

Managing the coast



Essex and South Suffolk Shoreline Management Plan 2
Landguard Point (Felixstowe) to Two Tree Island (Southend)
Non-technical summary of final plan 2010

Front cover images: (top left) Harwich and Felixstowe Ports,
(top right) Clacton Pier, © Mike Page, 2008
(bottom left) Naze Tower, (bottom right) Salcott Creek saltmarshes

Back cover image: Frinton-on-Sea, © Mike Page, 2008

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What is a Shoreline Management Plan?

A Shoreline Management Plan (SMP) identifies the best ways to manage flood and erosion risk to people and the developed, historic and natural environment in the short, medium and long-term. The overall aim of the plan is to support the best possible balance of all values and features which will create opportunities to work with others and make improvements.

Approximately 10 years ago the first round of SMPs were completed for the entire length of the coastline of England and Wales. These SMPs have now been reviewed and updated to take account of new information, data and legislation. The plan describes the short-term (up to 2025), the medium-term (2026 to 2055) and the long-term (2056 to 2105). These are referred to as epochs 1, 2 and 3. The plan is reviewed every 5 to 10 years as our vision for the medium and long-term is based on our current knowledge and understanding.

This document is the non-technical summary of the Shoreline Management Plan. It aims to provide you with summary information about the short, medium and long-term plans for managing the coast between Landguard Point (Felixstowe) in Suffolk and Two Tree Island near Southend-on-Sea in Essex.

How we developed the plan

We have worked in partnership with organisations with interests and responsibilities around the shoreline. This approach is important because there are strong links between shoreline management, coastal land use and the coastal environment. All of these partners have been fully involved in producing this SMP.

Client Steering Group (CSG): has overall responsibility for the delivery of the SMP. The CSG initiates the SMP development process, undertakes any scoping tasks required and manages the development and adoption processes. Organisations include:

- Environment Agency
- Suffolk Coastal District Council
- Ipswich Borough Council
- Babergh District Council
- Suffolk County Council
- Essex County Council
- Tendring District Council
- Colchester Borough Council
- Maldon District Council
- Chelmsford Borough Council

Introduction

- Rochford District Council
- Southend-on-Sea Borough Council
- Natural England
- English Heritage

Elected Members' Forum (EMF): elected members, representing their individual authorities, were involved in developing the plan and endorsing the final document. The EMF comprises elected member representatives from client local authorities and members of the Environment Agency's Regional Flood Defence Committee.

Key Stakeholder Group (KSG): a key stakeholder is a person or organisation with a significant interest in the preparation of, and outcomes from a SMP. This includes authorities, organisations, parish councils, community groups and private bodies with responsibilities or ownerships that affect the overall management of the shoreline in a plan. The KSG acts as a focal point for discussion and consultation through development of the plan.

Finding the right balance

We looked at how the coast and the flood and erosion defences are currently responding to natural and man-made changes. We then considered how the coast would respond to different management options and how these would affect the values and features that people consider important around the estuaries and coast of Essex and South Suffolk.

SMPs identify opportunities where partners, stakeholders, communities and individuals can work together to manage and reduce flood and erosion risk. The outcome of the SMP is a document that outlines the intent of management for the coast and estuaries of Essex and South Suffolk. The plan aims to achieve the best possible balance for all the features that have been identified as valuable by partners and stakeholders around the coast. One of the main challenges for Shoreline Management Plans is how to balance different, and sometimes conflicting, issues and features that people and communities value. Some of these are mainly of value to local communities but others may be important at a county level, within Anglian region, nationally or even internationally. The main SMP documents contain a lot of information about all these issues and features.

There are significant areas of low-lying rural and agricultural land across much of the SMP area which are interspersed with seaside and estuary towns, major ports and smaller rural communities. The local economy is therefore strongly linked to coastal activities and the coastal hinterland.

Most of the coast and estuaries have defences to protect against erosion and flood risk from the North Sea.

Introduction

One of the most important aspects of the Essex and South Suffolk coast and estuaries is its value to the natural environment. This is reflected in its designation under the European Habitats and Birds Directives, as a wetland of international importance (Ramsar site) and part of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) is included in the plan area. Only a very small part of this coast is not designated under European law.

As well as the natural environment, this coast has historic environment features that are important at many levels. These include scheduled monuments, historic parks and gardens, listed buildings and conservation areas in most settlements. Some of these features are found in intertidal areas, such as fish traps in the Blackwater or a causeway in the Colne, and are therefore difficult to find and record but are important links with the coastal and maritime culture and history. Others are important features of the historic landscape such as Martello towers and World War II pillboxes which many people consider to be of high value in this area.

Balancing the needs of local communities, the environment and the history and landscape of this coast is challenging.

Because of these important features around our coast the Essex and South Suffolk SMP includes a Strategic Environmental Assessment (SEA). This looks at how the final policies might affect the features and values society considers important. The SEA doesn't only consider the possible effects on the natural environment. It also looks at how they could affect the historic environment, communities, infrastructure and leisure and tourist facilities.

We have also produced a Habitats Regulations Assessment (HRA) to find out if any of the final policies could adversely affect any site designated under the European Habitats and Birds Directives. The conclusion of this assessment was that adverse affect could not be ruled out. We will therefore submit a Statement of Case to the Secretary of State for Imperative Reasons of Over-riding Public Interest (IROPI) in order to implement these policies despite the possible adverse affect.

How we involved you

Due the large geographical nature of this SMP it was very important from the outset to find a way to ensure we involved everyone with a stake in this coast.

Over 200 organisations and groups were identified who represent those with properties, businesses and infrastructure around the coastal area as well as those who visit, enjoy and use the coast. This group of representatives were invited to several events and workshops throughout the development of the plan to highlight local themes and issues that the plan needed to consider. This group also reviewed data and information used to help draft the management policies.

An important but challenging aspect of this SMP review was a wide and comprehensive public consultation to obtain the public's views and to examine the draft policies to help determine the final SMP policies. Given the large area and significant number of people to involve, a communications plan was developed by the partners. This included media campaigns to advertise the public consultation as well as work to identify how best to involve hard-to-reach communities given the issues of social deprivation and rural nature of much of the area.

The draft plan was launched at a stakeholder event on 12 March 2010. The formal public consultation ran from the 15 March to 28 June 2010. We held 17 public exhibitions (drop-in sessions) at different places along the coast, attended by officers from the partner organisations. These were held to inform people about the draft plan and to seek their comments about the proposed policies. People could also look at the draft SMP and make comments through the website. Hard copies were available to view in the libraries and council offices within the plan area.

We received over 180 comments during the consultation period, either on feedback forms or as letters or emails. These responses were considered by the partners and some changes to the policies were made.

We have produced a report about the public consultation period. This includes information about the publicity and events before and during the consultation period, the type of people who commented on the draft SMP and what they commented on. Appendix B of the SMP document contains this report which includes copies of all the comments received on the draft SMP and SEA.

You can obtain a copy of this report by emailing: Essex&SouthSuffolk_SMP@environment-agency.gov.uk or by ringing the Environment Agency's National Customer Contact Centre on 08708 506 506 Monday to Friday 8am to 6pm. (Weekday Daytime calls cost 8 pence plus up to 6 pence per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary).

An overview

The Essex and South Suffolk SMP area is in the East of England. It covers the Stour and Orwell Estuaries in Suffolk as well as Hamford Water, Colne, Blackwater, Roach and Crouch estuaries. The plan also covers most of the Essex coast as far as Two Tree Island near Southend in the Thames (with the Thames Estuary 2100 strategy covering the remainder of the Essex coast between Southend-on-Sea and the Thames Barrier). The plan covers 550km of coast, including 440km of sea defences.

Much of the shoreline is made up of embankments that protect low-lying land against flooding. There are also a number of stretches of higher, soft-eroding cliffs and these are generally undefended, with the exception of the cliff frontages of Southend and the Tendring Peninsula at Clacton and Holland-on-Sea which are defended against coastal erosion.

The most prominent economic activity is the commercial shipping that takes place out of the ports at Ipswich, Felixstowe and Harwich. In addition much of the coastal hinterland is used for agricultural production.

Tourism plays an essential role in the economy of much of the SMP frontage whether beach-based at Frinton, Clacton, Jaywick and Southend or linked to the seafood culture of Maldon and West Mersea. Important recreational activities like walking and sailing also occur throughout the estuaries.

Historical towns like Ipswich, Colchester and Chelmsford all have links to the sea. In addition, landscape and wildlife including the southern extent of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty attracting many tourists.

The low lying areas tend to be predominantly agricultural but also provide important habitats for a range of birds, invertebrates and plants.

Many of the coastal and estuary defences are in good condition, however some locations are under increasing pressure from natural changes (waves, tidal currents, surge tides). These natural processes are already eroding beaches and saltmarshes, leaving defences vulnerable to over-topping by waves and tides or the undermining of defence foundations. At these locations, there is an increased risk of flooding or erosion to local people and property now and in the future. These are the locations where we need to consider important management decisions for the future.

In addition, the loss of beaches and intertidal areas has an impact on local economies and the coastal environment. Through the SMP we needed to find a balance between managing coastal flood and erosion risk and wider socio-economic and environmental needs.

Here we introduce and explain some of the key coastal and estuary processes in the Essex and South Suffolk SMP area. These have played an important role in developing the plan as we have considered the impact of these processes on the future management of the defences.

Intertidal areas

An estuary is the section of a river where it is flowing into the sea and is influenced by the tides. Estuary banks are typically wide flat areas consisting of mud and silt that are sometimes dry, and sometimes under water. Similar areas are also found along parts of the open coast, for example in front of Dengie and Foulness. This area is called the 'intertidal area', and it is made up of mudflats and saltmarshes. The intertidal area is important because it stops waves reaching flood and erosion defences, and it is a habitat for many rare plants and animals.

Coastal squeeze

Since the last Ice Age, around 12,000 years ago, the land in the East of England has been sinking slowly, while sea levels have generally been rising. This process is expected to continue and may be speeding up. The natural response of intertidal areas is a gradual move in a landward direction. Large areas of the estuaries and coastline in the Essex and South Suffolk SMP area are constrained by the high ground and by man-made flood defences. This means that the saltmarshes and mudflats cannot move in a landward direction: they do lose area from their seaward edge, but they don't gain area on their landward edge. This is called 'coastal squeeze'. It puts pressure on the flood defences, which become more difficult to maintain, and it leads to loss of important habitats.

Estuary processes

At the outer and middle reaches of the estuaries erosion of the saltmarsh edge takes place. These sections are exposed to pressures from waves and tidal flows. Some of the sediment eroded from the outer and middle reaches is transported by the tides into the inner estuary where siltation is taking place. As sea level rises and tidal flows speed up there would be more erosion and coastal squeeze of saltmarsh in estuaries.

Where the estuary is constrained, the flood banks are under pressure. An intervention to widen the estuary on one bank loosens the constraint, so it will reduce the pressure on the opposite bank of the estuary.

On the other hand, widening the estuary in the upstream reaches can have a negative effect further out. It increases the tidal prism (the volume of water flowing in and out of the estuary with each tide). This means that more water has to pass through the outer reaches, and this can increase the pressure on the banks.

Open coast processes

There are a number of exposed coastal frontages in the SMP area. These frontages experience the full force of waves from the North sea with the strongest waves coming from the north-east. The wave energy moves sediment around the coast. Sediment tends to build up in certain areas where the wave and current energy is less. There can also be a loss of sediment where the energy is greater. This loss of sediment causes a loss of beaches, saltmarshes and mudflats and can cause undermining of the coastal and flood defences.

How we divided the coast

Due to the large geographical area that this SMP covers we have split the coast into 10 different management units (MUs). The 10 management units have played an important part in the development of this plan and are listed in the table below.

Management Unit	Area covered
A	Stour and Orwell Estuaries
B	Hamford Water
C	Tendring Peninsula
D	Colne Estuary
E	Mersea Island
F	Blackwater Estuary
G	Dengie Peninsula
H	Roach and Crouch Estuaries
I	Foulness, Potton and Rushley Island
J	Southend and Two Tree Island

The 10 management units are then sub-divided into policy development zones (PDZs) to make it easier to manage the data and information and to make it simpler for those reading the documents to find information about each frontage easily.

This means we can have different policies for smaller sections of the coast for each epoch, rather than one policy for a large area that may not be appropriate for each epoch. These PDZs are largely based on flood compartments or erosion frontages.

The extent and main characteristics of the management units, PDZs and the flood and coastal risk management policies for each of the 3 epochs are shown on the attached maps and tables.

How we divided the coast

Shoreline Management Plans have to use one of four policies.

Management Policy	Definition
Hold the line (HtL)	Holding the defence line where it is now
Advance the line (AtL)	Building new defences seaward of the existing defence line
Managed realignment (MR)	Allow the shoreline to move seaward or landward, with management to control or limit the effect on land use and environment. This can take various forms, depending on how we want to manage the area. All realignments are characterised by managing change, both technically (by breaching and building defences) and also for land use and environment (by helping or ensuring adaptation)
No active intervention (NAI)	No investment in coastal defences or operations

For much of the Essex and South Suffolk coast the defences have been well managed and as a result most of the defences are in relatively good condition. However at certain points around the coast the natural coastal processes described previously are already impacting on the defences and continuing to manage these walls in their current position will become more challenging in the future. Where there are HtL policies, it is important to clarify that economic defences may not always be affordable from public finances. This is because funding availability in the future cannot be predicted. There is a need to explore all sources of funding for all epochs.

Consequently, in the Essex and South Suffolk SMP we have used the managed realignment policy on frontages which we consider to be vulnerable to flood and erosion risk, now or in the future. The policy is mainly used where there are no significant communities and in largely rural areas. The natural processes are creating a situation that is challenging to manage at a number of locations. Either the defence will be increasingly over-topped by waves or undermined as beaches lower or intertidal marshes are eroded.

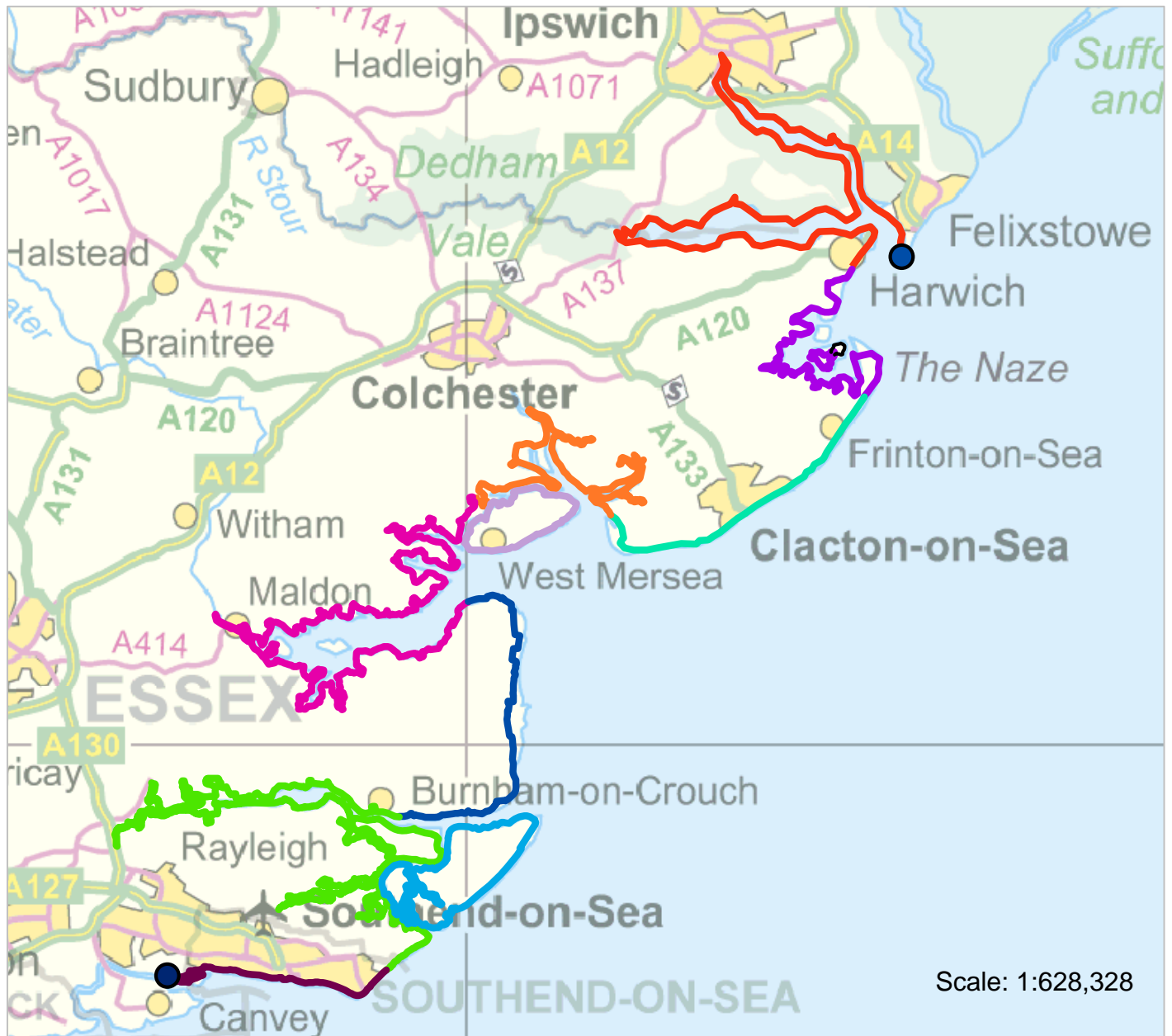
At these locations the cost of maintaining the defence in its current position combined with the technical difficulties associated with the coastal processes will be difficult and therefore it makes sense to consider alternative management options. By setting back defences at these locations we believe that new intertidal areas or beaches will be created and reduce the erosion or flood risk locally. We have already spoken to everyone who owns land in areas where managed realignment is proposed. We will continue to work with landowners and communities in these locations to find the best solution at the appropriate time.

How we divided the coast












The no active intervention policy tends to be used where there are currently no defences, such as soft-eroding cliffs in areas of little or no property or infrastructure. However, where the cost of maintaining a defence exceeds the value of what it protects we must consider the economic viability of continuing to maintain the defence. These frontages are currently rare in Essex & South Suffolk in the short to medium-term and we will work with landowners affected by this policy to ensure they understand their options and are supported to maintain their own defences if they wish to do so.

How we divided the coast

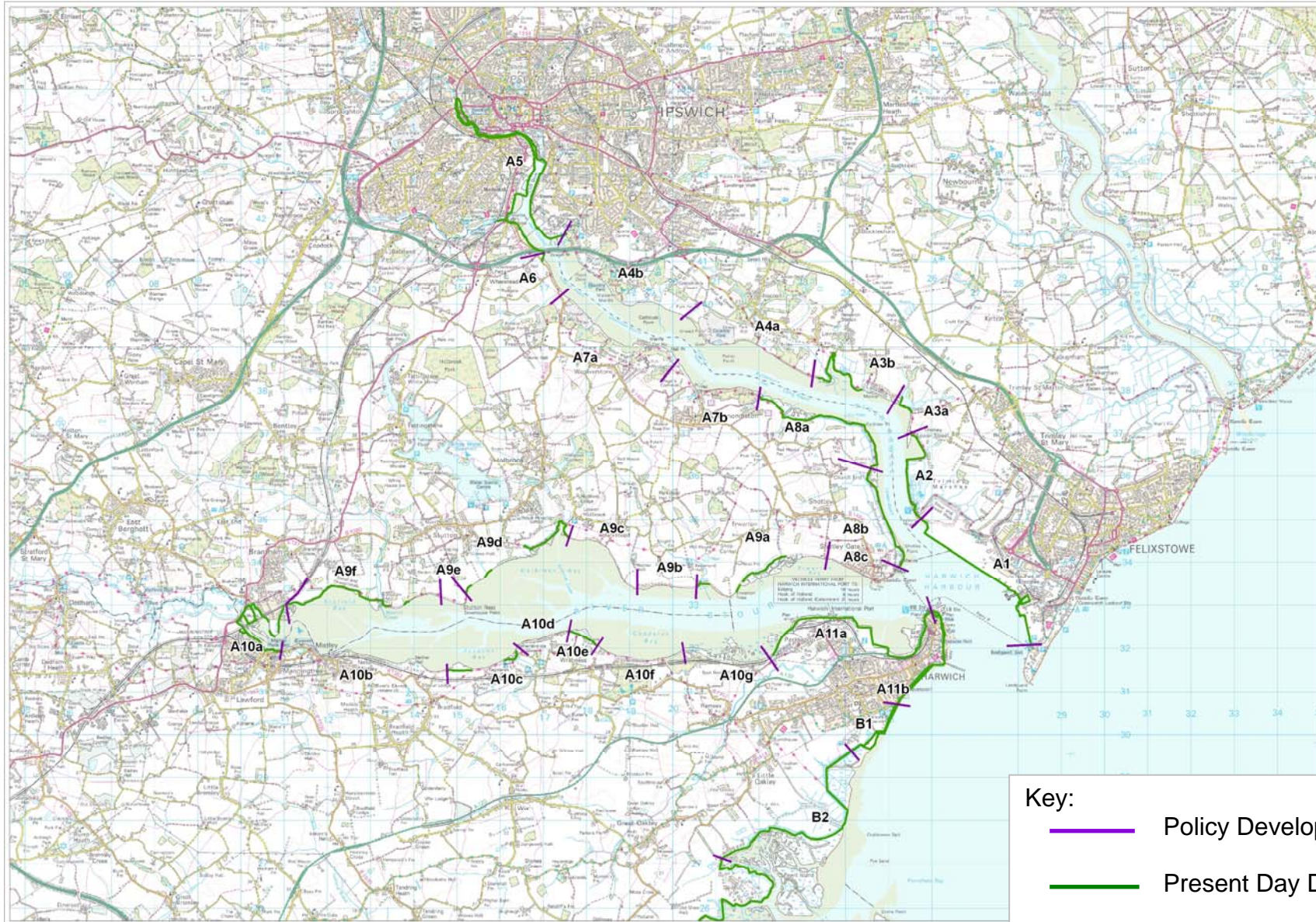
Management units for the Essex and South Suffolk Shoreline Management Plan area



Key :

- | | | | |
|---|--|---|--|
|  | Essex and South Suffolk SMP boundary |  | Management Unit E – Mersea Island |
|  | Management Unit A – Stour and Orwell Estuaries |  | Management Unit F – Blackwater Estuary |
|  | Management Unit B – Hamford Water |  | Management Unit G – Dengie Peninsula |
|  | Management Unit C – Tendring Peninsula |  | Management Unit H – Crouch and Roach Estuaries |
|  | Management Unit D – Colne Estuary |  | Management Unit I – Potton, Rushley and Foulness Islands |
| | |  | Management Unit J – Southend-on-Sea |

Management Unit A (Stour and Orwell Estuaries)



Date:
December
2010

Map 1 of 7

Scale:
1:75,000
(A3)

Key:
— Policy Development Zone
— Present Day Defences

How we will manage the coast

Present Day Defences

Essex and South Suffolk Shoreline Management Plan

Management Unit A (Stour and Orwell):

From Landguard Point to the east of Felixstowe port along the north and south banks of the River Orwell, into the River Stour along the north bank and then back out along the south bank to Dovercourt, just south of Harwich. This management unit is a combination of an open coast and estuary frontage. The mouth of the River Stour and River Orwell is an exposed open coast frontage. The estuaries themselves are sheltered but affected by the tides. Where the estuaries' banks are low-lying, the area is defended by earth embankments. The majority of the settlements are not at risk from tidal flooding with the exception of the infrastructure at the ports of Harwich and Felixstowe. In front of the defences there are saltmarshes and intertidal flats which are mainly muddy but become more sandy towards the sea. Monitoring has shown that there has been an overall reduction of saltmarsh in the estuaries.

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
A1 Felixstowe Port	Advance the line	Hold the line	Hold the line	Continue protection of Felixstowe Port. The standard of protection will be maintained or upgraded
A2 Trimley Marsh	Hold the line	Managed realignment	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to Felixstowe Port
A3a Loom Pit Lake	Hold the line	Managed realignment	No active intervention	The current line will be held in epoch 1. In epoch 2, managed realignment by breach of the existing defence. No defence needed after that. The currently undefended section will remain undefended
A3b Levington Creek	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs

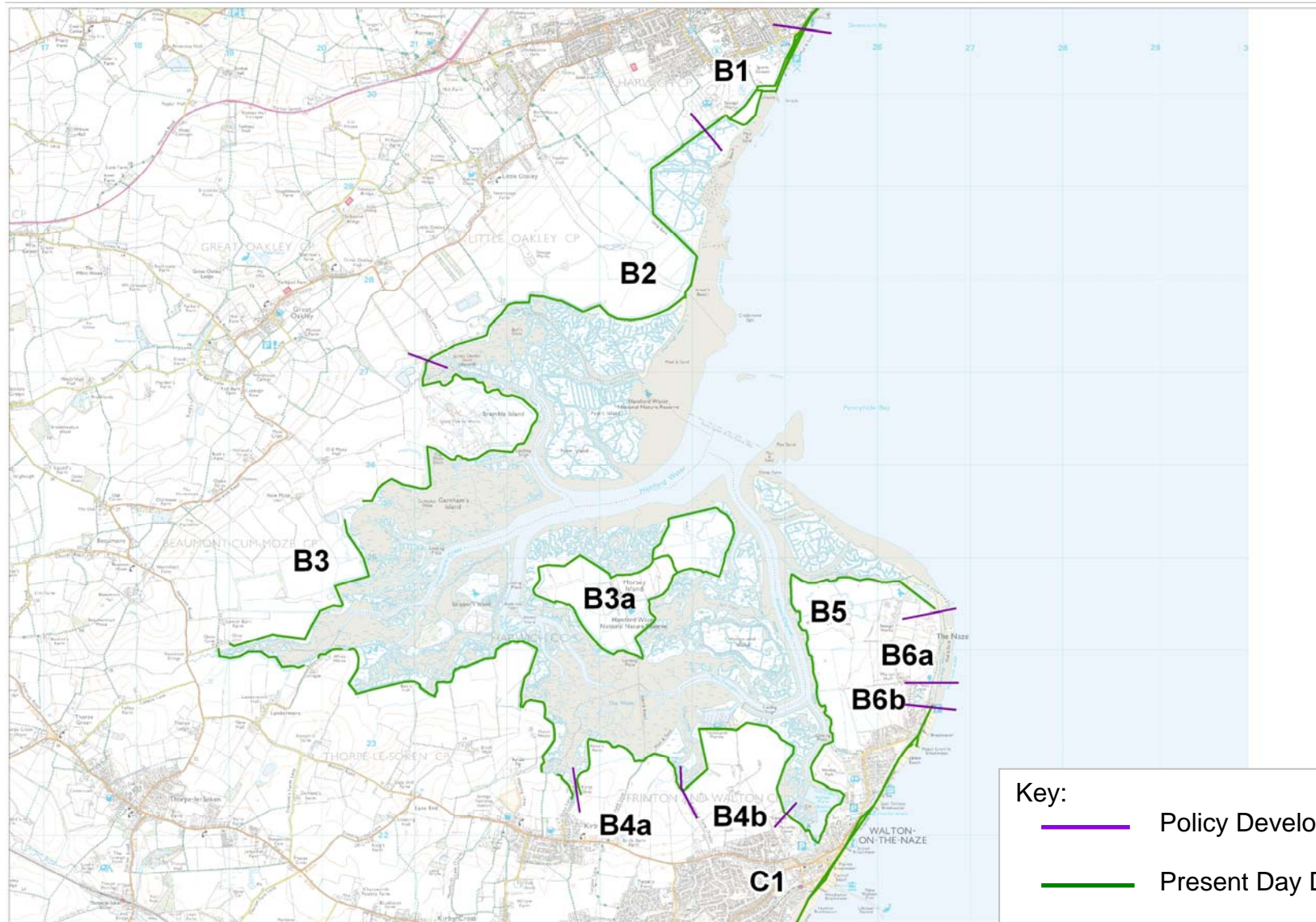
How we will manage the coast

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
A4a North Orwell east	Managed realignment	Managed realignment	Managed realignment	Local intervention to limit erosion risk to features is acceptable if the impact on natural estuary evolution is minimised
A4b North Orwell west	No active intervention	No active intervention	No active intervention	No erosion expected, therefore no defences needed
A5 Ipswich	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. Ipswich will remain protected. The standard of protection will be maintained or upgraded
A6 Wherstead	Managed realignment	Managed realignment	Managed realignment	Integrated plan for adaptation to be determined through partnership approach; may include local defences
A7a Southern Orwell west	No active intervention	No active intervention	No active intervention	No erosion expected, therefore no defences needed
A7b Southern Orwell east	Managed Realignment	Managed realignment	Managed realignment	Integrated plan for adaptation to be determined through partnership approach; may include local defences
A8a Shotley Marshes west	Managed realignment	Hold the line	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to all dwellings
A8b Shotley Marshes east	Hold the line	Managed realignment	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to the Marina and all dwellings and roads
A8c Shotley Gate	Managed realignment	Managed realignment	Managed realignment	Integrated plan for adaptation to be determined through partnership approach; may include local defences

How we will manage the coast

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
A9a,d,f Northern Stour – flood defence	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
A9b Northern Stour – not erosional	No active intervention	No Active intervention	No Active intervention	No erosion expected, therefore no defences needed
A9c,e Northern Stour – erosional	Managed realignment	Managed realignment	Managed realignment	Local intervention to limit erosion risk to features is acceptable if the impact on natural estuary evolution is minimised
A10a,c,e Southern Stour – Flood Defence	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection at Manningtree will be maintained or upgraded
A10b, g Southern Stour – Not erosional	No active intervention	No active intervention	No active intervention	No erosion expected, therefore no defences needed
A10d,f Southern Stour – erosional	Managed realignment	Managed realignment	Managed realignment	Local intervention to limit erosion risk to features is acceptable if the impact on natural estuary evolution is minimised
A11a Harwich Harbour	Advance the Line	Hold the line	Hold the line	The port expansion currently under consideration for Bathside Bay constitutes advance the line. The new line will then be held throughout all epochs to continue protection of Harwich Port
A11b Harwich Town	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs

Management Unit B (Hamford Water)



Date:
December
2010

Map 2 of 7

Scale:
1:35,000
(A3)

Key:
— Policy Development Zone
— Present Day Defences

How we will manage the coast

Present Day Defences

Essex and South Suffolk Shoreline Management Plan

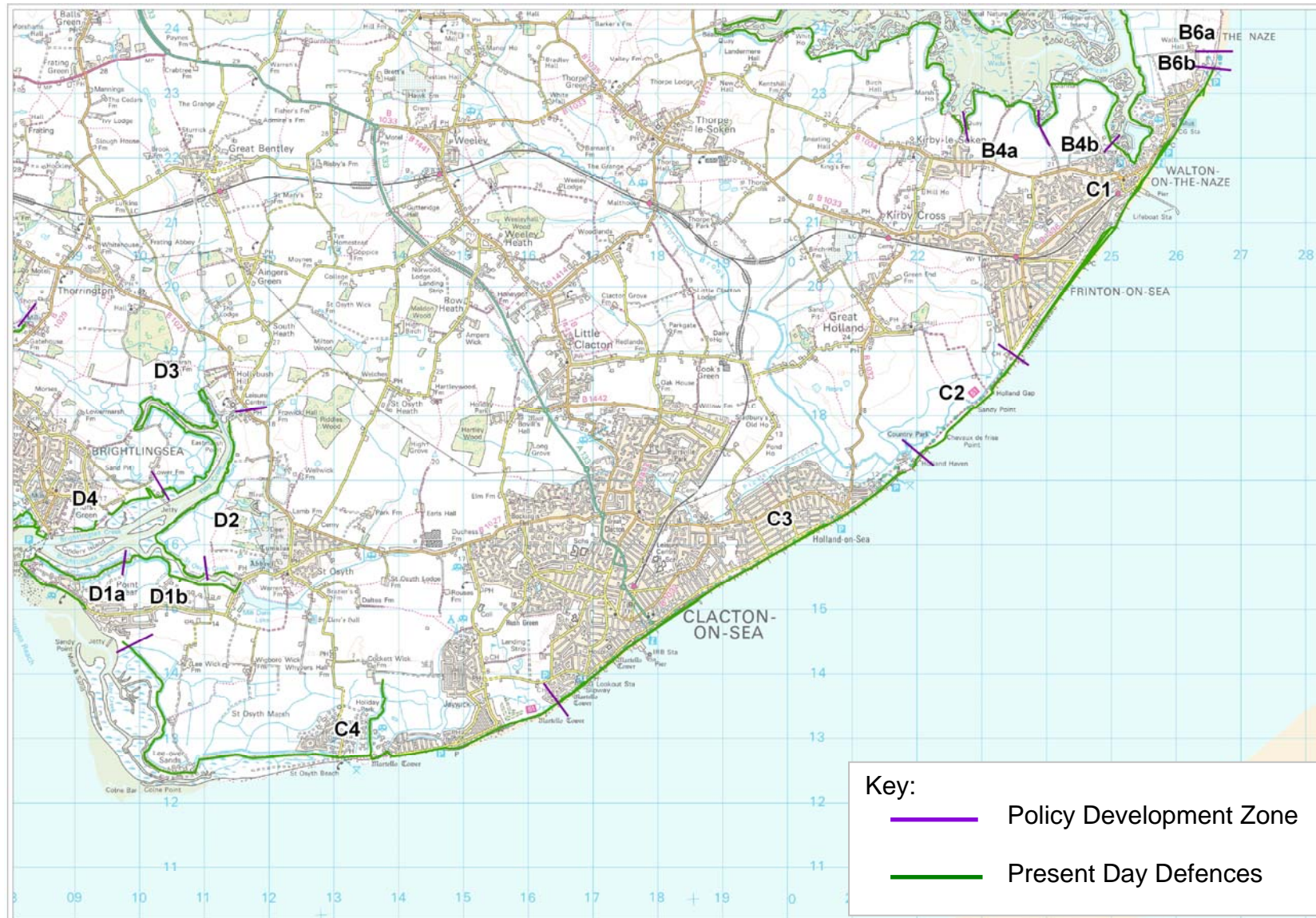
Management Unit B (Hamford Water): from Dovercourt to the Naze, covering the embayment of Hamford Water. This management unit is a combination of an open coast and estuary frontage. Dovercourt and the mouth of Hamford Water are exposed open coast frontages, whereas inside Hamford Water the processes are more similar to those seen in the estuaries. Within Hamford Water the land behind the earth embankments is low lying and at risk of flooding. In front of the defences there is saltmarsh and intertidal flats. Monitoring has shown that there has been an overall loss of saltmarsh within Hamford Water. Although the area is less constrained than other areas along the Essex coastline, the rate at which saltmarsh is being lost has been increasing. Along the Dovercourt frontage there are 15 metre high London clay cliffs. The high ground is protected by beach control structures. In front of the cliffs the beach is sandy.

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
B1 South Dovercourt	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded
B2 Little Oakley	Hold the line	Managed realignment	Hold the line	Bathside Bay port expansion compensatory managed realignment site planned for epoch 1. Seek to develop a project with the Port and willing landowners to establish whether managed realignment of the wider compartment could be an option in epoch 2. This will include the continued flood defence protection to dwellings, communities, roads and infrastructure south of Dovercourt and to the sewage works

How we will manage the coast

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
B3 Oakley Creek to Kirby –le- Soken	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
B3a Horsey Island	Hold the line	Hold the line	Managed realignment	Managed realignment by breach of the existing defence while continuing flood defence to the south west half of the island
B4a Kirby – le – Soken to Coles Creek	Managed realignment	Hold the line	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to Kirby-le-Soken
B4b Coles Creek to the Martello Tower	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
B5 Walton Channel	Hold the line	Hold the line	Managed realignment	Managed realignment by breach of the existing defence while continuing flood defence to all dwellings, the sewage works and the caravan park. The standard of protection will be maintained or upgraded
B6a Naze Cliffs north	No action intervention	No active intervention	No active intervention	The shoreline will be allowed to develop naturally
B6b Naze Cliffs south	Managed realignment	Managed realignment	Managed realignment	The erosion process will be slowed down and managed

Management Unit C Tendring Peninsula



Date:
December
2010

Map 3 of 7

Scale:
1:65,000
(A3)

How we will manage the coast

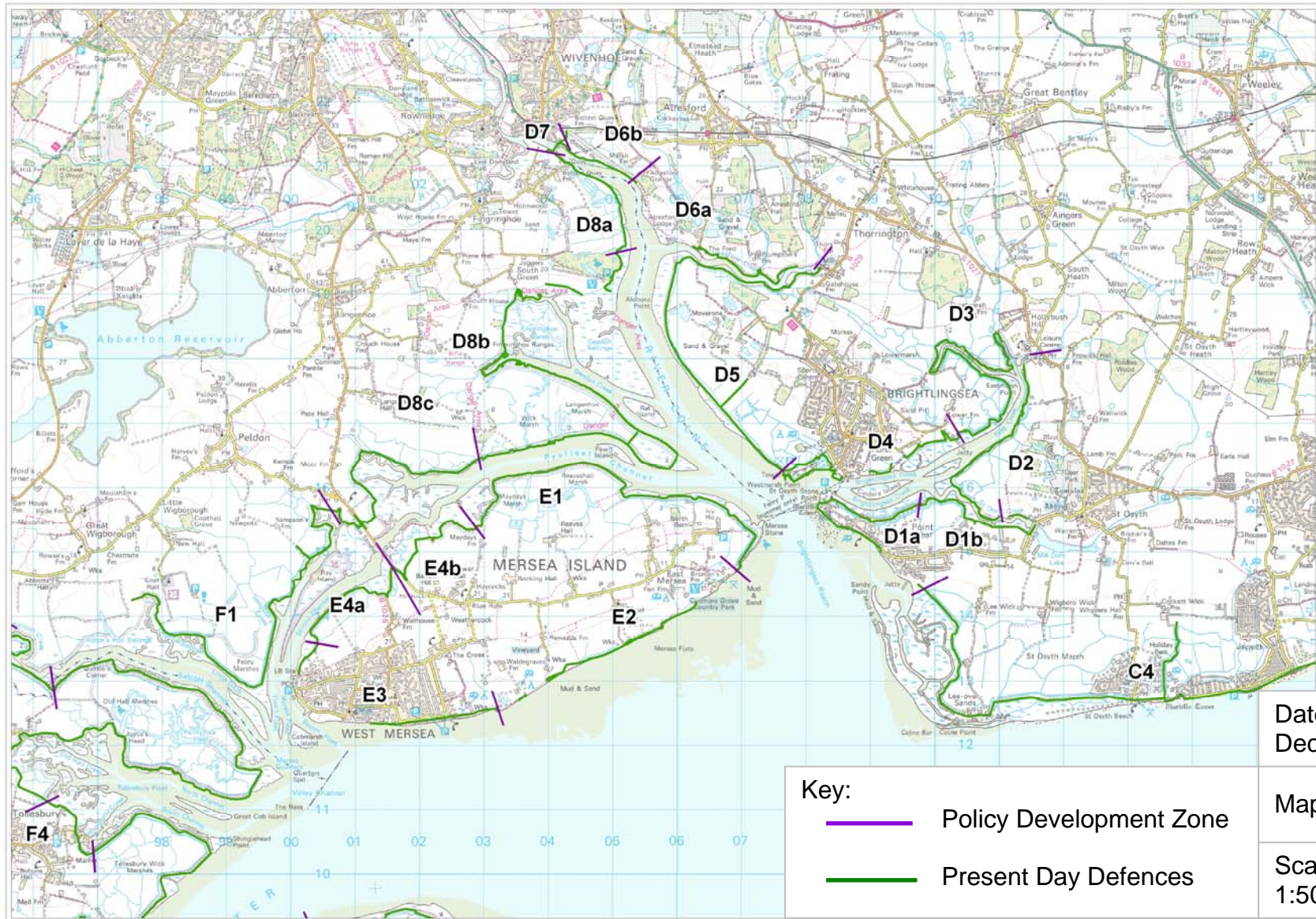
Present Day Defences

Essex and South Suffolk Shoreline Management Plan

Management Unit C (Tendring Peninsula): From the Naze to Point Clear on the east bank of the River Colne. The Tendring Peninsula is an exposed open coast frontage. The land is generally high from the Naze to Clacton, consisting of sea cliffs made up of London clay. There are low-lying frontages in between the sea cliffs, which are intersected at Walton-on-the-Naze and Holland Gap. The Naze Cliffs in the north of this management unit are currently undefended. Further to the south-west the high ground is protected by sea walls, sheet piling, promenades, wave return walls and beach control structures. In front of the defences is a narrow intertidal zone containing sand beaches with some shingle. From Clacton to Colne Point the land is low-lying and is protected by earth embankments and sea walls. Monitoring has shown that there is significant erosion at the tip of the Naze and at Jaywick. Erosion is caused by wave and tidal energy and landward constraints imposed by the defences and higher ground. This is further compounded by an overall lack of supply of sediment.

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
C1 Walton-on-the-Naze and Frinton-on-Sea	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
C2 Holland Haven	Hold the line	Hold the line	Managed realignment/ Hold the line	The current line will be held in epoch 1 and epoch 2. In epoch 3 there is a dual policy of either managed realignment or hold the line. In either case flood defence to dwellings, roads and sewerage treatment works will be maintained or up graded
C3 Clacton-on-Sea	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
C4 Seawick, Jaywick and St. Osyth Marsh	Hold the line	Hold the line	Managed realignment/ Hold the line	The current line will be held in epoch 1 and epoch 2. In epoch 3 there is a dual policy of either managed realignment or hold the line, depending on further work as a part of the Local Development Framework

Management Unit D (Colne Estuary) and Management Unit E (Mersea Island)



How we will manage the coast

Present Day Defences

Essex and South Suffolk Shoreline Management Plan

Management Unit D (Colne Estuary): This management unit extends from Point Clear on the east bank of the River Colne up to Colne Barrier, and back downstream along the north bank of Pyefleet channel, up to the Strood road crossing to Mersea Island. This management unit is a combination of an open coast and estuary frontage. The mouth of the River Colne is open coast and is exposed to waves, whereas the Colne Estuary itself and the channels are sheltered, but affected by the tides. In front of the defences there are saltmarshes and mudflats. Monitoring has shown that the total area of saltmarsh in the estuary is reducing, and that this process has recently been speeding up. In combination with channel movement this is putting pressure on the defences along the middle and lower Colne, Flag Creek and Pyefleet channel.

Management Unit E (Mersea Island): This management unit covers Mersea Island, which consists of London clay. The south-east side of the island is an open coast frontage. It has a low cliff and steep natural slope with two local areas of low-lying land. In front of the cliff and slope is a wide area of intertidal flats (Mersea flats) made of shingle, sand and mud. There are varying types of defences around the island, such as concrete sea walls, promenades, wave return walls and beach control structures such as timber and concrete groynes and breakwaters. These protect the isolated sections of low-lying land from flooding and the higher ground from erosion. Erosion is caused by wave and tidal energy. There is a general lack of sediment in the area, and this is made worse by the presence of coastal and flood defences. This puts pressure on the defences around much of the island.

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
D1a Stone Point	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
D1b Point clear to St Osyth Creek	Hold the line	Managed realignment	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and caravan park. The currently undefended section will remain undefended

How we will manage the coast



Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
D2 Along the Southern bank of Flag Creek	Hold the line	Hold the line	Managed realignment	The current line will be held in epoch 1 and epoch 2. In epoch 3, managed realignment by breach of the existing defences while continuing flood defence protection to the dwellings and road. Due to the environmental, landscape and historic importance of the area, future SMPs should review the feasibility and the implementation of the managed realignment policy for this PDZ
D3 Flag Creek to northern bank of Brightlingsea	Hold the line	Managed realignment	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to the dwellings and road
D4 Brightlingsea	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
D5 Westmarsh Point to where the frontage meets the B1029	Hold the line	Managed realignment	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, the road and the freshwater habitats
D6a South of Wivenhoe	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
D6b B1029 to Wivenhoe	Hold the line	Managed realignment	Hold the line	Managed realignment by breach of the existing defence, while continuing flood defence to the railway line
D7 Colne Barrier	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
D8a Inner Colne west bank	Hold the line	Managed realignment	No Active intervention	Managed realignment by breach of the existing defence. No defence needed after that
D8b Fingringhoe and Langenhoe	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The currently undefended sections will remain undefended

How we will manage the coast

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
D8c Langenhoe Hall Marsh	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
E1 Landward frontage	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
E2 Seaward frontage between North Barn and West Mersea	Hold the line	Managed realignment	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and sewage works
E3 West Mersea	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The currently undefended sections will remain undefended. The standard of protection will be maintained or upgraded.
E4a North Mersea (Strood Channel)	Hold the line	Managed realignment	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to the dwellings and roads. The standard of protection will be maintained or upgraded
E4b Pyefleet Inner Channel	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs

Management Unit F (Blackwater Estuary)

Key:

-  Policy Development Zone
-  Present Day Defences



Date:
December
2010

Map 5 of 7

Scale:
1:65,000
(A3)

Present Day Defences

Essex and South Suffolk Shoreline Management Plan

Management Unit F (Blackwater Estuary):

This management unit extends from Strood Road crossing up the Blackwater to Maldon, and then back along the south bank to Bradwell Waterside. The Blackwater Estuary is one of the largest estuary complexes in East Anglia. This management unit is a combination of open coast and estuary. The mouth of the River Blackwater is open coast and is exposed to waves, whereas the Blackwater Estuary itself is sheltered but affected by the tides. In front of the defences there are saltmarshes and mudflats.

Monitoring has shown that the total area of saltmarsh in the estuary is reducing, but the rate at which it is reducing has recently been slowing. This is because the estuary is less constrained than other estuaries along the Essex coastline and the four managed realignments undertaken at Northey, Orplands, Tollesbury and Abbots Hall have further loosened the constraint, relieving some of the pressure from the estuary on the shoreline.

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
F1 Strood to Salcott-cum Virley	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
F2 Salcott Creek	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
F3 South Bank of Salcott Channel to Tollesbury Fleet	Hold the line	Hold the line	Managed realignment	Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and sewage works
F4 Tollesbury	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs

How we will manage the coast

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
F5 Tollesbury Wick Marshes to Goldhanger	Hold the line	Hold the line	Managed realignment	Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and sewage works
F6 Goldhanger to Heybridge	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded
F7 Heybridge Basin	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded
F8 Maldon Inner Estuary	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded
F9a South Maldon	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded
F9b Northey Island	Hold the line	Hold the line	Hold the line	The private flood defence owner will be allowed to hold the line
F10 Maylandsea	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded
F11a Mayland Creek west	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
F11b Mayland Creek	No active intervention	No active intervention	No active intervention	No erosion expected, therefore no defences needed
F11c Mayland Creek east	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs

How we will manage the coast

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
F12 Steeple	Hold the line	Hold the line	Managed realignment	Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and sewage works.
F13 St. Lawrence	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded
F14 St. Lawrence to Bradwell-on-Sea	Hold the line	Managed realignment	Hold the line	The current line will be held in epoch 1. In epoch 2, managed realignment by breach of the existing defence while continuing flood defence to the dwellings, roads and leisure and caravan park. The standard of protection of any new or remaining defences will be maintained or upgraded
F15 Bradwell Creek	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The currently undefended section will remain undefended

Management Unit G (Dengie Peninsula)





Date:
December
2010

Map 6 of 7

Scale:
1:60,000
(A3)

Key:

-  Policy Development Zone
-  Present Day Defences

How we will manage the coast

Present Day Defences

Essex and South Suffolk Shoreline Management Plan

Management Unit G (Dengie Peninsula):

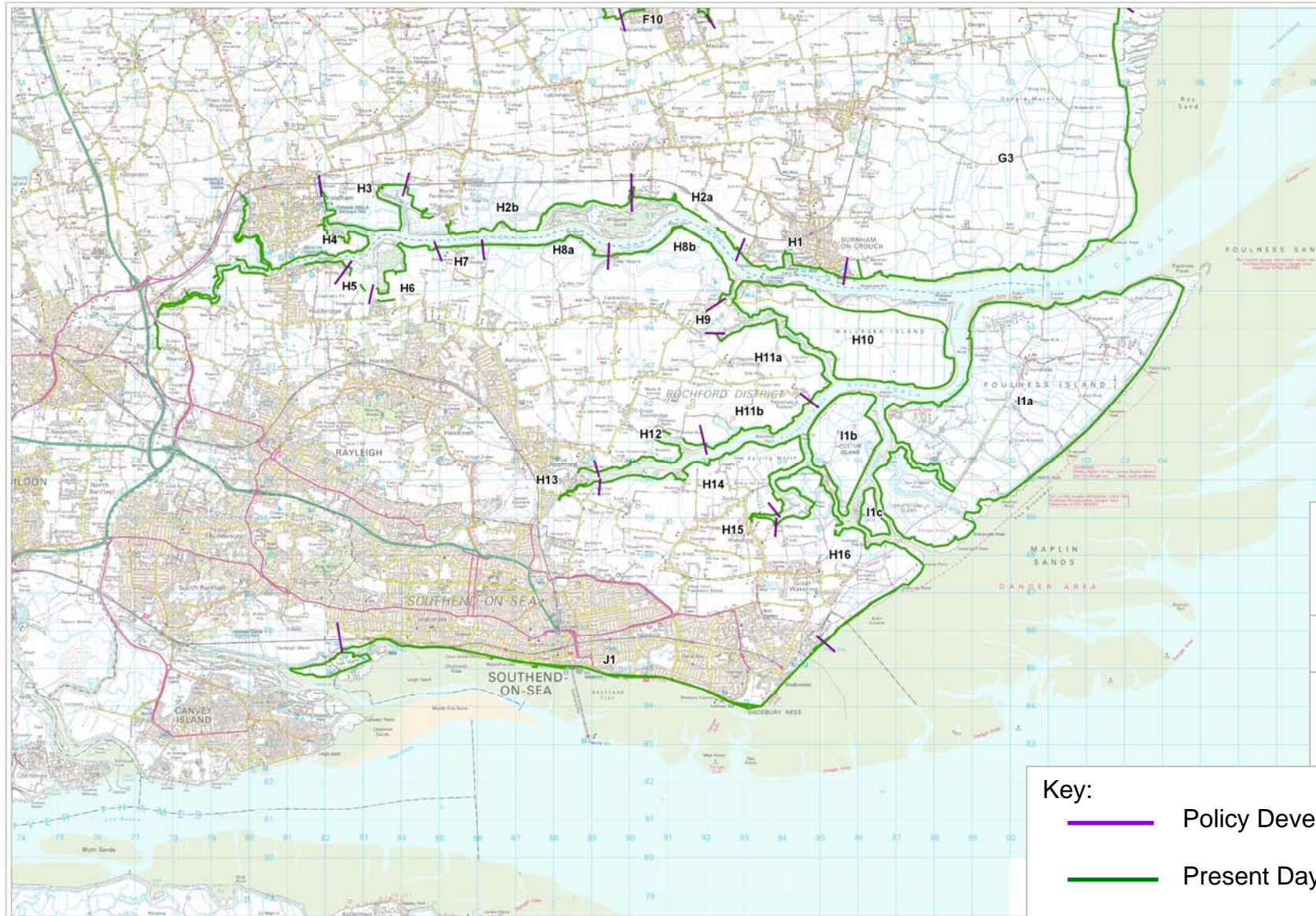
From Bradwell Waterside in the north to Burnham-on-Crouch. This management unit is an example of an open coast frontage and is exposed to waves approaching from the north-east. The area behind the defences is low-lying and has been reclaimed from the sea. In front of the defences there is a wide area of saltmarshes and mudflats, totalling just over 2,500 hectares, which protects the defences and supports important habitats.

There is a beach ridge near Sales Point (at the northern corner of the management unit) which provides some protection to the saltmarsh behind it. The shoreline is under pressure near the north and south points of the peninsula. Monitoring has shown that the total area of saltmarsh and mudflat is increasing as it is growing at its seaward edge.

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
G1 Bradwell-on-Sea	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The defence is under pressure but there are overriding constraints for realignment
G2 Bradwell Marshes	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
G3 Dengie Marshes	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The defence is partly under pressure but there are overriding constraints for realignment

How we will manage the coast

Management unit H (Crouch and Roach Estuaries), Management Unit I (Potton and Rushley Island), Management Unit J (Southend Frontage)



Date:
December
2010

Map 7 of 7

Scale:
1:85,000 (A3)

Present Day Defences

Essex and South Suffolk Shoreline Management Plan

Management Unit H (Crouch and Roach):

From Burnham-on-Crouch on the north bank of the Crouch into the Crouch estuary and back along the north bank to the River Roach, and then down to Shoeburyness. This management unit is a typical estuary frontage. There is loss of saltmarsh and mudflat in the outer estuary and ongoing siltation in the inner estuary. The shoreline is under pressure where the Crouch and Roach are most constrained: near South Fambridge; near Canewdon and around Paglesham; and also on the exposed open coast near Great Wakering.

Management Unit I (Foulness, Potton and Rushley Islands):

This management unit is an open coast frontage with tidal channels that form a group of islands, part of the Foulness area. These tidal channels are connected to the River Roach and to the open coast. The islands are all low-lying and are defended against flooding by earth embankments. These are under pressure where the channels are narrow. On the south-east coast of Foulness Island, which is exposed to and under pressure from the sea, there is an extensive intertidal area known as Foulness Sands and Maplin Sands. Maplin Sands is the largest intertidal area in Britain and has a total area of just over 8,600 hectares.

Management Unit J (Southend-on-Sea): From Shoeburyness to Leigh-on-Sea. The frontage is an open coast frontage with sea cliffs along half of the frontage and substantial low-lying sections in between. Mud and fine sand beaches characterise the entire frontage. The Southend-on-Sea frontage is eroding and is defended by concrete seawalls, promenades, wave return walls and beach control structures. These beach control structures tend to trap coarse sand between them.

How we will manage the coast

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
H1 Burnham-on-Crouch	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
H2a From Burnham-on-Crouch to Bridgemarsh	Hold the line	Managed realignment	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to all dwellings and the railway line. The currently undefended section at The Cliff will remain undefended
H2b Bridgemarsh to North Fambridge	Hold the line	Hold the line	Managed realignment	Managed realignment by breach of the existing defence while continuing flood defence to all dwellings and the railway line. Note that the alignment of the new defence is under discussion
H3 North Fambridge and South Woodham Ferrers	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
H4 South Woodham Ferrers, Battlesbridge and Hullbridge	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded
H5 Eastwards of Brandy Hole	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded. The currently undefended sections will remain undefended
H6 Landward of Brandy Hole Reach	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
H7 South Fambridge	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs

How we will manage the coast

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
H8a South bank of Longpole, Shortpole and Raypitts Reaches (Canewdon west)	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The defence is under pressure but there are overriding constraints for realignment
H8b Canewdon	Hold the line	Managed realignment	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to dwellings
H9 Paglesham Creek	No active intervention	No active intervention	No active intervention	No erosion expected, therefore no defences needed
H10 Wallasea	Managed realignment	Hold the line	Hold the line	Managed realignment by breach of the existing defence while continuing flood defence to the dwellings, tourist facilities and roads.
H11a Paglesham Churchend	Hold the line	Managed realignment	Hold the line	The current line will be held in epoch 1. In epoch 2, realigned defences will be required to protect the community of Paglesham. Ahead of any managed realignment by the breach of existing defences flood defence protection will be provided to dwellings and infrastructure
H11b Paglesham Eastend	Hold the line	Managed realignment	Hold the line	The current line will be held in epoch 1. In epoch 2, realigned defences will be required to protect the community of Paglesham. Ahead of any managed realignment by the breach of existing defences flood defence protection will be provided to dwellings and infrastructure
H12 Stambridge	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs
H13 Rochford	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded

How we will manage the coast

Policy Development Zone	Epoch 1 Now – 2025	Epoch 2 2025 – 2055	Epoch 3 2055 – 2105	What does this mean?
H14 Barling Marsh	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The defence is under pressure but there are overriding constraints for realignment. The standard of protection will be maintained or upgraded
H15 Little Wakering	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded
H16 Great Wakering	Hold the Line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained or upgraded
I1a Foulness	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The defence is under pressure but there are overriding constraints for realignment
I1b Potton	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The defence is under pressure but there are overriding constraints for realignment
I1c Rushley	Hold the line	Hold the line	Managed realignment	Managed realignment by breach of the existing defence, followed by no active intervention
J Southend	Hold the line	Hold the line	Hold the line	The current line will be held throughout all epochs. The standard of protection will be maintained

What happens next

The Essex and South Suffolk SMP has an Action Plan which sets out who is involved and what needs to be achieved to implement the policies. The SMP highlights some uncertainties and challenges.

Key areas for more work will be:

- improved data and information-sharing between partners and with community groups
- increasing our understanding of the coastal changes that we can see in terms of our beaches and intertidal habitats
- finding alternative sources of funding
- support to enable more community-led projects and adaptation approaches in particular working with landowners and those facing a change in management policy

We will need to improve our understanding at some of the most challenging locations along this coastline to support firmer policy decisions in any review of this SMP. In addition, at Clacton and Southend more detailed coastal protection plans are already underway to establish viable projects to reduce erosion risk at these locations.

The Action Plan identifies the need for monitoring and assessments to find out more about how our beaches, saltmarshes and mudflats develop and shape the coast. This monitoring will build on the Environment Agency's current shoreline monitoring programme but we will be working with partners who also collect data about coastal processes to share information and build a more integrated picture.

We will continue to work with landowners and their representatives to ensure this important group have full support of all partners in managing flood risk and seek willing landowners to take forward habitat creation opportunities.

The Action Plan sets out a way forward for the coming years. There are strategic actions (covering the whole SMP area) and more local actions for each policy development zone. The Action Plan suggests a route for delivering the action, a level of priority, when the action should ideally be completed and who will take responsibility to lead the action with other partners. The Action Plan will inform funding bids and programmes of work. Progress will be based on availability of funding and resource.

The Action Plan contains actions under the following headings:

- Asset management
- Scheme work

What happens next

- Monitoring
- Communication
- Emergency response
- Adaptation/resilience
- Habitat creation and environmental mitigation

The SMP partners will continue to meet to progress and monitor how the policies are carried out with regular meetings over the coming years. It will engage in promoting the SMP to a wider audience of businesses, organisations and local communities.

The full Action Plan can be found in the main document of the Shoreline Management Plan.

The main SMP document and appendices will be available on the East Anglia Coastal Group (EACG) website: www.eacg.org.uk

Further information about the Essex and South Suffolk Shoreline Management Plan can also be obtained by e-mailing:

Essex&SouthSuffolk_SMP@environment-agency.gov.uk

or by calling the Environment Agency's National Customer Contact Centre on 08708 506 506 Monday to Friday 8am to 6pm.

Weekday Daytime calls cost 8 pence plus up to 6 pence per minute from BT Weekend Unlimited. Mobile and other providers' charges may vary).

Addresses where the full plan and appendices can be viewed:

Babergh District Council
Corks Lane
Hadleigh
Ipswich
IP7 6SJ

Environment Agency
Iceni House
Cobham Road
Ipswich
IP3 9JD

Chelmsford Borough Council
Civic Centre
Duke Street
Chelmsford
CM1 1JE

Environment Agency
Rivers House
Threshelfords Business Park
Inworth Road
Feering, Colchester
CO5 9SE

Colchester Borough Council
Rowan House
33 Sheepen Road
Colchester
CO3 3WG

Essex County Council
County Hall
Market Road
Chelmsford
CM1 1QH

What happens next

Ipswich Borough Council
Grafton House
15-17 Russell Road
Ipswich
IP1 2DE

Maldon District Council
Princes Road
Maldon
CM9 5DL

Rochford District Council
South Street
Rochford
SS4 1BW

Southend-on-Sea Borough Council
Civic Centre
Victoria Avenue
Southend-on-Sea
SS2 6ER

Suffolk Coastal District Council
Melton Hill
Woodbridge
IP12 1AU

Suffolk County Council
Endeavour House
8 Russell Road
Ipswich
IP1 2BX

Tendring District Council
Thorpe Road
Weeley
Clacton-on-Sea
CO16 9AJ

Tendring District Council
Town Hall
Station Road
Clacton-on-Sea
CO15 1SE

Adaptation:

A change in the way that a feature, such as a community or a habitat functions to fit a changed environment.

Area of Outstanding Natural Beauty:

A precious landscape whose distinct character and natural beauty are so outstanding that it is in the nation's interest to safeguard it. AONBs were created by the legislation of the National Parks and Access to the Countryside Act of 1949.

Benefits (related to issue):

The service that a feature provides. In other words, why people value or use a feature. For example, a nature reserve, as well as helping to preserve biodiversity and meet national legislation, may also provide a recreation outlet much like a sports centre provides a recreation function layout of roads, paths and boundaries, characteristic building and paving materials, a particular 'mix' of building uses, public and private spaces and trees and street furniture, which contribute to particular views.

Climate change:

Long-term change in the patterns of average weather. Its relevance to the shoreline management concerns its effect on sea levels, current patterns and storminess.

Coastal Squeeze:

The reduction in habitat area that can arise if the natural landward migration of a habitat (due to sea level rise) is prevented by the fixing of the high water mark, for example a sea wall.

Designated sites:

A designation is a name and/or acronym which explains the status of an area in terms of conservation or protection. The protection and management of these areas will help to ensure that they remain in good health into the future.

Epoch:

A period of time. For Shoreline Management Plans three epochs are defined:

- Epoch 1: present day to 2025
- Epoch 2: 2025 to 2055
- Epoch 3: 2055 to 2105

Erosion:

The loss of land due to the effects of waves and, in the case of coastal cliffs, slope process (such as groundwater levels). This may include cliff instability, where coastal processes result in landslides or rock falls.

Flood Compartment:

A discrete area of land behind a defence that would flood if a particular section of defence was breached or over-topped. Usually separate from adjacent compartment through high land or man-made defences

Feature:

Something tangible that provides a service to society in one form or another or, more simply, benefits certain aspects of society by its very existence. Usually this will be in a specific place and relevant to the Shoreline Management Plan.

Groyne:

Shore protection structure built perpendicular to the shore and designed to trap sediment.

Historic environment:

All aspects of the environment resulting from the interaction between people and places through time, including all surviving physical remains of past human activity, whether visible, buried or submerged, and deliberately planted or managed flora.

Intertidal zone:

Also known as the foreshore or littoral zone. The area that is exposed at low water and underwater at high tide.

Land use adaptation:

As with 'Adaptation', but refers specifically to the process of changing how a defined area of land is used. The principles listed above for 'Adaptation' still need to be recognised in the case of land use adaptation.

Listed building:

A building or other structure officially designated as being of special architectural, historical or cultural significance.

Longshore movement/drift:

Current moving parallel and close to the coastline.

Maintain:

The value of a feature is not allowed to deteriorate.

Mudflat:

Low-lying muddy land that is covered at high tide and exposed at low tide.

Policy:

In this context, "policy" refers to the generic shoreline management options (No active intervention, hold the existing line of defence, Managed realignment and advance the existing line of defence).

Policy Development Zone: (PDZ)

A length of coastline defined to assess all issues and relationships to examine and develop management scenarios. These zones are only used to develop policy.

Shoreline Management Plan:

A non-statutory plan that provides a large-scale assessment of the risks associated with coastal processes and presents a policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner over a 100 year time period.

Sustain:

To undertake works to ensure that defences will be provided offering a similar standard of protection to that currently offered.

System Asset Management Plans:

System Asset Management Plans (SAMPs) are one of four work streams critical to the delivery of the asset management IT solution (AMIT). SAMPs help address a number of recommendations made by the National Audit Office (NAO) and highlighted in the Public Accounts Committee (PAC) report. These include:

- prioritisation of expenditure on the highest risk areas and assets
- improve asset condition to achieve targets agreed with Government
- improve the notification of defects identified in third party assets

Tide:

Periodic rising and falling of large bodies of water resulting from the gravitational attraction of the moon and sun acting on the rotating earth.

Tidal flood risk:

The risk of flooding associated with the normal and extreme tidal cycles. Flood risk is measured as the probability of flooding (for example at location X there is a 1 in 100, or 1%, chance of flooding in any given year) multiplied by the impact or consequences that will result if the flood occurs.

Water Framework Directive:

A European directive aimed at the management of water bodies and their condition.



Thames Estuary 2100

