: Coast	The ecological suitability of different enhancements needs to be considered across the design life of the structure, taking into consideration predicted changes in sea level. As the design life of hard engineering structures is often 80-100 years, it is possible to create future habitat capacity as sea levels rise to reduce the risk of coastal squeeze.
Coastal planners and other decision makers responsible for the coast should strive to identify the approaches best suited for a given location. It is important to consider the ecological suitability, impacts on habitat connectivity, risk of invasive and timing of installation to optimise colonisation by native species.	Consider how coastal green infrastructure may be positioned relative to both the current and future projected tidal and seal level rise in order to maximise engineering and ecological performance.
Identify site-specific needs and undertake a site assessment. This process should include determining the: • type of shoreline (slope of bank), • rate at which the shoreline is eroding, • forces that are eroding the shoreline, and • water depth, type of substrate, and salinity of the water body.	Restoring, protecting and enhancing existing marsh lands, estuaries etc for coastal resilience.
Integrate the results of a green infrastructure functions and benefits assessments into broader planning and decision-making frameworks in order to inform strategic selection among resilience and risk-reduction alternatives.	Explore feasibility for land to be reclaimed for a green infrastructure approach to coastal improvement through the creation of a living shoreline.
Understanding key factors that are often included in decision making contexts is a critical part of efforts to advance coastal green infrastructure implementation and assessment. These factors to be considered include: • Management objectives • Site characteristics and scale • Socioeconomic considerations • Policy directives • Time-dependent considerations • Trade-offs (i.e. potential changes to ecosystems, time lag between implementation and associated economic and ecological benefits) • Financing	Through maintenance and restoration programmes to protect and Improve access to the coast path in Essex.
	Explore opportunities from the RAMS schemes to protect important coastal nature conservation sites in Essex.

Source: (Naylor, 2018)

10.4 Flooding

SuDS and Natural Flood Management can feature at a strategic level down to street level.



The following are recommendations for those responsible for flood management and ensuring flooding is alleviated. It is easy to do an engineered grey infrastructure solution but with Local Authority capital money diminishing alternatives will need to be looked at.

Recommendations: Flooding

Encourage and implement green infrastructure, such as green roofs, water harvesting and other strategies to reduce stormwater run-off i.e. Water bodies with spare capacity that improve microclimate whilst absorbing storm flows, swales that provide habitats, and trees that slow run-off and increase carbon sequestration.

It is crucial to protect existing areas that allow infiltration of water into the ground, however retrofitting pervious areas into existing neighbourhoods and urban sites will be necessary in order to handle predicted increase in severe storm events.

New developments should integrate as many pervious surface areas as practical.

Measures to enable stormwater storage for re-use can be implemented. As drought stress on urban vegetation is likely to increase, the retained water from sustainable drainage systems should be used for active and passive irrigation.

Green corridors, hedges and street trees should be used to capture stormwater run-off and feed it back into the natural cycle.

Provide incentives for small scale green infrastructure measures such as green roofs, green facades, rain gardens and ponds to be implemented on an individual level by households and business.

Planting of woodland in the upper catchment and in areas of high-risk soils that results in quick run off. Tree planting would also stabilise soils, enabling the build-up of organic matter and thereby increasing the soil water retention capacity.

Wet woodland alongside streams and rivers could provide valuable habitat and amenity as well as flood management benefits. Such measures would also reduce sediment and nutrient runoff with advantages for water quality.

Explore the feasibility for conversion of intensively managed arable land or temporary grassland to non-intensively managed permanent grassland, with associated reduction in run-off but also potentially improved habitats and amenity value.

Ensure maintenance plans where required has been established and explore funding mechanisms such as Defra and Environment Agency grants, developer contribution (Section 106) and contributions from local businesses, organisations and other partners.

10.5 Energy

Recommendations: Energy

To encourage developments and energy transmission infrastructure to enhance the natural environment, providing a comprehensive green infrastructure network and net biodiversity gains, and uses zero-carbon and energy-positive technology to ensure climate resilience.

Development of green infrastructure elements (e.g., green roofs, urban trees, green belts) may reduce energy costs, both for heating and cooling in urban environments. Energy cost reductions have to be compared to investment costs to derive net benefits. These considerations are central to the Garden Communities Themes and Principles (AECOM, 2018).

Maximise the opportunities for green infrastructure assets to contribute to energy production or reducing energy consumption.

To consider the landscape and green infrastructure impacts of new energy production proposals.

Support and encourage delivery of green infrastructure schemes in order to mitigate and compensate for the impacts and harms of major energy projects.

Establish education programmes to develop professional and expert skills in the field of renewable and alternative energy

Develop attractions around the energy theme with recreational and educational value to locals and visitors.

Bioenergy

Wood is to be taken from sustainably managed woodlands.

Take a coordinated approach working across Districts to identify clusters of smaller woodlands within local areas that could meet local wood heat markets (either existing or potential).

Explore feasibility to link up with prime wood fuel candidates, such as schools.

Reforestation and sustainable forest management should be made to avoid adverse effects on biodiversity and ecosystems.

Renewable Energy

Seek to draw links between wind and solar energy generation and green infrastructure through the multifunctional use of the area taken up by wind and solar farms.

Explore feasibility for combined uses of sites and think creatively about how the space can be shared between green infrastructure and energy production. I.e. recreational and educational facilities.

Important that renewable farms avoid ecologically sensitive sites, for example, sites within or functionally linked SPAs.

Conserve existing hedgerows and mature trees around the site.

Promote the diversity of hedgerow species and existing grasslands.

Kent County Council has produced a Position Statement of Development for large scale solar arrays. The paper provides guidance for solar developers on which sites would be acceptable for development of solar farms. The document considers the impact on the landscape, biodiversity, agricultural land and Green Belt.

Nuclear

Follow the recommendations within the Habitat Regulation Assessment for Bradwell.

Undertake landscaping work on and along the site's boundaries to provide environment net gains, for example:

- Raised planting area
- Footpaths and bridleway
- Create ponds, SuDs etc.

10.6 Health and wellbeing

Recommendations: Health

Encourage cross generational outdoor activities to promote exercise and facilitate better communication and interaction at various levels and scales. For example, establishing a 'Green Gym' programme with Active Essex that would support and encourage sports clubs who would use the Green Lanes network regularly, such as horse riders, cyclists and rambling groups.

Work with providers of green space, health professionals, communities and Active Essex to establish of link into existing green care programmes.

Ensure there is inclusive and safe access to green/ recreational spaces.

Socially cohesive greenspaces should be publicly accessible, perceived as welcoming and provide room for encounters and self-regulation.

It is important to consider the equality or access to green infrastructure and the fostering of different user interests for a more equal distributions of green infrastructure related benefits.

Take into considerations the lessons learnt from the Active Essex Local Delivery pilots.

Support active and healthy lifestyles through improving accessibility to amenity green infrastructure assets, including improved walking and cycling connections. For example, identify a priority walking and cycling route between green spaces and the town centres etc. as a public realm scheme.

10.7 Education

Examples of recommendations to consider in public engagement and awareness raising of green infrastructure in connecting families to nature.

Recommendations: Education

Enable community engagement in the identification, design and management of GI programmes and projects. For example, begin or support a community engagement programme to identify a shortlist of underutilised open spaces, which could be redesigned as parks.

Outreach work can be a valuable way to increase involvement and use of green spaces to:

- Help alleviate problems between different park users.
- Provide a means for young people particularly to feel ownership towards a park when they feel involved in the development of facilities designed for them.

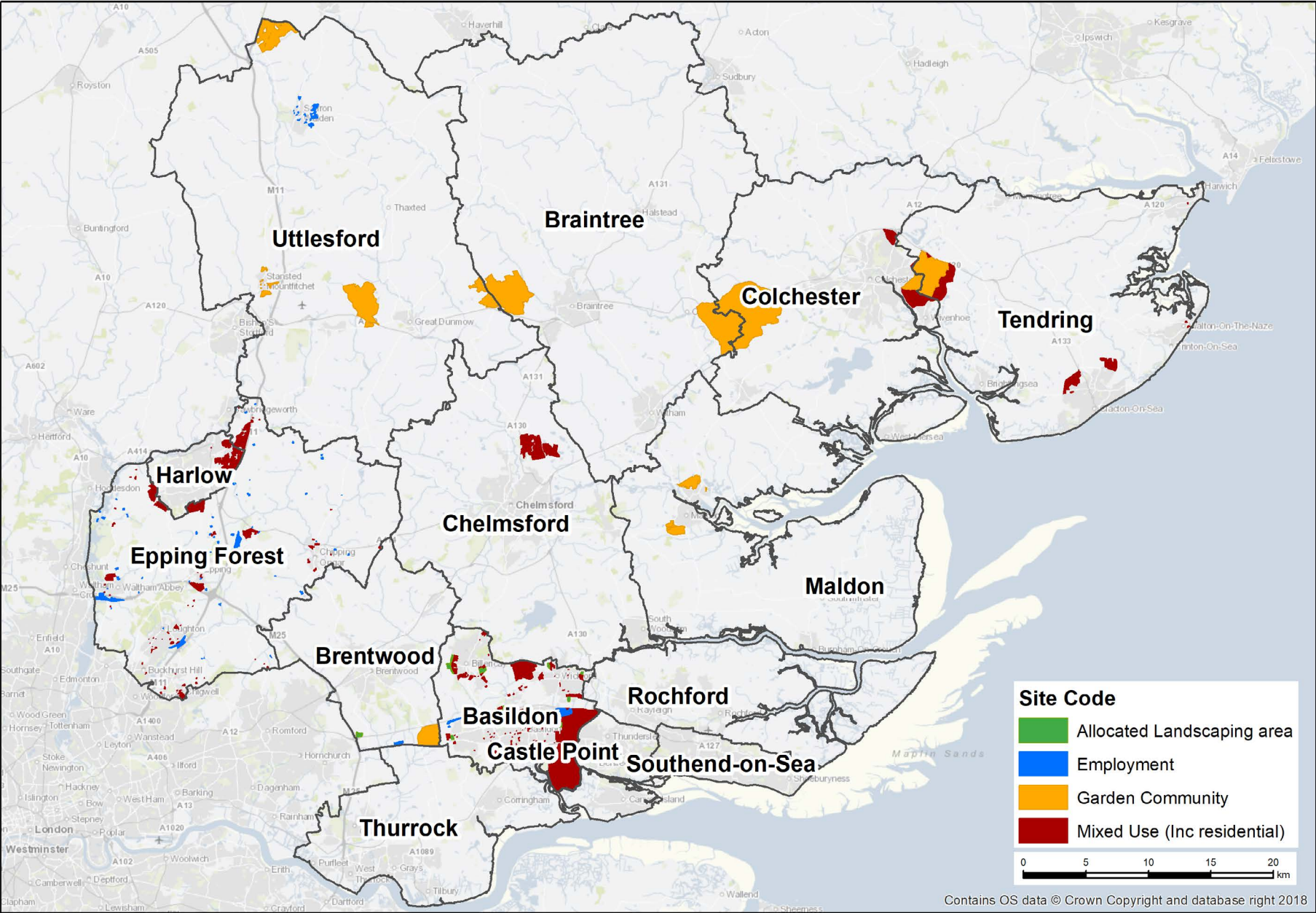
Extend the provision of facilities for teenagers, ensuring their involvement in choosing what they want. Research with young people shows that somewhere which is 'their' space to meet, such as swings designed for them rather than younger children, is sometimes all that is needed.

- Provide a network of larger and better natural play spaces and/ or using natural materials or a mix of natural and traditional equipment will offer a wider range of experiences and challenges for children.

Appendix B11 - Map of the Proposed Development Sites over 50 Hectares in Essex



Figure 7 Map showing the proposed new development sites greater than 50 hectares in size from the Local Plans in Essex²



Appendix B12 - Map of the Greenways Network



Figure 8: Greenways map and promoted paths

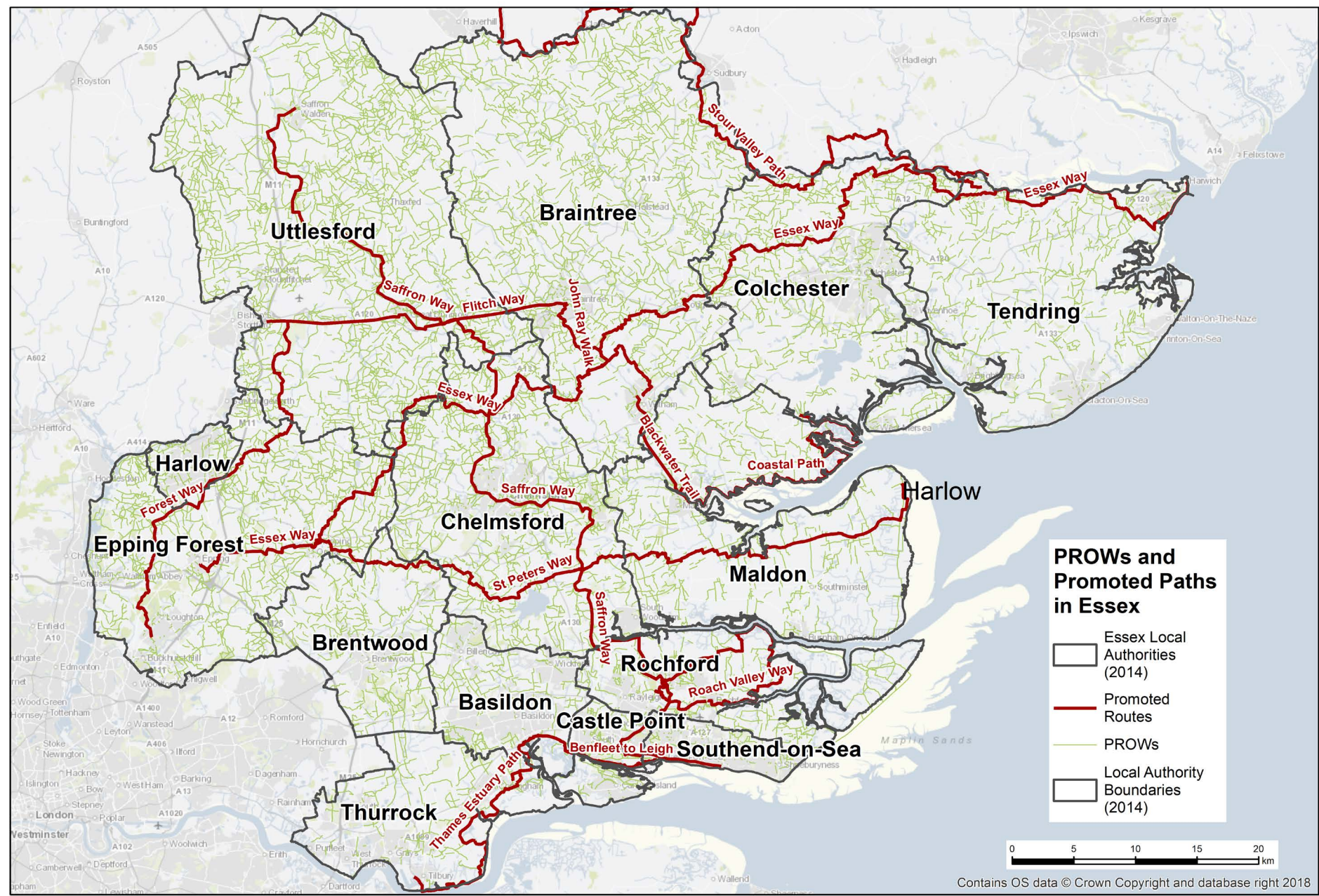
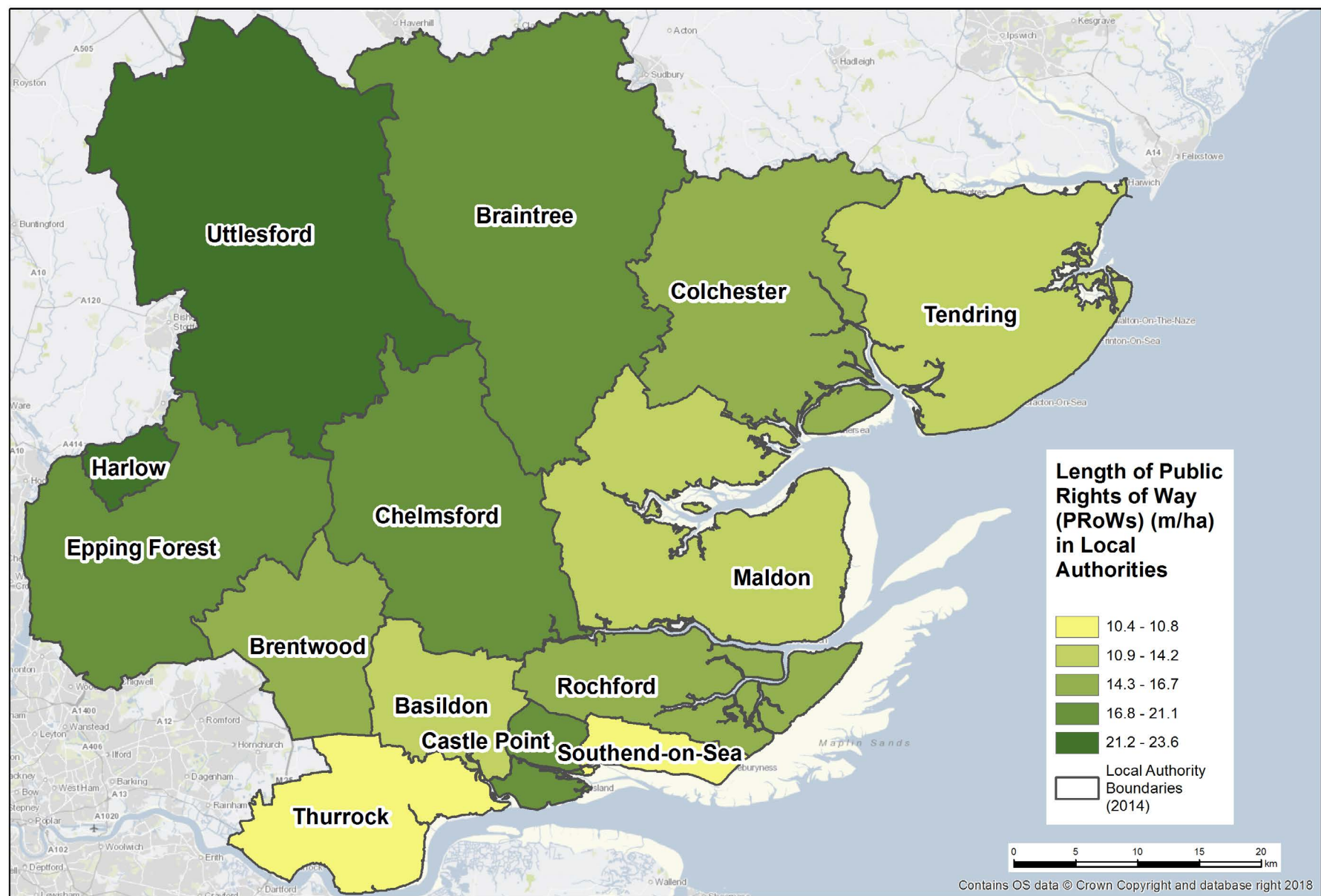


Figure 9: Length of PRoW in each Local Authority area



Appendix B13 - Potential Funding Sources



Table 7: Potential Funding Sources available

Potential funding sources	
The National Lottery	• Big Lottery funding is for community projects including purchasing and creation on public open spaces. • Heritage Lottery funding is to be used to conserve and enhance heritage assets including nature reserves and parks. Capital and Revenue
EU Funds	• Member States currently have the opportunity to support green infrastructure through programs integrated into their development strategies and co-financed from the Structural Funds (the European Regional Development Fund (Chapter 4) and European Social Fund), the Cohesion Fund, the European Agricultural Fund for Rural Development, LIFE+ and the research funding programmes. Capital and revenue
Natural England	• Countryside Stewardship grants - Funding for farmers, woodland owners, foresters and land managers to make environmental improvements. • Work is underway on the England Coast Path - a new National Trail around all of England's coast, which is 100% funded by Natural England.
Landfill Tax	• The Landfill Communities Fund (LCF) is an innovative tax credit scheme, which 'offsets' some of the negative impacts of living in the vicinity of a landfill site for affected communities. A proportion of the Landfill Tax liability is paid to not-for-profit organisations which deliver projects for the benefit of communities and the environment near a landfill site. The LCF is regulated by ENTRUST on behalf of HM Revenue & Customs, and the projects are delivered by enrolled Environmental bodies.
Landfill restoration programmes	• The restoration programs will create multi-benefit green infrastructure opportunities, such as the Pitsea Landfill restoration of 3.7km² in 2023, which will create another huge area of green infrastructure in South Essex.
S106	• Funding must be fundamentally linked to the development.
Community Infrastructure Levy	• Funding a wide range of infrastructure that is needed because of development and to provide wider benefits. This can include flood defences, parks and green spaces.
Countryside Stewardship	• Countryside Stewardship offers were introduced to help more farmers and land managers protect wildlife and enhance the environment. Each offer has a set of options and minimum requirements to meet to be eligible for funding for a 5-year agreement. https://www.gov.uk/government/collections/wildlife-offers-countryside-stewardship
Capital Programme	• The capital programme for Essex County Council identifies agreed capital schemes, such as Highways and school improvements, showing the total cost and the projected phasing of those schemes over current and future financial years. An opportunity to coordinate and incorporate green infrastructure as part of an existing schemes. Such as highways scheme to lower pollution like the A127 study which is providing cycleway infrastructure which is often also green infrastructure.

Potential funding sources	
Private Sponsorship	Corporate sponsors and private donors from local Business looking to enhance their green credentials.
Charitable Trust	Community grants must be a community-led project. A charitable trust may provide funding and management for green space. These are not for profit organisations owning or leasing land or property in trust for the community.
Flood defence funding	Environment Agency's flood and coastal defence funding: for risk management authorities. Local authorities can apply for grant for capital investment from the EA to create new or improved flood risk and coastal erosion management infrastructure and tackle groundwater and surface water issues.
Natural Flood Management Fund	Defra announced £15 million of government funding for natural flood management schemes across England. The Environment Agency, Natural England and Forestry Commission, identified a number of projects at a catchment or coastal zone scale, and following consultation with the Flood Minister, have allocated funding to 24 projects. £1m of funding was also set aside for an 'open competition' for community projects.
Love Every Drop/ Make Rain Happy	- Love Every Drop is Anglian Water's strategy to put water at the heart of a whole new way of living. - Make Rain Happy will be at the forefront of their 25-year plan to manage surface water more effectively and sustainably. This includes: - Disconnect 1 million downspouts - Plant 1 million street trees, shrubs and plants, in collaboration with partners - Educate 500,000 school children and fit SuDS to every school across our region - Provide funding to local communities to manage surface water sustainably - Ensure our own buildings and land manage surface water sustainably - Significantly reduce the cost of SuDS delivery.
Future High Street Fund	This fund will support, and fund local areas' plans to make their high streets and town centres fit for the future.
Partnership	Working with Parish and Town Councils to ensure that green infrastructure assets are managed and maintained to ensure their continued functioning and use; and/or establish "friends of" schemes to manage and maintain community green infrastructure assets such as the Flitch Way Group.
Community Partnership	- The importance of community action in taking forward individual projects on sites in their local area will be encouraged. There are sources of public sector funding available if the project is community-led. - Ideas include: Grow your own scheme, "Friends of "Schemes, "The Greening Permit" – to deliver a similar scheme as in Paris. Support communities to come up with their own vision and plan for a public space not maintained as green space. To pursue a project, you must gain prior authorisation through 3 year (that can be extended to 12 year) permits applied for on line (TGIC, 2017).

Potential funding sources	
Lee Valley Regional Park Authority's Community Access Fund	• Lee Valley Transport Bursary for schools - There is funding available for schools and education groups that require additional financial support for transport costs.
Social Prescribing	• Social prescribing schemes across England to receive £4.5 million. The funding will allow GPs to refer more patients to social activities and other types of support to improve health and wellbeing and reduce demand on NHS services.
Out Source	• Setting up organised programmes of activities commissioned from other service providers (i.e. health and Active Essex) that would help deliver management and maintenance over an agreed time frame. • Active Essex has won £10 million for the Essex Local Delivery Pilot from government to enable local communities to access sport and other activities using local facilities, including green infrastructure.
RAMS – Recreational disturbance Avoidance & Mitigation Strategy	• There are ten international and nationally important sites for wildlife on the Essex Coast designated under the UK Conservation of Habitats and Species Regulations 2017 (the 'Habitats Regulations') – these include Special Protection Area (SPA), Special Area of Conservation (SAC) and Ramsar site. Birds, other coastal species and habitats can be vulnerable to disturbance from recreation so there is the potential for conflict with people. A significant amount of housing is being proposed by the Essex Local Plans and Natural England advised that this, 'in combination' with other plans and projects to increase recreational activity in or near the Essex coast. Local Planning Authorities have therefore worked together to prepare a strategic solution which supports their Local Plans. • • The Essex Coast Recreational disturbance Avoidance & Mitigation Strategy (RAMS) aims to deliver the mitigation necessary to avoid significant adverse effects from 'in-combination' impacts of residential development that is anticipated across Essex; thus protecting the Habitats (European) sites on the Essex coast from adverse effect on site integrity. All new residential developments within the evidenced Zone of Influence where there is a net increase in dwelling numbers are included in the Essex Coast RAMS. The Essex Coast RAMS identifies a detailed programme of strategic mitigation measures which are to be funded by developer contributions from residential development schemes. The RAMS strategy also identifies priorities and the governance for its implementation, led by Chelmsford City Council, and has already started to generate financial contributions from new residential development within the ZOI to help deliver mitigation projects at the coastal Habitats sites. A per dwelling tariff has been calculated to be paid on commencement of the development. Funds collected will be used to deliver the agreed mitigation measures. The delivery of the Essex Coast RAMS will be under the banner of Bird Aware Essex Coast which aims to be more understandable to everyone
Other	• Generating income from existing and adding additional value to green infrastructure assets.

This information is issued by

Essex County Council

Contact us:

environment@essex.gov.uk

Environment and Climate Action

Essex County Council

Chelmsford

CM1 2QH

Visit us at:

www.essex.gov.uk



Essex_CC



facebook.com/essexcountycouncil

The information contained in this document can be translated,

and/or made available in alternative formats, on request.

Published 2020

Essex Green Infrastructure Strategy

Appendices Part C - Technical Research Papers

A strategy that champions for high quality green space and green infrastructure in Essex

2020

Front Cover Image of Essex Natural Capital by Place Services.



Contents

- 2 **Appendix C1 - Spatial data integration and analysis to support the Essex Green Infrastructure Strategy**
- 31 **Appendix C2 - Health Impact Assessment - Essex Green Infrastructure Strategy**



Appendix C1 - Spatial data integration and analysis to support the Essex Green Infrastructure Strategy

Andrew Lovett and Gisela Sünnenberg

July 2019

Exploring data. Enhancing knowledge. Empowering society

www.BLGdataresearch.org

Image: Essex County Council



ESRC Business and Local Government
Data Research Centre



Abstract

Essex County Council are producing a green infrastructure strategy and require an understanding of both current provision in the county and how this relates to the sites for future housing and economic development put forward within the Local Development Plans for Essex.

This report describes work which has:

- combined a number of spatial data sources to map the distribution of green infrastructure assets across Essex;
- identified the functions performed by these assets and the benefits they provide to the local populations;
- investigated associations between green infrastructure provision in neighbourhoods and socio-economic characteristics of their resident populations;
- examined the prevalence of current green infrastructure assets in the vicinity of proposed sites for future housing and economic development.

The results are intended to help identify needs and opportunities to enhance green infrastructure across the county and inform strategic planning in Essex.

Keywords: Green Infrastructure, Assets, Functions, Benefits, Essex



1 Introduction

The population of Greater Essex is projected to increase by over 18% to approximately 2.1 million by 2041 (ONS, 2018). This compares to a 12% average increase for England and there are individual local authorities in Essex where the projected growth is over 20%, particularly linked to new garden communities and other housing developments. As part of initiatives to manage these growth pressures, as well as enhancing the quality of life for residents, Essex County Council are currently producing a green infrastructure strategy. This report describes work undertaken to support the evidence base underpinning the strategy by assessing the current provision of green infrastructure and how it compares with the distribution of proposed sites for new housing and economic development.

Green infrastructure (hereafter GI) has been defined as “the network of multifunctional natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect villages, towns and cities and is integral to the quality of life in sustainable communities” Natural England (2009, p.7). The types of GI encompass formal parks and gardens, amenity greenspace, natural and semi-natural urban greenspaces, green corridors and other public spaces as diverse as allotments and city farms. Together these assets provide areas for recreation and education, habitats for wildlife and supply ecosystem services such as flood defence or absorption of air pollution (UK-NEA, 2011). Information on GI provision is increasingly important for many planning purposes and the recent 25 Year Environment Plan explicitly encourages more investment in the quality and provision of GI, particularly in towns and cities (Defra, 2018).

Since there are many types of GI the range of possible data sources is extensive. Many local authorities created their own GI datasets in response to Planning Policy Guidance 17 (DCLG, 2002), but relatively few of these have been regularly updated and consequently the provision of consistent information across larger regions can be problematic. More recently, the Ordnance Survey (OS) have released two national greenspace mapping products, the OS MasterMap Greenspace Layer (OS, 2019a) and OS Open Greenspace (OS, 2019b). However, coverage of the former is restricted to larger town and cities, while the latter focuses on publicly-accessible areas such as parks, sports facilities or allotments. As a consequence, although both sources are valuable they do not provide a comprehensive spatial database of GI assets.

The approach adopted in this piece of work stems from a previous project within the ESRC-funded Business and Local Government Data Research Centre (BLGDRC) which combined data from the crowdsourced OpenStreetMap (OSM) database (<https://www.openstreetmap.org>) and OS MasterMap (<https://www.ordnancesurvey.co.uk/business-and-government/products/mastermap-products.html>) to create a county-wide GI database for Essex (Taigel et al., 2017). This method has been refined in the present analysis by including additional data layers (such as the new OS products mentioned above). In addition, previous work by the North West Green Infrastructure Unit (2008) and Liverpool City Region (2014) has been drawn upon to associate GI assets with the functions they perform and the benefits provided to local populations. The result is a broad definition of GI and it should be noted that this is rather different from the previous study by Buell (2009) on accessible natural greenspace provision in Essex. As a consequence, the results of the two analyses are not directly comparable.

2 Data and methods

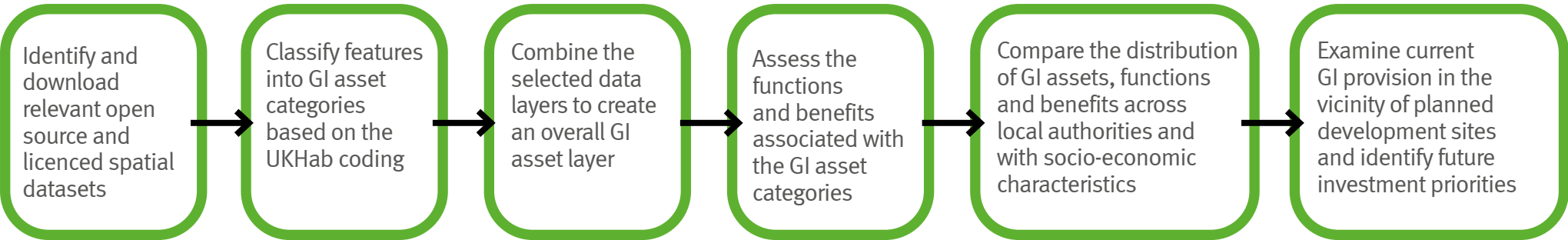
The overall approach adopted is summarised in Figure 1. Potentially relevant sources were identified and spatial data imported into the ArcGIS Desktop software (<http://desktop.arcgis.com/en/>). Most of the data sets were available through the Open Government Licence or other open data usage policies. A small number were obtained from Essex County Council or accessed through widespread local government licences (e.g. the Ordnance Survey Public Sector Mapping Agreement). This was an important consideration because of the wish to ensure that the mapping methodology could be implemented for any English local authority.

Nearly 30 possible data sources were identified in the initial scoping stage. One challenge was that similar assets were sometimes described in different ways so to provide more consistency the features were coded into a set of 13 GI types based on the categories used in the UK Habitat Classification (UKHab) (<http://ecountability.co.uk/UKHabworkinggroup-UKHab/>). The list in Table 1 is based on the UKHab Secondary Codes for GI, with a few departures from the higher level groupings where certain types of features were considered particularly important to distinguish in Greater Essex.

Table 1 - Categories used in the mapping of GI assets

Category	
Parks and Gardens	Outdoor sports facilities
Natural and semi-natural open space	Allotments, community gardens and city farms
Ancient woodland	Open space around premises
Reservoirs, lakes and ponds	Cemeteries and churchyards
Coastal features	Amenity green spaces
Waterways	Productive spaces
Greenways	

Figure 1 - Process diagram for the mapping and assessment of green infrastructure



Having coded the possible layers into GI asset categories a number of overlaps or redundancies between sources were identified and ultimately the set of 21 layers listed in Table 2 formed the basis of the mapping. Several alternatives existed for an underlying land cover layer and the OSM dataset was selected for two main reasons:

- It was in vector format and so more immediately comparable to the other data layers (all of which were vector lines or polygons) than sources derived from satellite imagery (such as CORINE Land Cover, <https://land.copernicus.eu/pan-european/corine-land-cover>) with an underlying grid structure
- Due to recent work at Geofabrik (Ramm, 2017) the process of extracting land cover information from OSM was much easier than previously and included productive agricultural land as well as other types of features. Although it was decided not to include 'productive spaces' (i.e. arable land and livestock pasture) in the final definition of green infrastructure because they would have completely dominated all of the other categories in terms of areal extent, it was also considered advantageous that they could be distinguished in a broad database, rather than being identified from a separate source such as the Agricultural Land Classification for England (<https://data.gov.uk/dataset/952421ec-da63-4569-817d-4d6399df40a1/provisional-agricultural-land-classification-alc>). In the results that follow the distribution of productive spaces is presented as a separate layer and compared with that for the GI assets.

Several considerations arose in the process of combining the data layers into a single GI map. One was that there were variations in the source scales (and consequently spatial detail) of layers and consequently scope for generating sliver polygons (i.e. small, narrow, ribbon-like shapes along boundaries) when two representations of the same feature were overlaid. Coding all the two features into the UKHab GI categories and dissolving boundaries where two adjacent polygons had similar codes was one strategy used to reduce such effects. Whilst undertaking the overlays it also became apparent that there were duplicates of features in some layers and it proved quite time-consuming

to identify and remove them. It had been anticipated that there would be duplicates in a sources such as OSM (which is largely crowdsourced from citizen volunteers), but they also occurred in other cases (such as Ordnance Survey greenspace data) which was not expected.

A third issue was that there were differences between data layers in the specificity with which types of GI were identified. On some occasions this arose because certain data layers focused on categories of land cover (e.g. natural and semi-natural open space), whilst others classified the same features in terms of use (e.g. a park, sports facility or reservoir). To overcome this issue the individual data layers were overlaid in a particular order, starting with those consisting primarily of more general land cover categories and finishing with those containing more precise feature definitions. The actual order used was that in which the layers are listed in Table 2 and the type of overlay employed was one termed an Update in ArcGIS so that when two layers were combined any features in the second input that coincided with those in the first one completely replaced it. Output from the first Update operation (i.e. involving the OSM Land Use/Land Cover and Natural Trust Land layers) then formed the input to the next one so that there was a cumulative sequence of updating. The final input was the Ordnance Survey MasterMap Green Space so that all features from this were preserved in the overall results.

Due to the updating approach there were some instances where areas categorised as one type of feature (e.g. ancient woodland) relatively early in the process had this replaced with another classification (e.g. natural and semi-natural open space) from a different source (e.g. the Ordnance Survey layers) at a later stage. It also became apparent that certain water features (e.g. lakes and reservoirs) were obscured due to the GI coding of polygons emphasising the surrounding land so these were reinstated using boundaries from the OS OpenMap – Local database. In addition, the geographical extent of the mapping was extended 10 km beyond the boundary of Greater Essex to allow for the inclusion of relevant features in neighbouring counties in the assessment of access to GI assets for Essex residents.

Data Layer	Source
OpenStreetMap Land Use and Land Cover	https://osmlanduse.org/#7.093485841364873/0.64786/51.9373/0/
National Trust Open / Limited Access Land	https://uk-nationaltrust.opendata.arcgis.com/datasets/
Local Nature Reserves	https://naturalengland-defra.opendata.arcgis.com/datasets/local-nature-reserves-england
National Nature Reserves	https://naturalengland-defra.opendata.arcgis.com/datasets/national-nature-reserves-england
Sites of Special Scientific Interest (SSSIs)	https://naturalengland-defra.opendata.arcgis.com/datasets/sites-of-special-scientific-interest-units-england
RSPB Sites	https://opendata-RSPB.opendata.arcgis.com/datasets/
Special Areas of Conservation (SACs)	https://naturalengland-defra.opendata.arcgis.com/datasets/special-areas-of-conservation-england
Special Protection Areas (SPAs)	https://naturalengland-defra.opendata.arcgis.com/datasets/
RAMSAR Sites	https://naturalengland-defra.opendata.arcgis.com/datasets/ramsar-england
Priority Habitats	http://naturalengland-defra.opendata.arcgis.com/datasets/
Traditional Orchards	https://naturalengland-defra.opendata.arcgis.com/datasets/
National Woodland Inventory	https://data.gov.uk/dataset/5f869d9b-c517-4cc8-b78d-ece59e8573f3/national-inventory-of-woodland-and-trees
Ancient Woodland	https://naturalengland-defra.opendata.arcgis.com/datasets/ancient-woodlands-england
Country Parks	https://naturalengland-defra.opendata.arcgis.com/datasets/country-parks-england
Registered Parks and Gardens	https://data.gov.uk/dataset/88cfeode-85cd-431f-9836-2bee841d8165/registered-parks-and-gardens-gis-data
Lake and Reservoir Outlines	https://www.ordnancesurvey.co.uk/opendatadownload/products.html#OPMPLC
Sustrans National Cycle Network	Provided by Sustrans
Essex Promoted Routes	Provided by Essex County Council
Public Rights of Way	Provided by Essex County Council
Ordnance Survey Open Green Space	https://www.ordnancesurvey.co.uk/opendatadownload/products.html
Ordnance Survey MasterMap Green Space	https://www.ordnancesurvey.co.uk/business-and-government/products/os-mastermap-greenspace.html

Identifying GI Functions and Benefits

The approach used in previous studies in north-western England (e.g. North West Green Infrastructure Unit, 2008; Liverpool City Region, 2014) was adapted through discussions with Essex County Council officers to associate the mapped GI assets with the functions they perform and the benefits provided to local populations. This involved creating matrices where first the links between asset types and benefits were defined, and then those between functions and benefits. The assessment was relatively simple, with linkages being specified on a binary yes/no basis rather than any quantification of strength of associations. This was considered appropriate given current knowledge and because the main purpose was to demonstrate the multiple functions and benefits associated with GI assets. Table 3 shows the associations identified between asset categories and 10 functions. Additional tables in Appendix A summarise the identified linkages between these functions and 19 types of economic, social and environmental benefits.

Note: an X in the table cell indicates that the asset type was identified as providing the corresponding function.

Table 3 - Identified associations between GI assets and the functions they perform

Asset Type	Recreation	Green travel route	Habitat provision	Heritage and cultural asset	Food production and productive landscapes	Pollution absorption and removal	Flood attenuation and water resource management	Coastal storm protection	Cooling effect	Accessibility to nature
Parks and gardens	X	X	X	X	-	X	X	-	X	X
Natural and semi-natural open space	X	-	X	X	X	X	X	-	X	X
Ancient woodland	X	-	X	X	-	X	X	-	X	X
Reservoirs, lakes and ponds	X	-	X	-	X	-	X	-	-	X
Coastal features	X	X	X	-	-	-	X	X	-	X
Waterways	X	-	X	-	-	X	-	-	-	X
Greenways	-	-	X	-	X	X	X	-	-	-
Outdoor sports facilities	X	X	X	-	-	-	-	-	-	X
Amenity green spaces	X	-	-	-	-	-	-	-	-	-
Open space around premises	X	-	-	X	-	-	-	-	-	-
Cemeteries and churchyards	X	-	X	-	-	X	-	-	-	X
Allotments, community gardens and city farms	-	-	X	X	-	-	-	-	-	X
Productive spaces	X	-	X	-	X	X	-	-	-	X

Assessing the Distribution of GI Assets

Further overlay operations were carried out in ArcGIS to calculate the area of different GI assets within the 14 authorities in Greater Essex. A similar approach was also used to determine the distribution of GI across the 1,076 Lower Level Super Output Areas (LSOAs). These areas can be thought of as a ‘neighbourhood’ scale and typically have a population of between 1,500 and 2,000 residents. Calculating the extent of GI in such administrative areas also made it possible to compare the pattern of current provision with socio-economic variables such as the Index of Multiple Deprivation (IMD) (Ministry of Housing, Communities & Local Government, 2015), population ethnicity from the 2011 Census (ONS, 2019a) and age distributions from 2017 mid-year population estimates (ONS, 2019b).

Access to green infrastructure was examined using Natural England’s Accessible Natural Greenspace Standard (ANGSt) (Handley et al., 2003). This provides a set of benchmarks recommending that people should have:

- an accessible natural greenspace of at least two hectares in size, no more than 300 metres (approximately 5 minutes walk) from home;
- at least one accessible 20 hectare site within two kilometres of home;
- one accessible 100 hectare site within five kilometres of home;
- one accessible 500 hectare site within ten kilometres of home.

These criteria were combined with a detailed (10 m resolution) population surface derived from integrating 2011 census postcode headcounts and OS OpenData Vector Map District building outlines (GeoData Institute, 2019) to assess the number of Essex residents meeting the four access benchmarks. However, it should be emphasised that the results of such calculations can be quite sensitive to certain assumptions. For instance, one issue is how a ‘site’ is defined and in this analysis the presence of roads or paths bisecting GI assets (e.g. woodland or other natural open spaces) particularly restricted the number of 500 hectare sites. In addition, the long but narrow corridors around Public Rights of Way or other paths were excluded from the ANGSt calculations because otherwise the levels of access would have been rather artificially inflated. Furthermore, defining an ‘accessible’ site can be difficult (e.g. access may vary over time or with individual physical capacity). This analysis uses a broad GIS definition, so the results are not directly comparable with some previous studies, but applying the ANGSt benchmarks still provides indicators of population proximity to GI and allows relative variations across Greater Essex to be examined.

The final step was to compile GIS data layers representing sites approved for future housing and employment growth in Local Development Frameworks or Plans. This information was provided by individual district or unitary authorities via Essex County Council, but was not complete for Greater Essex because some authorities had not finalised the relevant documents. Nevertheless, the available information made it possible to assess current GI provision in and around a number of sites, such as the proposed garden communities in north Essex.

3 Results

The total land area of Greater Essex was calculated at 3,677 km². Added together, the 21 individual input data layers totalled 1,821 km², but there were many overlaps so that the final area of GI assets generated by the updating process was 782 km² (i.e. 21.3% of the land area). Within this total, 328 km² (41.9%) was coded as 'natural and semi-natural open space', 102 km² (13.0%) as 'coastal features', 86 km² (11.0%) as 'open space around premises' and 77 km² (9.9%) as 'parks and gardens'. Figure 2 shows the spatial distribution of the GI assets, highlighting the way that the different types of features form a network across the county. Overall, there were 6,531 km of Public Rights of Way within Greater Essex and 592 km of Promoted Routes.

In addition to the GI, the OSM Land Use/Land Cover layer contained 2,240 km² coded as 'productive spaces' such as arable land and livestock pasture (i.e. 60.1% of Greater Essex). This leaves approximately 655 km² (17.8%) of other land consisting of built-up areas, infrastructure or other types of land cover.



Figure 2 – Distribution of GI assets in Greater Essex

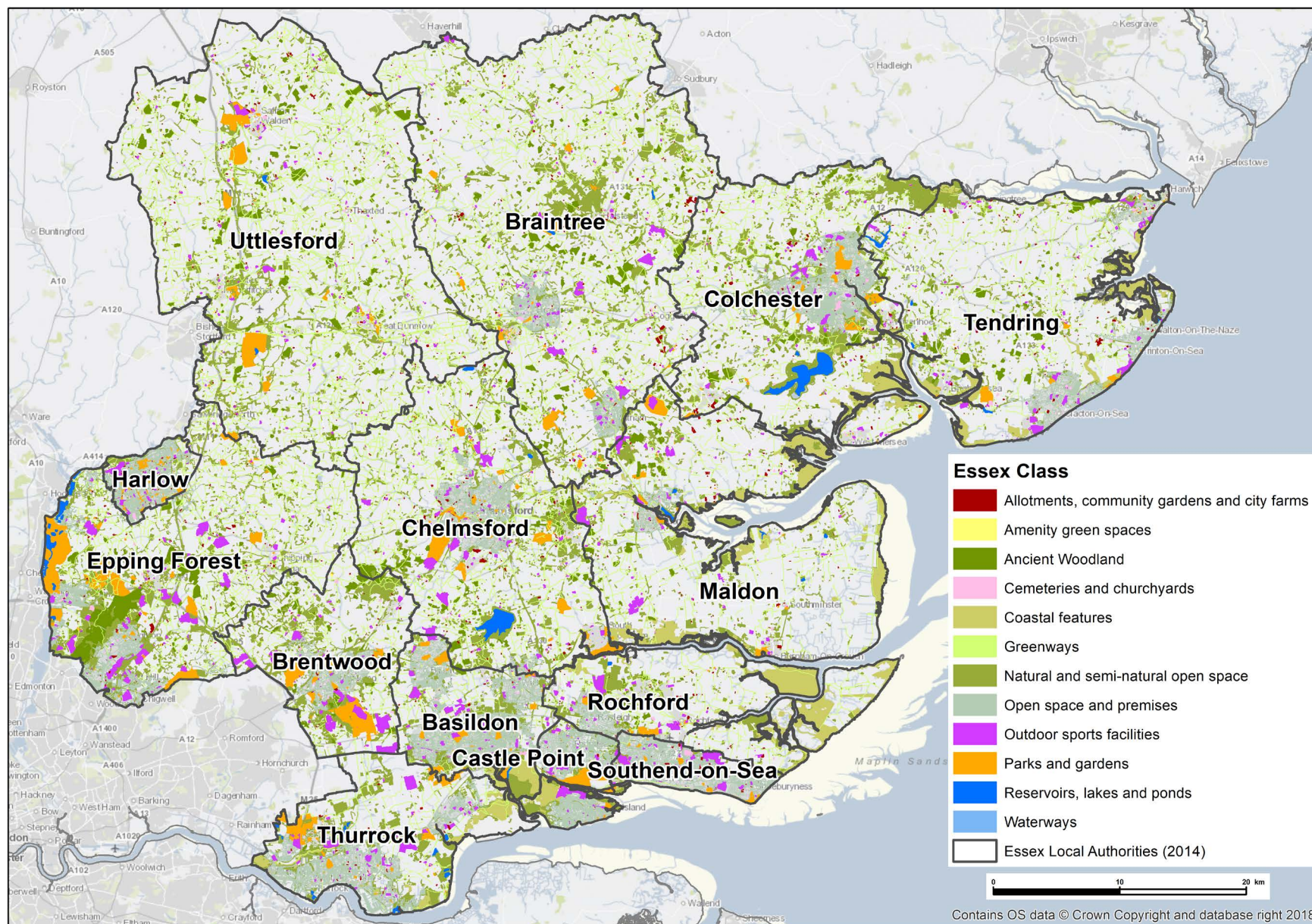


Figure 3 - Percentage of authority areas classed as GI in Greater Essex

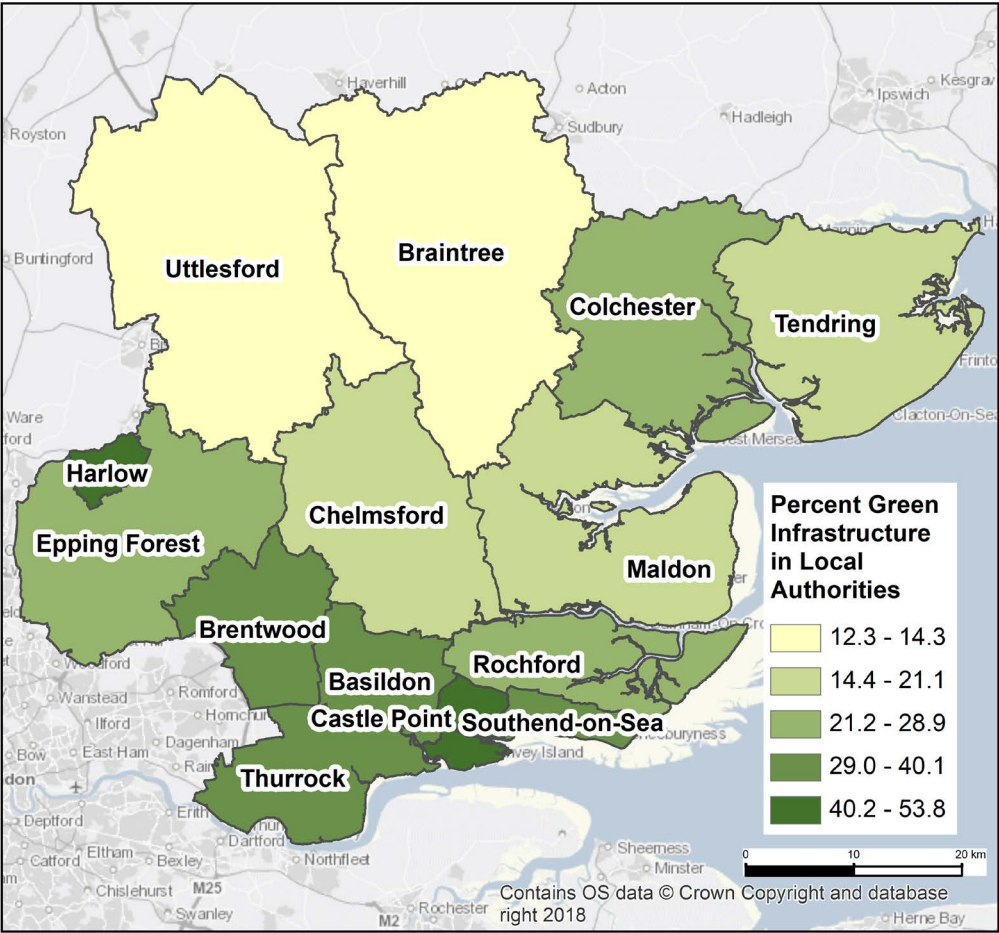


Figure 4 - Percentage of authority areas classed as productive spaces in Greater Essex

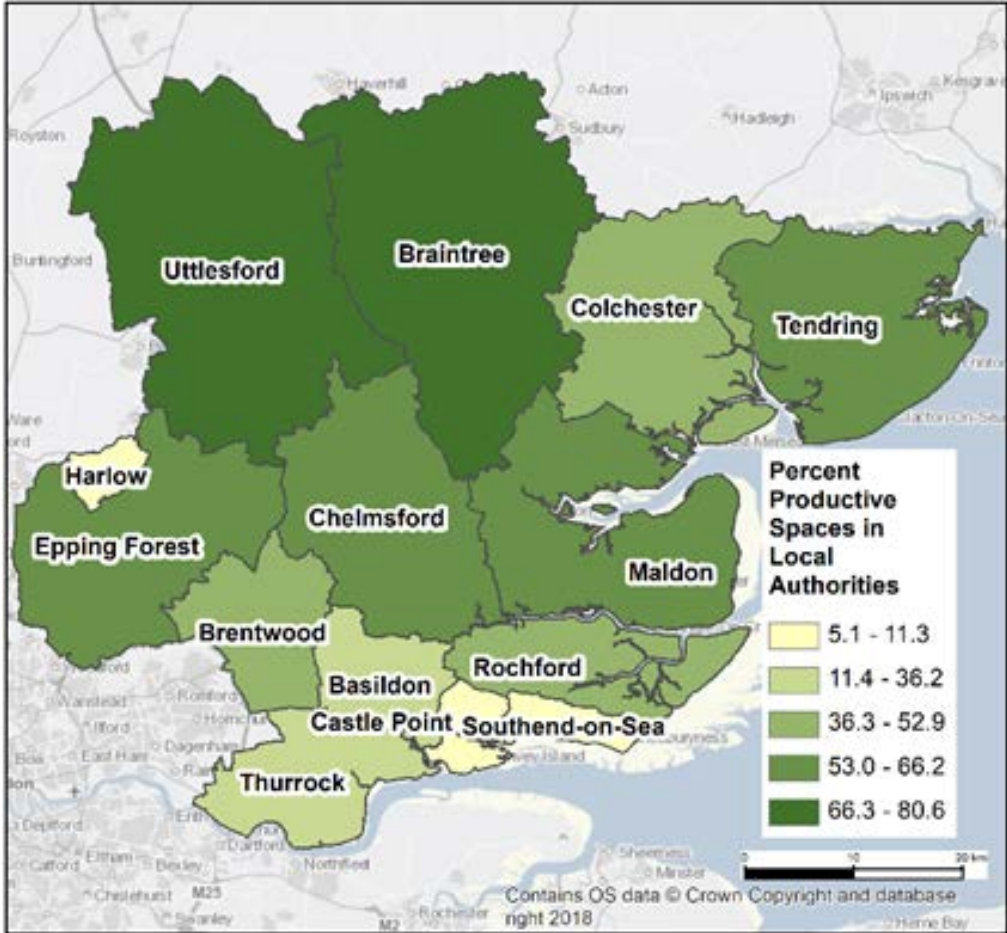


Table 4 summarises the distribution of GI assets across district and unitary authorities in Greater Essex. As might be anticipated, the composition of GI varies between authorities with features such as ‘natural and semi-natural open space’ and ‘ancient woodland’ being more common in rural areas and categories such as ‘parks and gardens’ and ‘outdoor sports facilities’ proportionally more important in urban centres. There is also an appreciable variation in the percentage of each local authority area classed as GI, with values ranging from 12% to 49%. Figure 3 shows that there is a tendency for higher GI percentages to occur in the south of Greater Essex, while the map of ‘productive spaces’ in Figure 4 demonstrates that the authorities in northern Essex have higher proportions of arable land and pastures. This contrast further emphasises the differences in land cover and use across Essex.



Table 4 – The distribution of GIS assets across district and unitary authorities in Greater Essex

Authority Name	Authority Area	Parks and Gardens	Natural and semi-natural open space	Ancient woodland	Reservoirs, lakes and ponds	Coastal features	Waterways	Greenways	Outdoor sports facilities	Amenity green spaces	Open space around premises	Cemeteries and churchyards	Allotments, community gardens and city farms	Total GI	% GI in authority
Basildon	110.0	3.6	15.2	0.5	0.1	5.3	0.0	0.5	3.9	0.1	12.7	0.3	0.1	42.3	38.4
Braintree	611.1	5.1	51.4	12.7	0.3	0.1	0.0	4.8	6.2	0.1	4.5	0.7	1.4	87.4	14.3
Brentwood	153.1	8.3	22.8	4.5	0.0	0.0	0.0	0.9	7.4	0.0	3.8	0.3	0.2	48.1	31.4
Castle Point	45.1	3.1	4.0	0.0	0.0	4.1	0.0	0.2	2.5	0.0	7.9	0.1	0.1	22.1	49.0
Chelmsford	342.2	8.6	31.9	8.2	3.6	0.8	0.0	2.9	5.9	0.1	6.5	0.4	1.2	70.2	20.5
Colchester	333.1	4.6	41.1	4.8	5.0	14.3	0.0	2.1	3.6	0.1	9.8	0.6	1.0	87.1	26.2
Epping Forest	338.9	17.3	36.9	15.9	2.2	0.0	0.0	2.7	8.9	0.0	10.1	0.5	0.7	95.5	28.2
Harlow	30.5	2.3	2.8	0.0	0.0	0.0	0.0	0.1	1.8	0.0	6.6	0.2	0.2	14.2	46.4
Maldon	358.7	3.0	25.0	4.2	0.0	27.4	0.0	2.1	4.5	0.0	1.2	0.3	0.7	68.6	19.1
Rochford	169.4	1.3	12.3	1.7	0.5	24.5	0.0	1.2	2.7	0.0	1.9	0.2	0.3	46.6	27.5
Southend-on-Sea	41.7	1.5	1.0	0.0	0.1	0.4	0.0	0.0	3.0	0.0	4.9	0.4	0.3	11.8	28.2
Tendring	337.7	2.0	20.2	5.5	0.8	16.8	0.0	1.7	4.2	0.1	4.7	0.6	0.6	57.2	16.9
Thurrock	163.4	5.8	19.9	0.1	0.9	7.8	0.0	0.6	4.5	0.1	11.0	0.3	0.4	51.5	31.5
Uttlesford	641.0	10.5	42.8	14.8	0.2	0.0	0.0	6.2	2.9	0.1	0.1	0.5	0.8	79.0	12.3
Total	3,676.4	77.1	327.8	72.9	13.9	101.5	0.1	26.2	62.0	0.7	85.9	5.5	8.1	781.6	21.3

Notes: Areas are in km². There are some small variations from Greater Essex totals due to differences in boundary resolutions. Due to the updating method there are instances where areas initially categorised as one type of feature had this replaced with another classification from a different source at a later stage. This, for instance, is the reason for the apparent absence of ancient woodland in Castle Point when such habitats exist at Thundersley.

GI Functions and Benefits

Figure 5 shows the numbers of functions provided by GI assets in Greater Essex. 77% of the 782 km² supported at least six of the 10 functions identified in Table 3. This multi-functionality also existed at a finer resolution within urban areas, illustrated by the inset map of Harlow in Figure 5.

The GI functions provide multiple benefits. Nineteen economic, social and environmental benefits are documented in Appendix A and the map in Figure 6 indicates that over three-quarters of the asset area directly provided between 12 and 14 benefits. Overall these results highlight the multiple societal contributions from GI assets and that they extend across Greater Essex.

Table 5 - Correlations with the percentage of GI area in LSOAs

Socio-Economic Indicator	Spearman Rank Correlation Coefficient
Index of Multiple Deprivation (IMD), 2015	+ 0.10
% of Black and Minority Ethnic Population, 2011	+ 0.28
% of Population Aged 0-15, 2017	+ 0.10
% of Population Ages 65+, 2017	- 0.15
Population Density (Residents per Hectare), 2017	- 0.16

Note: All of the correlations are statistically significant at the 0.05 level due to the relatively large sample size.

Associations with Socio-Economic Characteristics

Figure 7 maps the percentage of area covered by GI assets for the 1,706 LSOAs in Greater Essex. These percentages were correlated a number of socio-economic variables and the results are summarised in Table 5. Correlation coefficients can vary from +1.0 (a perfect positive relationship), through 0 (no association) to -1.0 (perfect negative relationship), so the values in Table 5 indicate that none of the socio-economic variables had a particularly strong linear association with the distribution of GI. Of the five variables examined the strongest relationship was with the percentage of Black and Minority Ethnic population which was positively associated with the distribution of GI. This indicates that there was a tendency for LSOAs with a higher percentage of Black and Minority ethnic population to also have a greater proportion of their area classed as GI.

Subsequent analysis examined variations in GI when the LSOAs were classified according to their values on two or more of the socio-economic characteristics. This approach proved more informative than the correlation coefficients because it allowed the combined influence of multiple socio-economic factors to be investigated and also for change in the relative prevalence of GI to be non-linear. In particular, the percentage of GI was found to vary appreciably with different combinations of IMD and population density characteristics. Figure 8 shows the outcome of first dividing the LSOAs into thirds (i.e. three equal groups) on the basis of their IMD and population density values, then cross-tabulating the two classifications to define nine groups. Six of these contain between 100 and 190 LSOAs, and the other three between 68 and 88 LSOAs, so there is a substantial denominator area in each group. Darker colours on Figure 8 represent higher values for the IMD score and population density with, for example, the blue shades corresponding to the highest third of IMD values (i.e. more deprived areas) and the darkest blue identifying those LSOAs which also have the highest population densities.

Figure 5 – Number of functions provided by GI assets in Greater Essex

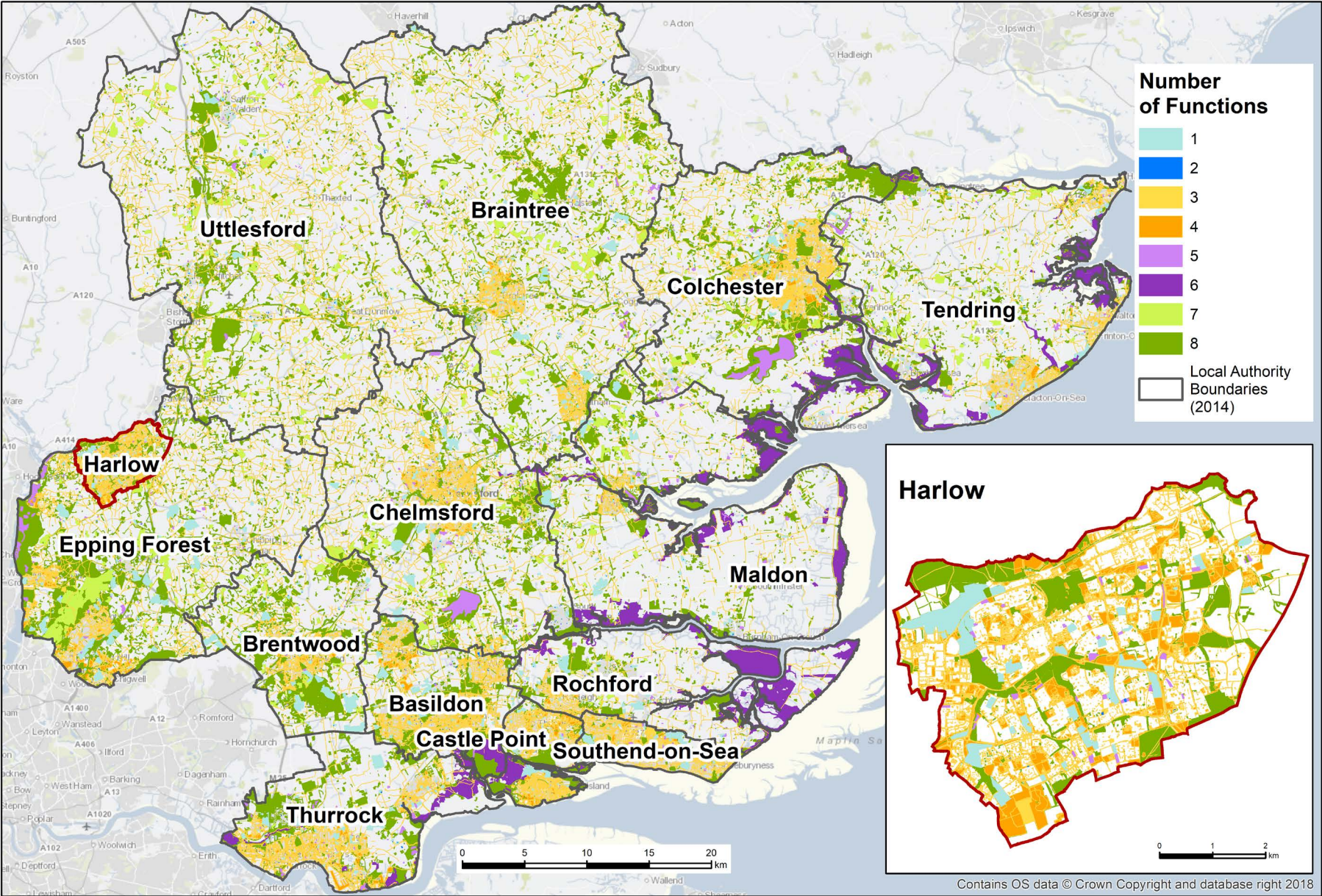


Figure 6 – Number of benefits directly provided by GI assets in Greater Essex

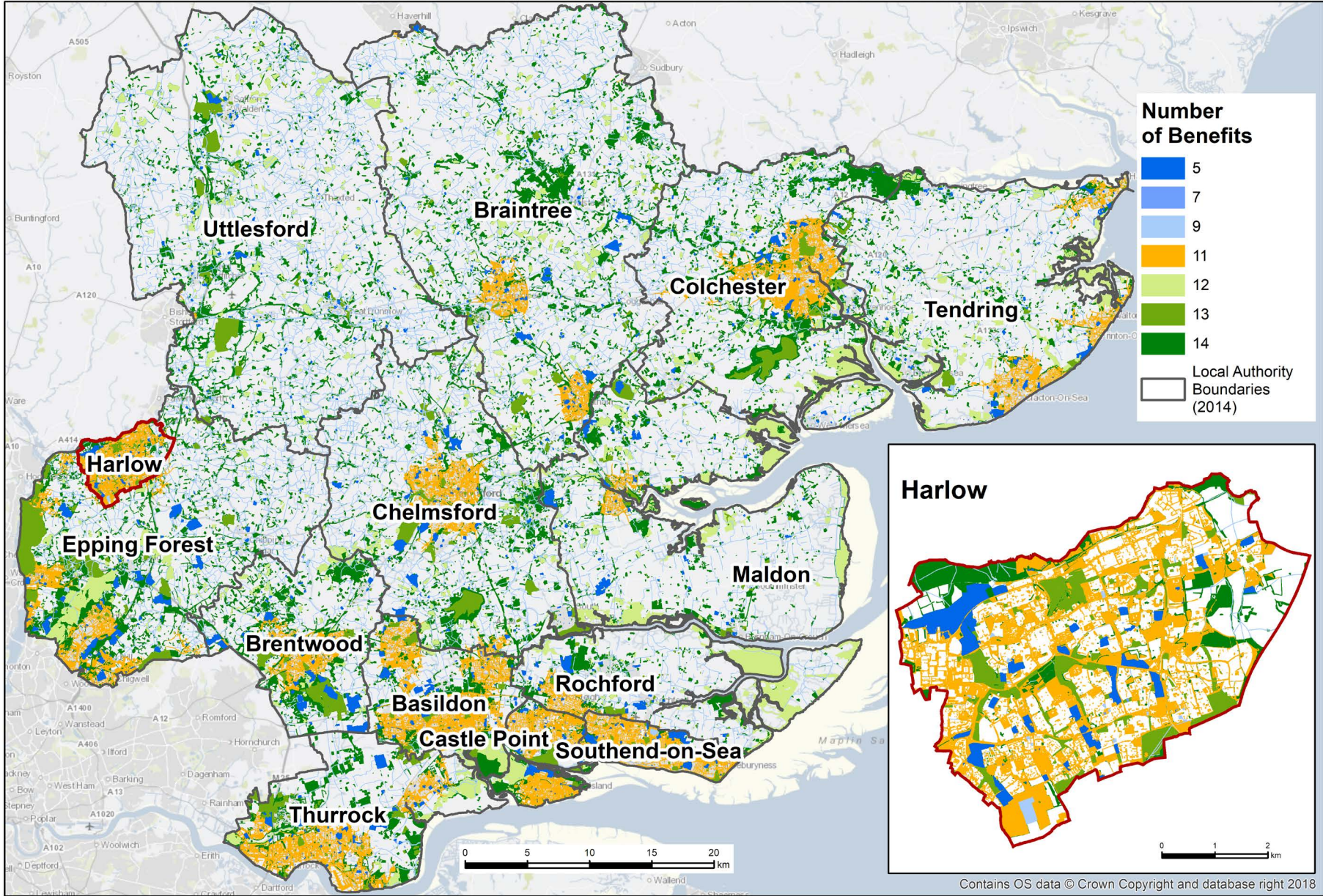


Figure 7 – Percentage of LSOA areas classed as GI in Greater Essex

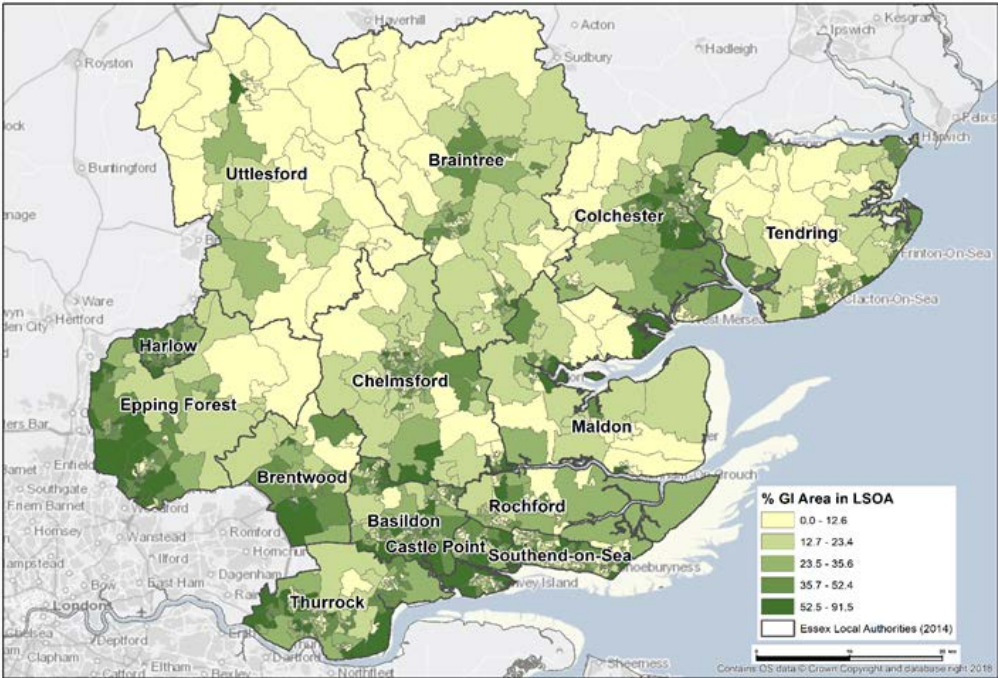


Figure 8 – LSOAs in Greater Essex classified according to their IMD and population density values

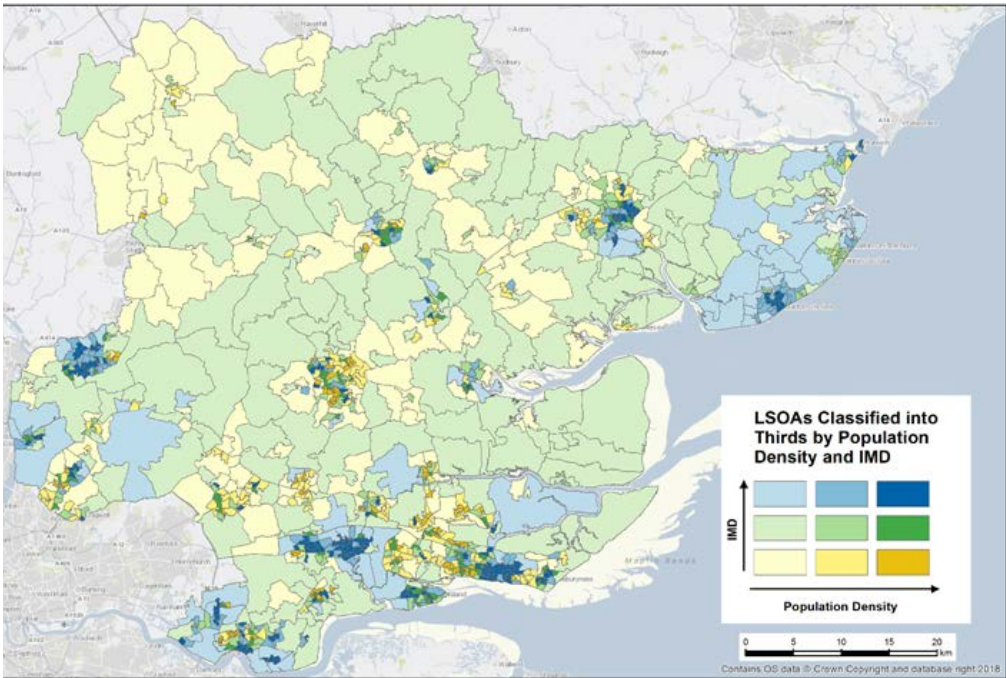


Table 6 presents the result of calculating the percentage of area covered by GI assets for each of the nine groups of LSOAs depicted in Figure 8. The values indicate a tendency for the % of GI to be highest in those LSOAs in the middle third of population density (e.g. suburban area) and lower in sparser or more densely populated localities. For IMD, the % of GI tends to be higher in the LSOAs in the top third of IMD scores (i.e. the least affluent areas). Overall, the category with the lowest proportion of GI (14%) is the most affluent and densely populated LSOAs, whilst those which are least affluent and in the middle third for population density have the highest GI coverage (40%). These contrasts therefore imply that there are some appreciable differences in the distribution of GI according to the socio-economic characteristics of areas.

Although there is no evidence of a simple gradient of reduced GI in less affluent LSOAs, it is also important to recognise that there are parts of Greater Essex where such a combination of characteristics occurs.

There are 358 LSOAs in the top third of IMD scores and 93 of these are also in the lowest third in terms of % area covered by GI assets (i.e. with < 17.1% of GI). Figure 9 shows the locations of these 93 LSOAs and while many are scattered across Essex it is also apparent that there are some geographical concentrations. Fifty three of the 93 LSOAs are in either Southend-on-Sea (31) or Tendring (22) so if there are opportunities for further investment in GI the clusters highlighted in Figure 9 would appear worthwhile priorities for further investigation.

Table 6 – Percentage of GI in LSOAs classified by IMD and population density

Population Density				
IMD Score	<15.9 Persons/ Ha	15.9-45.5 Persons/ Ha	>45.5 Persons/ Ha	Total
<10.6 (most affluent)	21.0%	32.3%	14.4%	21.8%
10.6-21.1	17.6%	33.9%	21.0%	18.2%
>21.1 (least affluent)	32.3%	40.3%	24.5%	32.4%
Total	20.4%	35.0%	21.4%	21.2%

Accessible Natural Greenspace Standards

Variations in the proximity of residential populations to GI assets are summarised in Table 7. This analysis included other GIS assets within 10 km of Greater Essex to avoid any boundary effects. However, since there were only two polygons meeting the ANGSt criterion of a 500 hectare site it is not especially meaningful to expect all four access benchmarks to be attained and consequently the table combines the outcomes for achieving three or four standards. In total, just over 50% of Greater Essex residents lived in locations meeting at least three of the access benchmarks, another 33% attained two benchmarks and 2% none at all. From Table 7 it is clear that there are some variations in proximity between authorities, with over 40% of residents in Braintree, Chelmsford and Tendring living in places achieving no more than a single benchmark. Figure 10 maps the GI benchmark results across Essex and complements Figure 9 in identifying localities where further investigation of GI provision could be merited. On the basis of Figure 10 there are parts of northern Braintree, northern Chelmsford, eastern Tendring and eastern Uttlesford that would appear to fall into this category.

Figure 9 – The distribution of LSOAs with higher IMD scores and a lower % coverage of GI assets

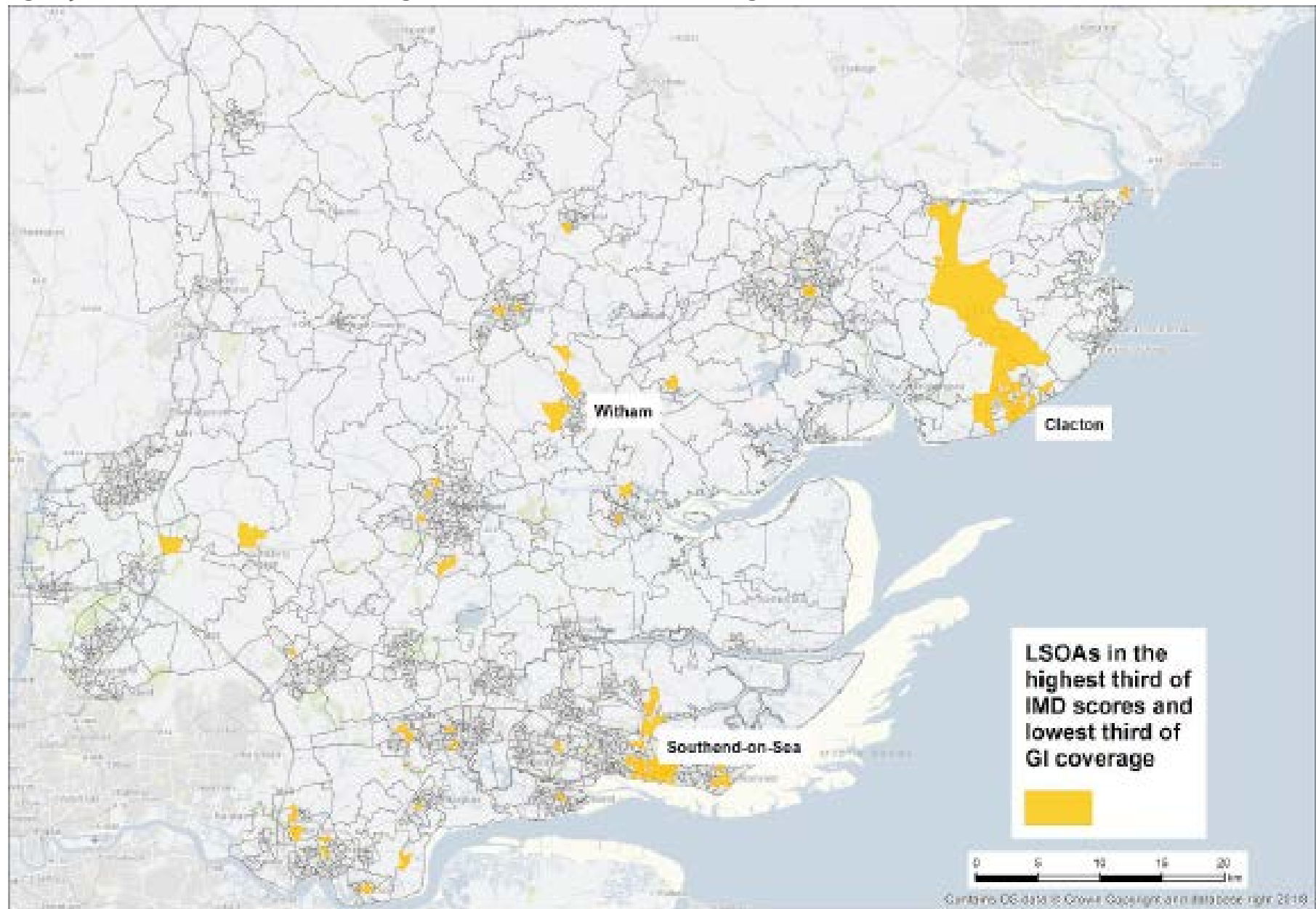


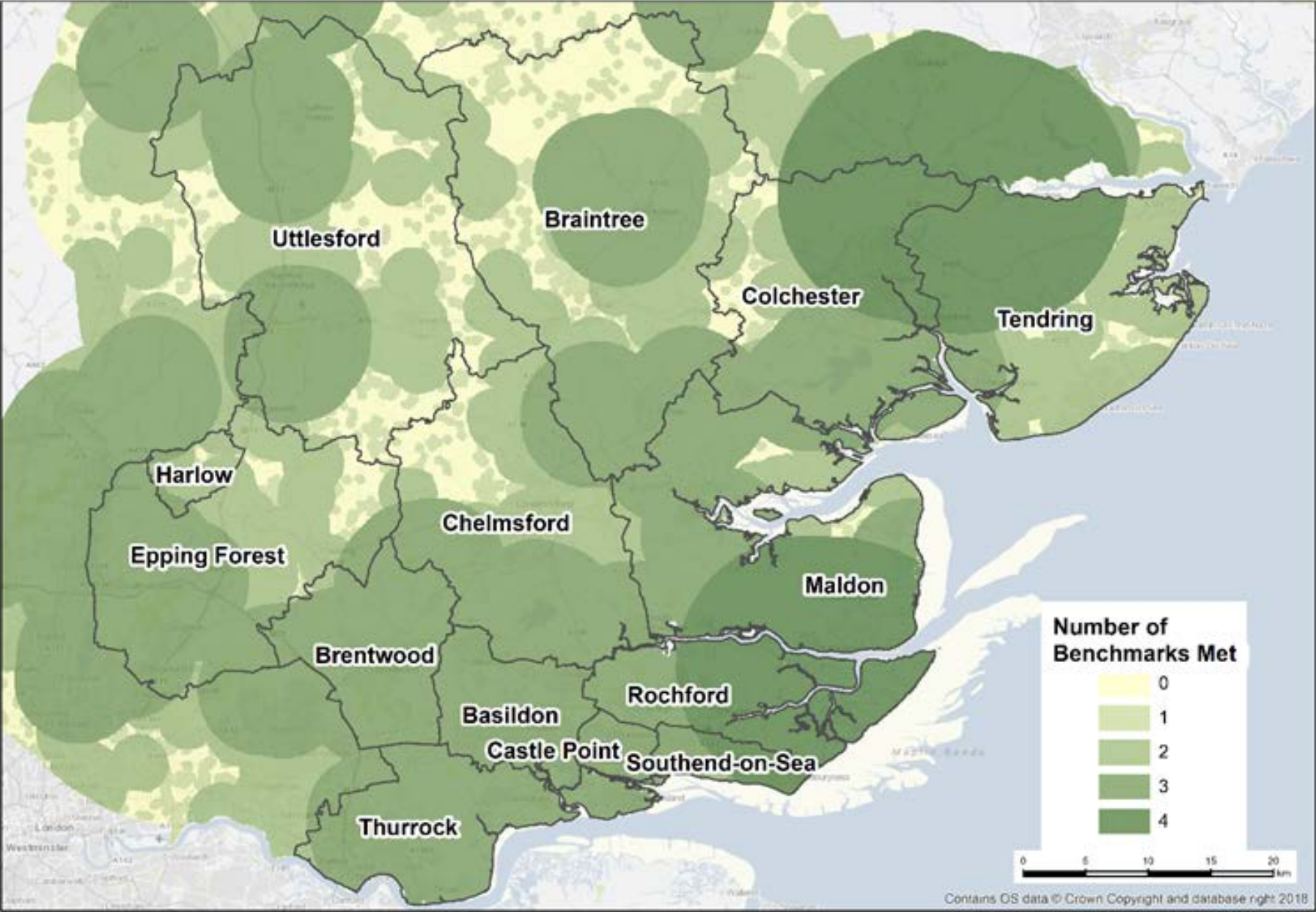
Table 7 – Percentage of GI in LSOAs classified by IMD and population density Essex

Percentage of Population Meeting Different ANGst Benchmarks

Authority Name	0	1	2	3 or 4
Basildon	0.0%	0.1%	32.4%	67.5%
Braintree	11.6%	29.9%	38.6%	19.9%
Brentwood	0.0%	2.4%	28.5%	69.1%
Castle Point	0.0%	0.3%	29.1%	70.6%
Chelmsford	4.4%	40.8%	40.2%	14.7%
Colchester	0.2%	3.7%	26.5%	69.5%
Epping Forest	0.3%	5.0%	28.2%	66.5%
Harlow	3.0%	28.5%	60.7%	7.9%
Maldon	0.6%	7.2%	30.2%	62.1%
Rochford	0.0%	3.1%	22.1%	74.8%
Southend-on-Sea	0.0%	7.7%	24.8%	67.5%
Tendring	2.1%	45.7%	39.8%	12.4%
Thurrock	0.1%	1.9%	36.8%	61.3%
Uttlesford	6.8%	20.2%	36.2%	36.8%
Total	2.0%	14.3%	33.6%	50.1%

Note: Calculations based on a gridded population surface derived from 2011 Census headcounts (the most recent available) so the results exclude new residential developments since 2011.

Figure 10 – ANGSt benchmark results for Greater Essex



Implications for Proposed Residential Development Sites

Figure 11 maps sites of at least 50 hectares approved for future housing and employment growth in Local Development Frameworks or Plans. A key to the site numbers is given in Table 8. It should be noted that the site information is incomplete because some district or unitary authorities are still to finalise the relevant planning documents.

To evaluate current GI provision in the vicinity of these sites Figure 12 plots their boundaries on top of the outcome for the ANGSt benchmarks assessment. The map shows that most sites are in localities where at least two benchmarks are met, the main exception being Site 23 (Colchester & Braintree Borders Garden Community) where much of the area does not attain any benchmarks. It would therefore seem relevant for discussions to take place with developers of this site to investigate opportunities to improve local GI provision.



4 Conclusions

This report has presented a method for combining a number of spatial data sources to generate a detailed map of GI assets across Greater Essex. The results identify 782 km² of GI assets (21.3% of the land area), with higher proportions (above 30%) in many authorities across the south of Greater Essex and lower ones further north where productive spaces (i.e. arable land and pasture) are more prevalent. These assets, in turn, provide multiple economic, social and environmental benefits to local residents.

Table 8 – Key to development site numbers on Figure 11

ID	Site Name
1	Land close to Ramsden Bellhouse
2	East Basildon
3	Tending and Colchester Borders Garden Community
4	Oakwood Park
5	Hartley Garden Village
6	Former Runwell Hospital
7	North East Chelmsford [A]
8	North East Chelmsford [B]
9	West of Woodside Way, Great Dunmow
10	Easton Park
11	North Uttlesford
12	West of Braintree Garden Community [A]
13	West of Braintree Garden Community [B]
14	West of Braintree Garden Community [C]

15	North Stansted
16	North of Heybridge
17	South of Limebrook Way
18	Woodlands Park, Great Dunmow
19	Land north of Dry Street
20	Dunton Hills Garden Village
21	North of South Woodham
22	Severalls Park, Colchester
23	Colchester & Braintree Borderd Garden Community
24	Land East of Newhall
25	Newhall Phase 2 & 3 [A]
26	Newhall Phase 2 & 3 [B]
27	Land East of Harlow, North of Church Langley
28	Land to the East of Rye Hill Road
29	West of Harlow [A]
30	West of Harlow [B]
31	Greater Beaulieu Park and Channels Area

Figure 11 – Major sites approved for future housing in Local Development Frameworks or Plans

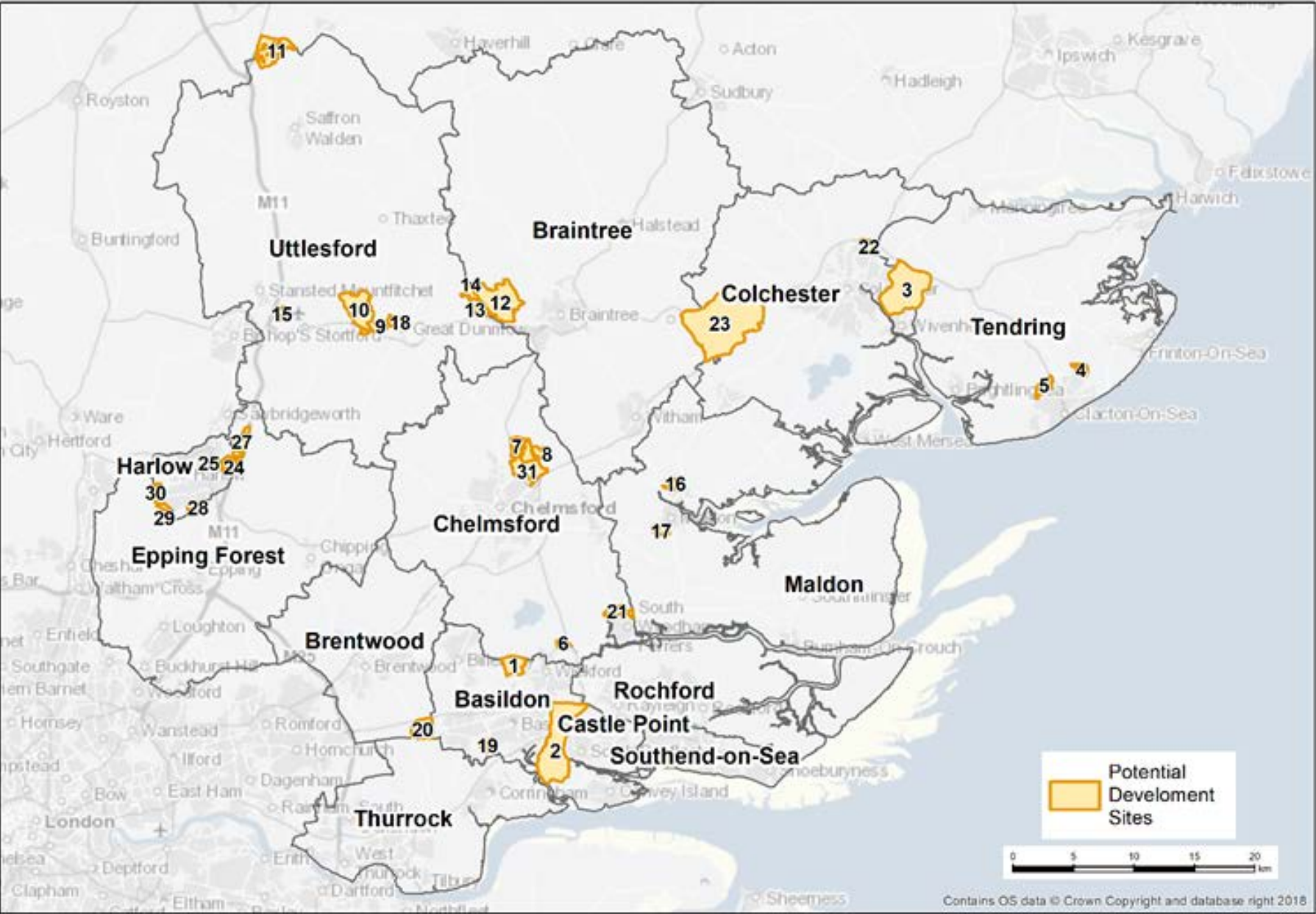
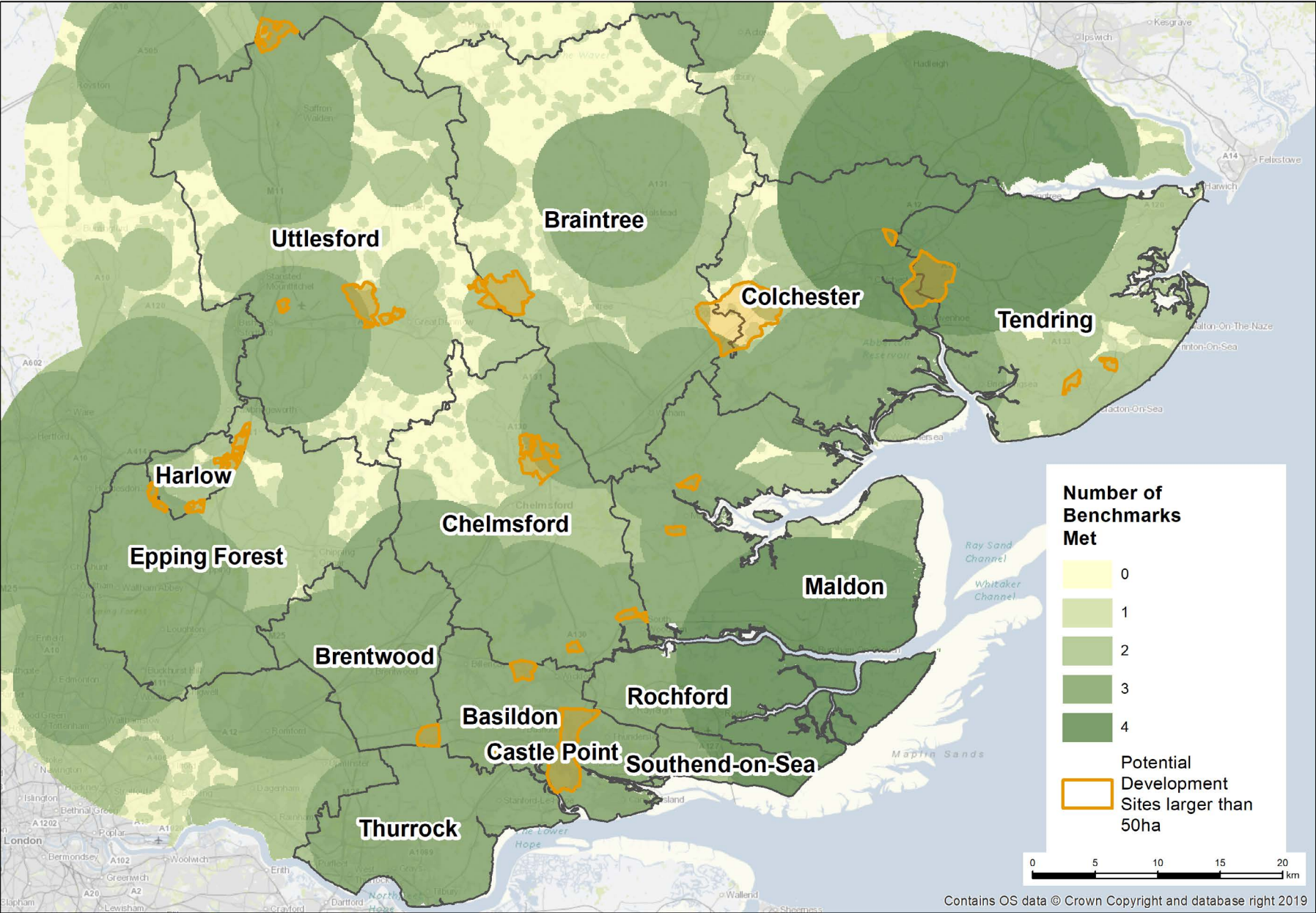


Figure 12 – Distribution of major housing development sites relative to ANGSt benchmark results



The prevalence of GI varies with socio-economic characteristics such as population density and affluence, though there is no simple trend for provision to be lower in neighbourhoods with higher levels of multiple deprivation. Across Greater Essex as a whole over 80% of residents live in locations meeting at least two of the four ANGSt benchmarks for GI proximity, though for three authorities (Braintree, Chelmsford and Tendring) this proportion is less than 60%. It is also possible to identify some specific localities where it would appear particularly appropriate to seek opportunities to increase GI provision. Some of these are neighbourhoods where indicators of socio-economic deprivation coincide with limited extent of GI (see Figure 9) and others occur where major housing developments are planned at sites where existing proximity to GI is poor (see Figure 12). The results therefore identify several needs and opportunities to enhance GI across the county and inform strategic planning in Greater Essex.

This study was supported by grant number ES/LO11859/1 from the Business and Local Government Data Research Centre, funded by the Economic and Social Research Council to improve access to data for researchers and analysts. The assistance and advice of Jayne Rogers, Aleks Bogdanov, Paul Hinsley and John Meehan of Essex County Council is also much appreciated, though responsibility for the analysis and interpretation in this report rests solely with the authors.

5 Acknowledgements

This study was supported by grant number ES/LO11859/1 from the Business and Local Government Data Research Centre, funded by the Economic and Social Research Council to improve access to data for researchers and analysts. The assistance and advice of Jayne Rogers, Aleks Bogdanov, Paul Hinsley and John Meehan of Essex County Council is also much appreciated, though responsibility for the analysis and interpretation in this report rests solely with the authors.

6 References

- Buell, S. (2009) Analysis of Accessible Natural Greenspace Provision for Essex, including Southend-on-Sea and Thurrock Unitary Authorities. Essex Wildlife Trust, Colchester.
- DCLG (2002) Planning Policy Guidance 17: Planning for Open Space, Sport and Recreation. Department for Communities and Local Government, London.
- Defra (2018) A Green Future: Our 25 Year Plan to Improve the Environment. Department for Environment, Food & Rural Affairs, London.
- GeoData Institute (2019) OpenPopGrid - An Open Gridded Population Dataset for England and Wales. <http://openpopgrid.geodata.soton.ac.uk/>.
- Handley, J., Pauleit, S., Slinn, P., Lindley, S., Baker, M., Barber, A. and Jones, C. (2003) Accessible Natural Green Space Standards in Towns and Cities: A Review and Toolkit for their Implementation. English Nature Research Report 526, English Nature Peterborough. <http://publications.naturalengland.org.uk/publication/65021>.
- Liverpool City Region (2014) Liverpool City Region and Warrington Green Infrastructure Framework: Technical Document. https://www.merseyforest.org.uk/Technical_document.pdf.
- Ministry of Housing, Communities & Local Government (2015) English Indices of Deprivation 2015. <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015>.
- Natural England (2009) Green Infrastructure Guidance. Natural England Report NE176. <http://publications.naturalengland.org.uk/file/94026>.
- North West Green Infrastructure Unit (2008) North West Green Infrastructure Guide Version 1.1. <http://www.greeninfrastructurenw.co.uk/resources/GIguide.pdf>.
- ONS (2018) Subnational Population Projections for England: 2016-Based. <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/subnationalpopulationprojectionsforengland/2016based>
- ONS (2019a) 2011 Census. <https://www.ons.gov.uk/census/2011census>.
- ONS (2019b) Lower Layer Super Output Area Population Estimates. <https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/lowersuperoutputareamidyearpopulationestimatesnationalstatistics>
- OS (2019a) OS MasterMap Greenspace Layer. <https://www.ordnancesurvey.co.uk/business-and-government/products/os-mastermap-greenspace.html>
- OS (2019b) OS Open Greenspace. <https://www.ordnancesurvey.co.uk/business-government/products/open-map-greenspace>
- Ramm, F. (2017) OpenStreetMap Data in Layered GIS Format. <https://download.geofabrik.de/osm-data-in-gis-formats-free.pdf>.
- Taigel, S., Lovett, A. and Sünnerberg, G. (2017) Integrating Spatial Data Sources to Develop a Representation of Green Infrastructure for Local Government. Working Paper: WPS2017-20. <http://www.blgdataresearch.org/portfolio-item/integrating-spatial-data-sources-to-develop-a-representation-of-green-infrastructure-for-local-government/>
- UK-NEA (2011) UK National Ecosystem Assessment Technical Report. UNEP-WCMC, Cambridge.

Appendix A

Identified associations between GI functions and economic, social and environmental benefits.

Table A1 – Identified associations between GI functions and economic benefits

Economic Benefits Provided								
Functions	Quality of place	Land and property values	Economic growth and investment	Labour productivity	Tourism	Products from the land	Inward investment	Cost savings
Recreation	D	I	I	I	D		I	I
Green travel route	D	I	I	I	I	I	I	I
Habitat provision	I	I	I	I	I	I	I	I
Heritage and cultural asset	D	I	I	I	D		I	I
Food production and productive landscapes		I	D	I		D	I	I
Pollution absorption and removal	D	I	I	I	I	I	I	D
Flood attenuation and water resource management	I	I	I	I	I	I	I	D
Coastal storm protection	I	I	I	I	I		I	I
Cooling effect	I	I	I	I	I		I	I
Access to nature	I	I	I	I	I		I	I

Table A2 – Identified associations between GI functions and social benefits

Social Benefits Provided						
Functions	Health and wellbeing	Recreation and leisure	Sense of place	Community resilience	Education	Encourage sustainable travel
Recreation	I	D	D	I	I	I
Green travel route	I	D	D	I		D
Habitat provision	I	I	D	I	D	I
Heritage and cultural asset	I	D	D		D	
Food production and productive landscapes	I				I	
Pollution absorption and removal	I		D	D		I
Flood attenuation and water resource management	I		I	D		I
Coastal storm protection	I		I	D		
Cooling effect	I			D		
Access to nature	I	D		I	D	

Note: D signifies that the function directly provides this benefit, I indicates that the association is indirect.

Table A3 – Identified associations between GI functions and environmental benefits

Environmental Benefits Provided					
Functions	Climate change adaptation and mitigation	Flood alleviation and water management	Environmental quality and aesthetics	Biodiversity	Heritage preservation
Recreation	I		D		I
Green travel route	I		D	I	
Habitat provision	D	I	I	D	I
Heritage and cultural asset	I		I	I	D
Food production and productive landscapes				I	
Pollution absorption and removal	D	D	D	I	
Flood attenuation and water resource management	D	D	I	I	
Coastal storm protection	D	D	I	I	
Cooling effect	D		I	I	
Access to nature			D	I	

Note: D signifies that the function directly provides this benefit, I indicates that the association is indirect.

Appendix C2 - Health Impact Assessment - Essex Green Infrastructure Strategy

Arrthi Pangayatselvan

Public Health Registrar

Image: Essex County Council



Introduction

The purpose of this Health Impact Assessment is to identify the potential impact of the Essex Green Infrastructure Strategy on the health of Essex residents. It aims to highlight potential positive impacts on health and areas that require further consideration to mitigate negative health impacts

Aims of this Health Impact Assessment

- To understand the potential positive and negative impacts of the Essex Green Infrastructure Strategy on health
- To make recommendations based on these findings to mitigate or monitor potential negative impacts of the strategy

Strategy background

The Essex Green Infrastructure Strategy has been developed by the Essex Green Infrastructure Partnership to guide planning and delivery of green infrastructure across Essex in light of potential growth in population and development.

Vision:

‘We will protect and grow a high quality connected Green Infrastructure network which extends from our city and town centres to the countryside and coast which, is designed for people and wildlife whilst being self-sustaining. This strategy developed seven key objectives: protect, improve, create, connectivity, inclusivity, health and sustainability.’ Essex Green Infrastructure Strategy, 2019

This strategy aims to achieve this vision through seven key objectives centred around the following concepts: protect, improve, create, connectivity, inclusivity, health and sustainability.

Essex Background

The Access to Healthy Assets and Hazards index (PHE fingertips, 2016) was designed to help policy makers understand which areas have poor environments for health. It is comprised of 3 domains – access to retail services, access to health services and physical environment (e.g. green space access and air pollutants). It highlights how conducive to good health an area may be compared to others. The indicator is the percentage of the population who live in a lower super output area (LSOA) which scores in the poorest performing 20% on the AHAA index. This index highlights that Essex (9.2%) performs better in these indicators than East of England as a whole (15.8%) and the national average (21.2%). 21.3% of adults in Essex and East of England walk for travelling at least 3 days per week (compared to 22.9% nationally) and 2.7% cycle compared to 4% in East of England and 3.3% nationally. Ability to walk and cycle in an area is linked to how well that area is adapted to allow for cycling and walking. These figures highlight the potential for strategies addressing environmental topics to influence health.

Supporting Evidence

There is much evidence which highlights the link between the environment and health. The PHE 'Improving Access to Green Space' (PHE, UCL Institute of Health Equity, 2014) document highlights the health benefits of access to good quality green space. This includes mental health and wellbeing improvements, lower levels of obesity and overweight, higher physical activity levels and better self-rated health. Green space can improve air and water quality, noise absorption and improve absorption of excess rain water, reducing the risks of floods and sewage overflow. People living in deprived areas are 10 times less likely to live in the greenest areas compared to those in the least deprived areas. These links to health impacts, highlight the potential for inequalities in health to develop or be exacerbated by differences in access to green space. It also highlights the potential for policies in other sectors including environmental sectors, to have a large impact on health.

Furthermore, there is growing evidence to suggest there is potential to reduce population-wide health inequalities (including availability of green space of good quality) across the social gradient through changes to the built environment. Studies have suggested that populations which had been exposed to green environments had lower levels of health inequality related to income deprivation (Braubach M et al, 2017). Improving access to good quality green space in disadvantaged areas may contribute to addressing health inequalities.

Structure of the report

This report will go through the potential impacts of the strategy in 6 key areas as per the Wales HIA support unit Health Impact Assessment guide.

These include:

- Lifestyles
- Social and community
- Living/Environmental conditions affecting health
- Economic conditions affecting health
- Access and quality of services
- Macro-economic, environmental and sustainability factors

Each section will review the potential positive impacts of the strategy and the supporting evidence. It will also outline considerations for monitoring or mitigating potential negative impacts.

Potential health impacts of strategy by health and wellbeing determinants

1 Lifestyles

1.1 Physical Activity

This strategy has the potential to lead to many positive health outcomes secondary to enabling increased physical activity. This would be facilitated by improved access to green space, improvement and creation of multi-user paths including cycle and walking paths, coastal paths encouraging walking and creating opportunity for sport e.g. green gyms. Opportunity for sport would be also be enabled by working collaboratively with Active Essex to identify opportunities to utilise green space for this function. These actions can impact health in the following ways:

- Increase physical activity
- Decrease levels of obesity, improve cardiovascular health
- Psychological benefits from increasing exercise

1.1.1 Supporting evidence

The PHE 'Improving access to green space' (PHE, UCL Institute of Health Equity, 2014) document highlights the evidence to show how increased access to green space can increase physical activity levels. The Foresight model (UK Foresight programme, 2007) highlights the complexity in factors affecting obesity and how they interact. This includes the concept that the environment in which an individual lives is a key factor that affects obesity levels. It highlights factors such as the walkability of the living environment, opportunity and safety of unmotorized transport and access to opportunities for physical activity as important components of the model affecting obesity.

1.1.2 Considerations:

Potential actions arising out of the strategy may risk favouring areas with less deprivation where there may already be green spaces to build upon. This could risk potentially increasing inequalities. Therefore, actions arising from the strategy will need to refer to the study to be included in appendix 9 where mapping will highlight how access to green space varies with deprivation level. This can be referred to, to ensure that areas with higher deprivation levels and lower access to green space are given the required attention.

There is a risk that actions arising from this strategy may not address the potential to improve physical activity in those with physical disabilities or specific needs. This strategy will require more specifics around the potential to maximise opportunities for those with disabilities and mobility issues or others with specific needs with regards to improving physical activity in these groups e.g. partnership working to ensure interventions arising from the strategy meet the needs of vulnerable groups.

1.1.3 Workshop feedback

Stakeholder feedback appreciated the potential benefit that could arise from the strategy with regards to opportunities to improve physical activity through access to green space. However, stakeholders also expressed concern around the need to ensure that green space access is also accessible to those living in areas of higher deprivation and vulnerable groups.

1.2 Diet

This strategy may have some potential to lead to positive effects on diet through encouraging the development of community gardens. Dependent on how this is developed, it has the potential to increase access to fruits and vegetables, particularly in areas where there may be less access, thus also decreasing inequalities in access to healthy foods.

- improved diet
- opportunity to contribute to decreasing obesity

1.2.1 Supporting Evidence

There has been some evidence to suggest that the presence of green spaces may have a positive effect on diet. In particular, community gardens have been suggested to improve availability of fresh vegetables (Castro DC, 2013). This is thought to be of particular benefit in urban areas where there may be limited access to fresh fruit and vegetables and may provide a way of reducing inequalities in access to healthy food whilst bringing the community together. (Jennings et al, 2017)

1.2.2 Points for consideration

When developing specific actions arising from the strategy, there will need to be consideration of how green spaces are linked to food outlets selling unhealthy food. For example, there will need to be an awareness that attractiveness of certain areas may inadvertently improve access to fast food outlets. Efforts will need to be taken to mitigate such consequences.

2 Social and Community Influences on Health

The social and community influences that could arise from this strategy, have the potential to have a number of positive effects on health:

- Social supports and networks can develop through communal use of green space and joint projects/events held in green spaces
- Decreased risk of social isolation where communities are able to use green spaces for communal activities and events
- Opportunity for increased local pride through projects such as Essex Green Permit scheme which may help to unite community and improve mental wellbeing within the community
- Empowers the community to improve their own health and wellbeing—e.g. through volunteering opportunities to get involved with local projects within green spaces
- Suggestion for public transport to stop in front of green spaces can improve ease of access for those who may otherwise not have easy access to green spaces. This can improve access to community events and other activities enabling people to link in with their community.
- Suggestion for using green spaces for environmental therapies through mental health services can provide the opportunity for potentially vulnerable groups to access the benefits of green space.

These actions can impact health in the following ways:

- Improved social cohesion
- Decreased social isolation
- Increased community spirit
- Improved mental health and well-being

2.1 Supporting Evidence

The 'Public health and landscape' (The landscape Institute, 2013) paper describes the evidence showing how access to green space and presence of vegetation can increase positive social interaction, reduce noise pollution, improve quality of life for older people and can have positive effects on mood, concentration and stress. A Swedish study showed how the more often people visited green space, the less they reported stress-related illnesses. It also highlighted that distance to green spaces was key to the amount they were used. (Grahm P, Stigsdotter U, 2003)

2.2 Considerations

There is a risk that individuals who are currently socially isolated may not have the confidence or access to activities in green spaces promoted through this strategy. This could be addressed through specific targeted promotion towards this group and monitoring who accesses the green space and activities within. This has been referred to in the 'targeted promotion' section but could be more specific to ensure that those vulnerable to social isolation are considered when marketing and promoting activities.

There is a possibility that the strategy may enhance the experience for those already within social/community networks who access green spaces without appealing to some community groups such as minority ethnic/traveller/refugee groups who may not readily access these spaces. This will require monitoring to ensure that the green spaces meet the needs of different groups of people and reach these groups.

This may also require targeted promotion towards groups who are normally less likely to use green spaces and facilities. Actions should utilise the mapping study in appendix 9 of the strategy and the online consultation to aid understanding around areas that may require attention. Information from the online consultation can also be used to better understand who is more likely to utilise green spaces and tailor actions to improve inclusivity.

2.3 Stakeholder feedback

Stakeholders also acknowledged the opportunities to improve social cohesion and reduce loneliness and social isolation as a result of this strategy. However, stakeholders also identified a risk of increasing social isolation for groups unable to participate in some of the green space related activities that could arise from this strategy. This re-enforces the need to be mindful of the needs of vulnerable groups and individuals who may be at risk of becoming further isolated through actions arising from the strategy and developing actions that cater for their needs as well.

3 Living/environmental conditions affecting health

This strategy has the potential to improve living and environmental conditions affecting health in several ways.

- Improving green infrastructure has the potential to increase the attractiveness of areas improving the living conditions and mental health and well-being of those in these areas.
- The development of cycle paths and pedestrian walking paths may increase the safety of travel for those who wish to walk or cycle. Where more people choose to walk or cycle instead of driving, this in turn may improve air quality in the area, indirectly improving the physical health of those living nearby. This may also decrease noise pollution in these areas.
- Development of street trees, parklets and urban greening through green walls and green roofs has the potential to reduce air pollution by trapping and removing fine particulate matter.
- Green infrastructure can also lower air temperatures through the evaporation of water from vegetation and shading. This has the potential effect of cooling urban heat islands.
- Green corridors within urban areas could reduce pedestrian exposure to pollution.
- Flood protection with natural flood management techniques can lead to safety improvements in the area.
- Developing and maintaining green infrastructure can conserve and enhance biodiversity which in turn can support regulation of infectious diseases, climate change adaptation and food security. Biodiversity can also have social and cultural importance within communities. These benefits are dependent on the scale and way in which infrastructure is developed and maintained.

These actions can impact health in the following ways:

- Improved physical health (e.g through decreased exposure to pollution)
- Improved safety (e.g through flood protection and cycle/walking paths)
- Improved mental health and general well-being

3.1 Supporting Evidence

Much evidence points towards the positive health impacts of green infrastructure in relation to the living environment. These include improved air and water quality, noise absorption and reduced urban heat island effects (PHE, UCL Institute of Health Equity, 2014). Urban areas can often experience higher temperatures compared to more rural areas in view of the presence of extensive heat absorbing surfaces such as tarmac and concrete. The evaporation of water from vegetation and shading can lower air temperatures (Wilebore, Wentworth et al (POST), 2013) having a cooling effect on urban heat islands. Trees and vegetation can also trap and remove particulate matter decreasing air pollution. The strength of these effects are dependent on factors such as pollution concentration, type and quality of vegetation and the weather (Nowak, Crane, Stevens, 2006). Conserving and enhancing biodiversity can also support climate change adaptation, food security and can have social and cultural importance within communities. (World Health Organisation and Secretariat of the Convention on Biological Diversity, 2015). This is dependent on the scale and way in which green infrastructure is developed and maintained.

There are also studies highlighting the potential negative impacts on health though evidence in this area is less consistent. Potential negative effects have included exposure to pesticides, allergenic pollen, vectors of infectious disease (e.g ticks) and increased risk of injuries. It should be noted that the evidence related to allergens is inconsistent with some studies suggesting that green space has a protective effect and others saying it has a harmful effect (Braubach M et al, 2017). Lohmus and Balbus (Lohmus M, Balbus J, 2015) argue that developments can mitigate potential negative impacts through proper design, maintenance and operation of green spaces. Therefore, design of green spaces should take into account these potential negative impacts and take measures to minimise them. The 'Improving Access to Green Space' report highlights how amenities in rural green spaces such as lighting, safety, upkeep and suitability of play equipment and paths can often be of poor standard (PHE, UCL Institute of Health Equity, 2014). An intervention aiming to increase engagement with green spaces amongst hard to reach groups found that fear around personal safety was a barrier to access of green space. Therefore it is important to ensure that green spaces are well maintained and safe to use.

3.2 Considerations:

- When developing visitor attraction sites which attract visitors from afar, potential risks of increased motorised traffic in these areas should be acknowledged and monitored. Potential impacts on road safety should be monitored to maintain safety in these areas.
- Though there is much benefit to be gained from incorporating green infrastructure into new developments, efforts should be made to ensure that those not living in new developments are also able to benefit from actions arising from the strategy.
- Where green infrastructure such as new cycle and pedestrian paths and green spaces are developed, care should be taken to ensure that safety is maintained. This will include amenities such as lighting, play equipment and paths to be of good quality and well maintained. Actions arising from the strategy should take into account how green spaces will be maintained as safe spaces and be appropriately looked after without becoming potential areas for anti-social activity.
- Potential impacts of allergenic pollen, pesticides and risk for increased risk of injuries should be considered when developing plans for green space.

4 Economic Conditions affecting health

There are a number of positive effects that could arise from this strategy in this area:

- Through mitigating negative health impacts of residential development and creating a healthy living environment, this may improve quality of life for residents and increase attractiveness of these areas for potential residents. This may encourage movement into Essex areas potentially improving economic regeneration.
- Maintenance or development of green infrastructure may improve working conditions for those working near or within these areas.
- Improving country parks through expanding facilities and new visitor centres to increase access may generate revenue. For example, development of the Green Discovery Park can create opportunities for employment and generate income. This may lead to positive effects on mental well-being.
- Improving cycle and walking paths may improve access to services and places of work. This may increase attractiveness of Essex based employment opportunities and improve mental and physical well-being of employees.
- Natural flood management techniques have the potential to save money associated with short and long-term effects from flooding.
- If development of high quality and sustainable green infrastructure is considered early in the design process for large and small developments, it can improve developers' financial return through producing multiple benefits from single pieces of land. Early consideration of green infrastructure could lead to easier and more cost-effective construction, improved quality of life and wellbeing of residents and increased chance of planning permission being granted with fewer conditions.
- Sustainable developments can have increased resilience to the effects of climate change improving safety and well-being of residents. Developments with green infrastructure can also lead to improved mental health and wellbeing of residents.

These actions can impact health in the following ways:

- Improved employment opportunities and attractiveness of working environment
- Improved mental health
- Improved safety and wellbeing

4.1 Supporting Evidence

PHE 'Improving access to green spaces' (PHE, UCL Institute of Health Equity, 2014) document illustrate economic advantages of green space access through the national walking for health and green gyms schemes. This highlighted the potential savings that can be made to the NHS through prevention through these methods.

4.2 Considerations

There is a risk that employment opportunities arising out of green space innovations may not reach the more vulnerable in the community such as those currently unemployed, those with physical or learning disabilities, minority ethnic groups etc. Actions arising from the strategy should consider how to benefit these groups and those living in more deprived areas. For example, action plans arising from the strategy should incorporate need for early partnership with employment services to maximise opportunities for those currently unemployed.

Development and expansion of these spaces such as the Green Discovery Park will require financial investment. The need for a fiscal plan is noted in the strategy. Care will need to be taken to consider the opportunity costs associated with such work as well as the sustainability and net benefit long term of large-scale projects.

Though there are potential positive impacts of green infrastructure on travel to work, actions arising from this strategy should consider how development of green spaces could impact on travel to work in a negative way e.g. increased traffic congestion in the surrounding areas. Through improving transport to and popularity of green spaces, the potential impact on the local populations' routine access to places of work/services will need to be considered.

5 Access and quality of services

The strategy has the potential to improve access to and quality of services.

- The use of green infrastructure within and around health care and other facilities has the potential to improve mental well-being for staff and patients.
- Such green infrastructure has the potential to improve safety of these locations and surrounding areas through reducing flood risk through structures such as rain gardens.
- The strategy refers to the potential for expanding visitor centres and facilities for green spaces which may improve quality of green spaces for the local population.
- New environmental projects e.g. methods for flood mitigation, development of green infrastructure with multiple functionality and development of visitor centres with a focus on green infrastructure and sustainability, present opportunities for education and training.

These actions can impact health in the following ways:

- Improved well-being for service users where green infrastructure is developed in and around service locations e.g. hospitals
- Potential opportunities for education through highlighting methods for sustainability

5.1 Supporting Evidence:

The positive effects of greenspace highlighted in the sections above are also likely to apply to those visiting health care services with green infrastructure. The positive effects on mental wellbeing may be a potential benefit for those attending these services. Reducing flood risk through structures such as rain gardens may decrease risk of damage to sites from flooding (County Health Rankings and Roadmaps, 2017) as well as providing positive health and well-being impacts from access to a green space on site.

5.2 Challenges:

- There is a risk that there may be need to charge for entry to certain sites. This could result in inequalities in access to green space across socio-economic groups. Where possible, efforts should be taken to learn from other models to see how costs of sustaining green spaces can be reduced or how green spaces can become self-sustaining.
- Where there will be development of facilities within green spaces around new developments there may be a risk of neglect of populations of high need where there are barriers to development of green space. There will need to be specific consideration of how to improve access for groups who currently experience barriers to access green space.
- Actions arising from this strategy will need to ensure that, where facilities and green infrastructure are developed, access from areas with higher deprivation and poor health indicators are reviewed and improved.
- The actions arising from the strategy will need to consider how shops and commercial services may link into potential green spaces. There will need to be consideration for what types of shops or food outlets may be developed in these areas and how these may impact on the health and well-being of those who use these spaces. Where possible, actions should be taken to mitigate negative consequences and promote healthy food choices.

- Where spaces such as the Green discovery park may be developed, there will need to be consideration for the potential increase in car traffic that can be developed from increased popularity and potential demand for parking facilities. The potential consequences in terms of road safety, noise pollution and air pollution should be monitored and addressed.

6 Macro-economic, environmental and sustainability factors

- This topic has been largely covered in previous sections. However, a summary of how this strategy addresses this topic is outlined below.
- This strategy has the potential for positive impacts on bio-diversity and sustainability as outlined in the sections above. These can in turn positively affect the mental and physical health and well-being of those who are able to access and benefit from green infrastructure.
- There appears opportunities for economic development though care will need to be taken to monitor who benefits and specific purposeful actions taken to ensure that those in vulnerable or disadvantaged groups benefit from the strategy as well.

Conclusion

There are a large number of potential health benefits that could arise from this strategy. Potential benefits highlighted throughout this document fall predominantly under the following areas:

- Improved mental well being
- Increased physical activity and improved physical health
- Improved social cohesion and reduced social isolation

Despite the many potential health benefits that could arise from this strategy, it is important to be aware of the risks that could arise. These largely fall around ensuring equitable access to green space across the county and across all groups of people as well as ensuring safety and adequate maintenance of green spaces. The considerations outlined under each section throughout this report can be summarised as follows (see sections above for details related to each topic area):

Further consideration will be needed for how the strategy can ensure that those from vulnerable/disadvantaged groups can benefit from opportunities created through green infrastructure. Actions arising out of this strategy should pay consideration to the potential impacts of the strategy on inequality (as highlighted in the sections above). Where possible, actions should be taken to mitigate negative impacts on health or inequality.

It will be imperative to ensure that green spaces are well-maintained, safe and practical to use to be able to facilitate positive impacts on health to be experienced.



Bibliography

Braubach M et al, 2017. Effects of Urban Green Space on Environmental Health, Equity and Resilience. In: Nature-Based Solutions to Climate Change Adaptation in Urban Areas. s.l.:Springer, Cham, pp. 187-205.

Castro DC, S. M., 2013. Growing healthy kids: a community garden-based obesity prevention program.. American Journal of Preventative Medicine, 03, 44(3), pp. 193-199.

County Health Rankings and Roadmaps, 2017. Rain Gardens and Other Bioretention systems. [Online]

Available at: <https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/policies/rain-gardens-other-bioretention-systems> [Accessed July 2019].

Grahn P, Stigsdotter U, 2003. Landscape planning and stress. Urban Forestry and Urban Greening, 2(1), pp. 1-18.

Jennings et al, 2017. Urban Green Space and the Pursuit of Health Equity in Parts of the United States. International Journal of Environmental Research and Public Health, 11.14(11).

Lohmus M, Balbus J, 2015. Making green infrastructure healthier infrastructure. Infect Ecol Epidemiol.

Nowak, Crane, Stevens, 2006. Air Pollution Removal by Urban Trees and Shrubs in the United States. Urban Forestry and Urban Greening, 4(3), pp. 115-123.

PHE fingertips, 2016. Public Health Profiles. [Online] Available at: <https://fingertips.phe.org.uk/search/air%20pollution#page/3/gid/1/pat/6/par/E12000006/ati/102/are/E10000012/iid/93074/age/1/sex/4>

PHE, UCL Institute of Health Equity, 2014. Improving access to green spaces

The landscape Institute, 2013. Public Health and Landscape - creating healthy places, London: The Landscape Institute.

UK Foresight programme, 2007. Tackling Obesity: Future Choices - project report, Department of Innovation Universities and Skills.

Wilebore, Wentworth et al (POST), 2013. Urban Green Infrastructure, London: Parliamentary office of Science and Technology.

World Health Organisation and Secretariat of the Convention on Biological Diversity, 2015. Connecting Global Priorities: Biodiversity and Human Health, WHO.

This information is issued by

Essex County Council

Contact us:

environment@essex.gov.uk

Environment and Climate Action

Essex County Council

Chelmsford

CM1 2QH

Visit us at:

www.essex.gov.uk



Essex_CC



facebook.com/essexcountycouncil

The information contained in this document can be translated,

and/or made available in alternative formats, on request.

Published 2020