

Rother and Romney Catchment Flood Management Plan

Summary Report December 2009



managing
flood risk

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Introduction



I am pleased to introduce our summary of the Rother and Romney Catchment Flood Management Plan (CFMP). This CFMP gives an overview of the flood risk in the Rother and Romney catchment and sets out our preferred plan for sustainable flood risk management over the next 50 to 100 years.

The Rother and Romney CFMP is one of 77 CFMPs for England and Wales. Through the CFMPs, we have assessed inland flood risk across all of England and Wales for the first time. The CFMP considers all types of inland flooding, from rivers, groundwater, surface water and tidal flooding, but not flooding directly from the sea (coastal flooding), which is covered by Shoreline Management Plans (SMPs). Our coverage of surface and groundwater is however limited due to a lack of available information.

The role of CFMPs is to establish flood risk management policies which will deliver sustainable flood risk management for the long term. This is essential if we are to make the right investment decisions for the future and to help prepare ourselves effectively for the impact of climate change. We will use CFMPs to help us target our limited resources where the risks are greatest.

This CFMP identifies flood risk management policies to assist all key decision makers in the catchment. It was produced through a wide consultation and appraisal process, however it is only the first step towards an integrated approach to flood risk management. As we all work together to achieve our objectives, we must monitor and listen to each others progress, discuss what has been achieved and consider where we may need to review parts of the CFMP.

The main source of flood risk in the Rother and Romney CFMP area is from both river and tidal flooding and to a lesser extent surface and ground water flooding. The main areas at risk from tidal flooding are Rye, Hythe, Folkestone, Hamstreet, Robertsbridge and Etchingham.

We cannot reduce flood risk on our own, we will therefore work closely with all our partners to improve the co-ordination of flood risk activities and agree the most effective way to management flood risk in the future. The key partners we have worked with are Kent County Council, East Sussex County Council, Rother District Council, Shepway District Council, Ashford Borough Council, Romney Marsh Internal Drainage Board, Natural England, English Heritage, Southern Water, National Farmers Union.

This is a summary of the main CFMP document, if you need to see the full document an electronic version can be obtained by emailing enquiries@environment-agency.gov.uk or alternatively paper copies can be viewed at any of our offices in Southern Region.

A handwritten signature in black ink, appearing to read 'T. Willison', written in a cursive style.

Toby Willison
Regional Director, Southern Region

Contents

The purpose of a CFMP in managing flood risk	5
Catchment overview	6
Current and future flood risk	8
Future direction for flood risk management	11
Sub-areas	
1 Robertsbridge and Etchingam	13
2 Hamstreet	15
3 Romney and Walland Marshes	16
4 Hythe and Folkestone	18
5 Rye	20
6 Rural Rother	21
Map of CFMP policies	23

The purpose of a CFMP in managing flood risk

CFMPs help us to understand the scale and extent of flooding now and in the future, and set policies for managing flood risk within the catchment. CFMPs should be used to inform planning and decision making by key stakeholders such as:

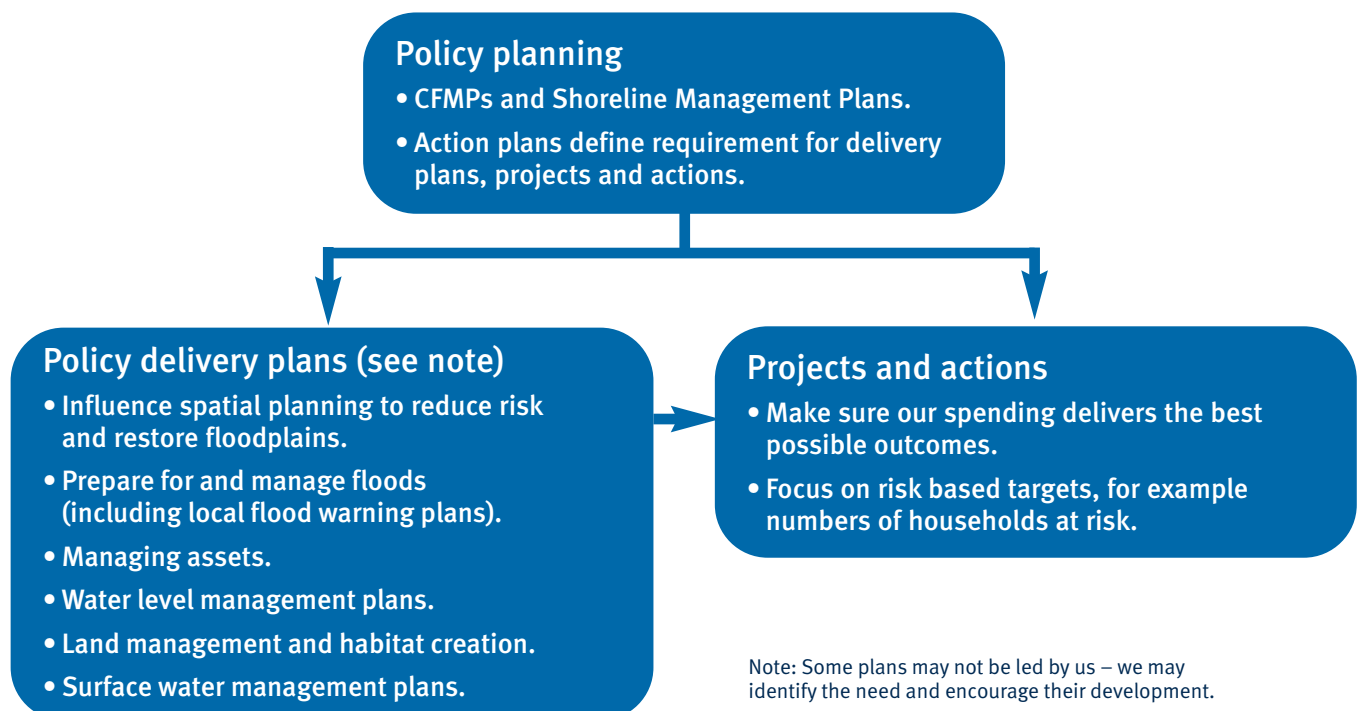
- The Environment Agency, who will use the plan to guide decisions on investment in further plans, projects or actions;
- Regional planning bodies and local authorities who can use the plan to inform spatial planning activities and emergency planning;

- IDBs, water companies and other utilities to help plan their activities in the wider context of the catchment;
- Transportation planners;
- Land owners, farmers and land managers that manage and operate land for agriculture, conservation and amenity purposes;
- The public and businesses to enhance their understanding of flood risk and how it will be managed.

CFMPs aim to promote more sustainable approaches to managing flood risk. The policies identified in the CFMP will be delivered through a combination of different approaches. Together with our partners, we will implement these approaches through a range of delivery plans, projects and actions.

The relationship between the CFMP, delivery plans, strategies, projects and actions is shown in figure 1.

Figure 1. The relationship between CFMPs, delivery plans, projects and actions.



Catchment overview

The CFMP area is situated in the South East of England, covers approximately 970km² with a population of 175,000 people. There are a number of towns within the CFMP area including Rye, Tenterden, Hythe, Dymchurch, Lydd, Robertsbridge and New Romney with the major towns of Hastings and Folkestone at the edge of the CFMP area.

The primary river system within the CFMP area is the River Rother along with its tributaries. The River Rother rises near Mayfield in East Sussex and flows eastward extending

through the towns of Robertsbridge and Etchingham. These towns have experienced severe flooding since the 1940s. The upper part of the catchment is mainly woodland and grassland, but in some locations natural floodplains have been modified by farming and urban development with the result of increasing run-off to the lower part of the catchment. The lower and eastern part of the catchment consists of a wide expanse of reclaimed coastal marshland which lies mostly below the spring tide level.

The geology of the area consist of alluvium and marine silts in the Rother and Walland Marshes with Gault clay and Chalk in eastern extremity of Romney Marsh. Hastings Beds in the High Weald and shingle headland of Dungeness extending into the English Channel. There are six sub-areas each with a preferred policy that divide the catchment area; the Robertsbridge and Etchingham, Hamstreet, Rye, Rother and Walland Marshes, Hythe and Folkestone and Rural Rother.



← View south of rural Rother near Udimore, Kent.

Map 1. Overview map of Rother and Romney catchment.



‘The north and west of the Rother and Romney catchment is part of the High Weald, mainly woodland, grassland and natural floodplains, while the south and east are characterised by a wide expanse of reclaimed coastal marshland.’

Current and future flood risk

Overview of the current flood risk

Flood risk is the combination of the probability of flooding and its impact, that is, the chance of it happening and the consequences if it does happen. We have assessed flood risk across the CFMP area using broad-scale computer modelling, though making best use of existing knowledge and models where appropriate. Flood risk figures take into account current flood defences.

The flood generation mechanism within the Rother and Romney CFMP area varies in relation to both the watercourse and the location within the catchment. Significant flooding problems are associated with the urban areas of Robertsbridge, Etchingam and Hamstreet. Robertsbridge has suffered ever increasing flooding since 1946.

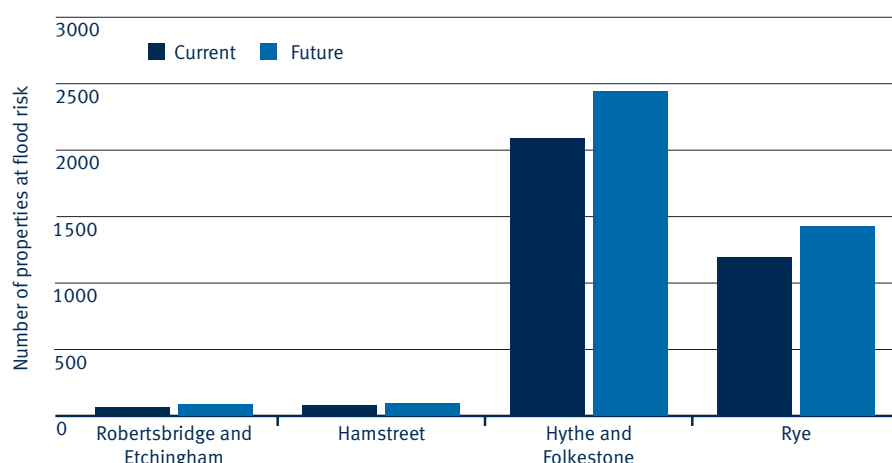
In the lower Rother catchment there are several minor tributaries and drains that can cause isolated flood incidents and the Romney and Walland Marshes are prone to both river and coastal flooding.

Where is the risk?

This map in page 10 illustrates the consequences of a 1% annual probability flood event (1 in 100 year) occurring in the CFMP area.

The areas with the highest concentration of properties at risk from river flooding are tabulated on page 9.

Figure 2. Current and future (2100) flood risk to property from a 1% annual probability river flood, taking into account current flood defences.



↑ High waters on the River Rother.

How we currently manage the risk

The area is very low lying and there is a network of channels, drains, and structures which together with the Royal Military Canal combine to drain the area for agricultural use. There are also a number of small steep urban catchments and existing defence infrastructure acts to defend the urban areas at risk. We are therefore looking for opportunities to revert the catchment back to its natural state. Our activity is prioritised on a risk basis and our main activities include:

- **Maintenance of existing and commission of new flood defences and structures** such as the flood alleviation scheme constructed 2003 in Robertsbridge. The scheme composed of approximately 1,160 m of earth embankment, 680 m of floodwalls and 430m of river realignment to protect the northern, central and southern parts of the town from river flooding.
- **Flood forecasting and warnings**, much of the data collected from the gauges that we operate, inform the flood warnings issued through the Flood Warnings Direct system to emergency services, parish councils, business and householders in key areas.

Table 1. Locations of towns and villages with 25 or more properties at risk in a 1% annual probability river flood.

Number of properties at risk	Locations
>1000	Rye, Hythe and Folkestone
500 to 1000	None
100 to 500	None
50 to 100	Robertsbridge and Etchingham, Hamstreet
25 to 50	None

Table 2. Critical infrastructure at risk:

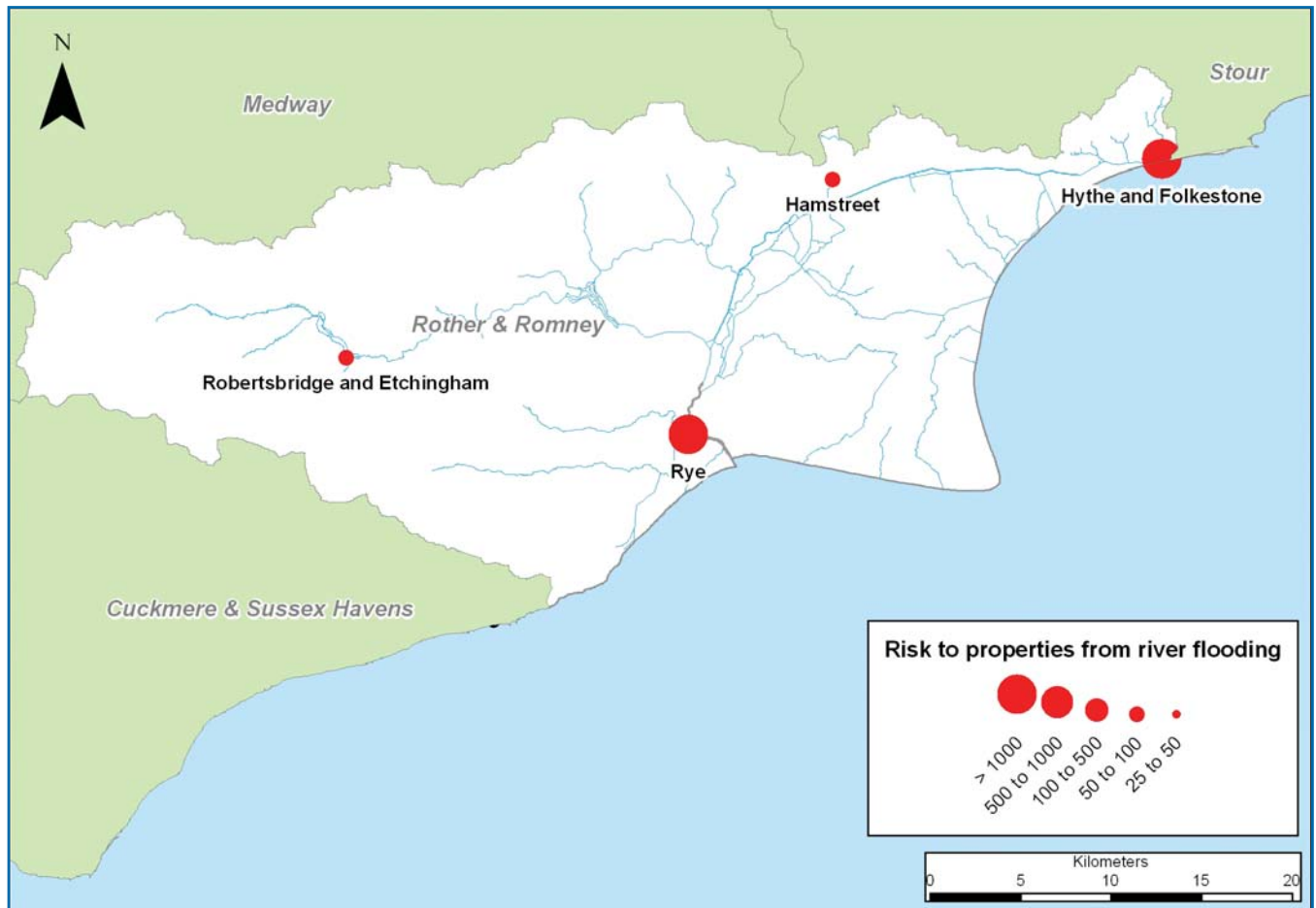
1 emergency service, 6 schools

Table 3. Designated sites at risk:

Dungeness SAC

- **Development control**, significant developments are not planned in the Rother and Romney CFMP area. Any further developments must be supported by a flood risk assessment that also shows that the development will not increase flood risk elsewhere.
- **Flood risk mapping**, has historically concentrated on the Rivers Rother, Darwell and Dudwell. We are planning to develop a more accurate digital terrain model of the Marshes area to be used to estimate the extent, depth and duration of flooding, flood hazard and the river and coastal interactions.
- **Strategic planning** to plan long term investment
- **Environmental improvements.**

Map 2. Flood risk to property in a 1% annual probability river flood, taking into account current flood defences.



The impact of climate change and future flood risk

The effect that flooding will have in the future is influenced by a range of issues such as climate change, changes in land use such as development, and changes in how land is managed.

Predictions of future change are based on understanding the existing condition of the catchment, an extrapolation of trends over the long term (up to 100 years), and a high level review of likely future change based on research findings and knowledge. There are only a few sites identified for development within the catchment area, therefore the modelled impact of urbanisation on future flood risk in the Rother and Romney CFMP area is negligible. Land use and land use management

changes such as afforestation could reduce peak flow and flood volume the upper Rother catchment, conversely, the likely effect of an agricultural intensification is to increase peak flow and flood volume upper parts of the catchment. From the three drivers tested, climate change has the largest impact on the Rother and Romney CFMP catchment with up to 20% increase in peak flood flows. This scenario is used to assess likely impacts in the catchment. In the Rother and Romney catchment the future flood risk is likely to be from river flooding and surface water flooding. Our appraisal of the future risk in the catchment reveals the number of properties at risk to the 1% annual probability event will

increase from 151 to 179 properties by the year 2100. The majority of these properties are located in Robertsbridge, Etchingham and Hamstreet. Please note the broadscale modelling indicates there are large numbers of properties at risk in Rye, Hythe and Folkestone, however these figures do not differentiate between coastal and river flooding.

The key trends are:

- More frequent and intense storms causing more widespread and regular flooding from drainage systems and some rivers.
- More rain in winter, increasing the likelihood of large scale flood events.

Future direction for flood risk management

Approaches in each sub-area

We have divided the Rother and Romney catchment into six distinct sub-areas which have similar physical characteristics, sources of flooding and level of risk. We have identified the most appropriate approach to managing flood risk for each of the sub-areas and allocated one of six generic flood risk management policies, shown in Table 4.

To select the most appropriate policy, the plan has considered how social, economic and environmental objectives are affected by flood risk management activities under each policy option.

Map 3. Sub-areas and flood risk management policies.

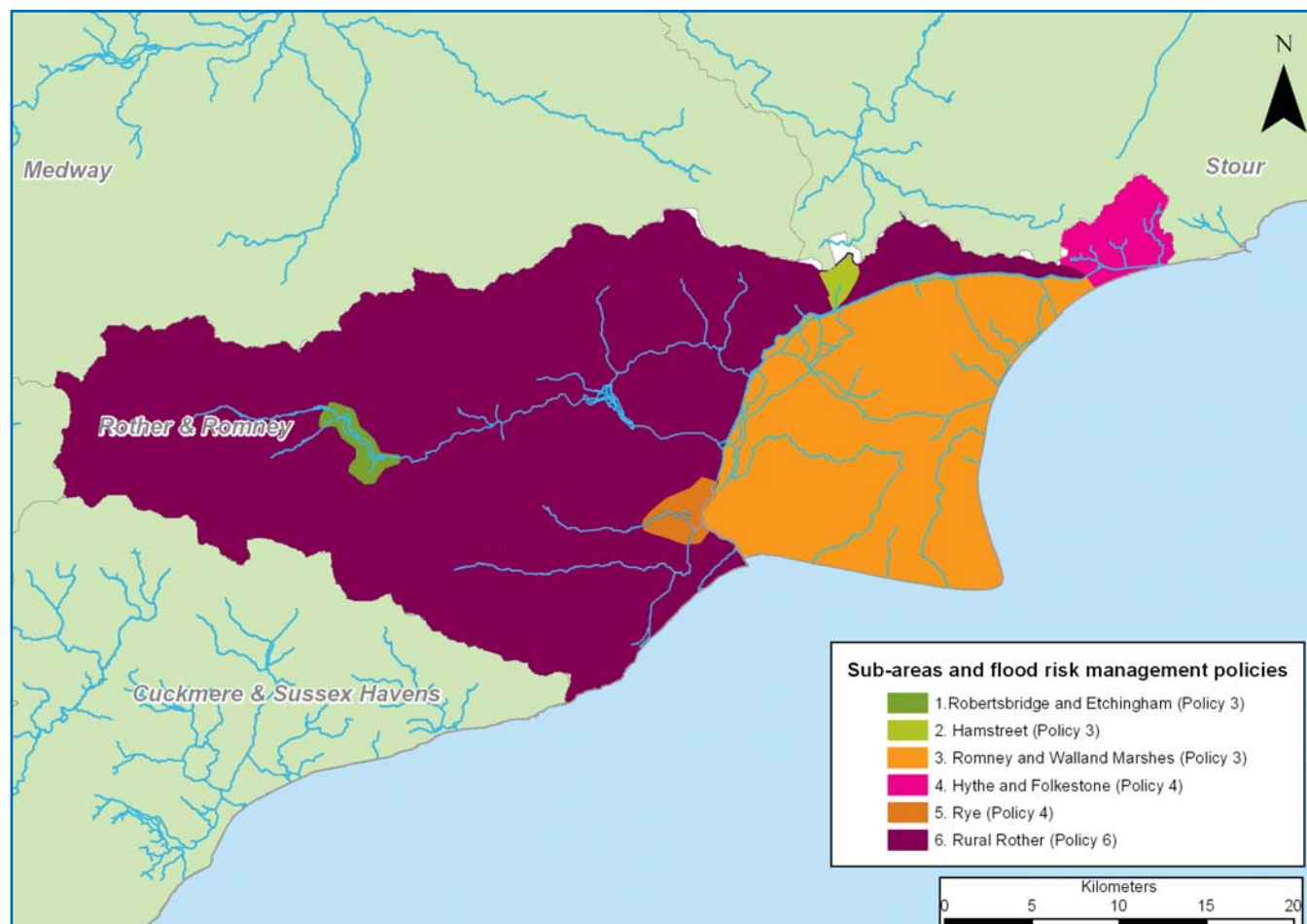


Table 4. Policy options.

→ Policy 1

Areas of little or no flood risk where we will continue to monitor and advise

This policy will tend to be applied in those areas where there are very few properties at risk of flooding. It reflects a commitment to work with the natural flood processes as far as possible.

→ Policy 2

Areas of low to moderate flood risk where we can generally reduce existing flood risk management actions

This policy will tend to be applied where the overall level of risk to people and property is low to moderate. It may no longer be value for money to focus on continuing current levels of maintenance of existing defences if we can use resources to reduce risk where there are more people at higher risk. We would therefore review the flood risk management actions being taken so that they are proportionate to the level of risk.

→ Policy 3

Areas of low to moderate flood risk where we are generally managing existing flood risk effectively

This policy will tend to be applied where the risks are currently appropriately managed and where the risk of flooding is not expected to increase significantly in the future. However, we keep our approach under review, looking for improvements and responding to new challenges or information as they emerge. We may review our approach to managing flood defences and other flood risk management actions, to ensure that we are managing efficiently and taking the best approach to managing flood risk in the longer term.

→ Policy 4

Areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change

This policy will tend to be applied where the risks are currently deemed to be appropriately-managed, but where the risk of flooding is expected to significantly rise in the future. In this case we would need to do more in the future to contain what would otherwise be increasing risk. Taking further action to reduce risk will require further appraisal to assess whether there are socially and environmentally sustainable, technically viable and economically justified options.

→ Policy 5

Areas of moderate to high flood risk where we can generally take further action to reduce flood risk

This policy will tend to be applied to those areas where the case for further action to reduce flood risk is most compelling, for example where there are many people at high risk, or where changes in the environment have already increased risk. Taking further action to reduce risk will require additional appraisal to assess whether there are socially and environmentally sustainable, technically viable and economically justified options.

→ Policy 6

Areas of low to moderate flood risk where we will take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits

This policy will tend to be applied where there may be opportunities in some locations to reduce flood risk locally or more widely in a catchment by storing water or managing run-off. The policy has been applied to an area (where the potential to apply the policy exists), but would only be implemented in specific locations within the area, after more detailed appraisal and consultation.

Robertsbridge and Etchingham

Our key partners are:

Rother District Council

Impact of a 1% annual probability flood event

	Today	Future (2100)
Number of properties at risk	65	83

The issues in this sub-area

The Etchingham and Robertsbridge sub-area covers these villages situated on the Rother. The sub-area extends approximately one kilometre upstream of the confluence of the Rivers Rother and Darwell, to approximately one kilometre downstream of the A21 crossing in Robertsbridge.

The impact on flooding of new development depends on the implementation of Sustainable urban Drainage Systems (SuDS), which is of particular importance as surface water flooding due to overloaded drainage is already a problem.

The vision and preferred policy

Policy Option 3 – areas of low to moderate flood risk where we are generally managing existing flood risk effectively.



← Robertsbridge flood alleviation scheme.

The key messages

The chosen policy will aim to maintain the numbers of properties and people considered to be at flood risk and the duration and severity of impacts upon transport, infrastructure, public assets and amenities.

It is important that there is no increase in surface water run-off from new development and existing development. Therefore we must seek opportunities to reduce run-off.

Proposed actions to implement the preferred approach:

- Provide Development Control advice to ensure no increase in run-off from new developments and seek opportunities to reduce current run-off rates where appropriate. Limited development in the floodplain is planned in this policy unit.
- Develop a System Asset Management Plan (SAMP). This plan should aim to maintain flood risk at the current level.



← Robertsbridge flood alleviation scheme.

Hamstreet

Our key partners are:

Ashford Borough Council

Southern Water

Impact of a 1% annual probability flood event

	Today	Future (2100)
Number of properties at risk	79	96

The issues in this sub-area

The Hamstreet policy unit covers this small urban area to the confluence of the Springbrook Sewer with the Royal Military Canal. Flooding in Hamstreet is caused by a combination of river, surface and groundwater sources. The Springbrook Sewer and other surface water channels flow through the town draining a small clay catchment. Due to the nature of the clay soil and low lying land, groundwater levels are close to the surface and storms can produce flooding very quickly, generating high water levels in the Springbrook Sewer. Insufficient capacity of the local drainage system then causes flooding in several areas of Hamstreet.

The vision and preferred policy

Policy Option 3 – areas of low to moderate flood risk where we are generally managing existing flood risk effectively.

The key messages

The chosen policy will aim to maintain the numbers of properties and people considered to be at flood risk and the duration and severity of impacts upon transport, infrastructure, public assets and amenities.

It is important that there is no increase in surface water run-off from new development and existing development seek to reduce run-off.

Maintenance of assets ought to ensure the current standard of protection is upheld to accommodate flooding due to climate change.



↑ Duck pond at Hamstreet.

Proposed actions to implement the preferred approach:

- We will need to work with Ashford Borough Council and Southern Water to develop Surface Water Management Plan (SWMP) for Hamstreet. This will address surface water flows and the link between the Springbrook Sewer and the Royal Military Canal.
- Undertake System Asset Management Plans (SAMPs) to review maintenance regimes and to maintain current level of investment.
- Provide development control advice to ensure no increase in run-off from new developments and seek opportunities to reduce current run-off rates where appropriate. There has been recent and extensive development in this unit.

Romney and Walland Marshes

Our key partners are:

Rother District Council

Ashford Borough Council and Shepway District Council

Natural England

Internal Drainage Board

Impact of a 1% annual probability flood event

	Today	Future (2100)
Number of properties at risk	Minimal	Minimal

The issues in this sub-area

This policy unit covers the low lying areas of Romney and Walland Marshes, including and bounded by the Royal Military Canal to the north and east, and the outfall of the Rother to the south. The Nickolls Quarry site is included within this policy unit. The area is very low lying and flat. The flood risk is complex, as the area is at risk of from both river and coastal flooding. A complex network of drains and management of water levels in the Royal Military Canal control water movement within the Marshes. The current level of flood risk from river flooding is relatively low in this area, and the number of properties within this policy unit affected by river flooding is minimal.

The vision and preferred policy

Policy Option 3 – areas of low to moderate flood risk where we are generally managing existing flood risk effectively.



↑ View across Walland Marsh.

The key messages

The chosen policy supports economic and social sustainability by prioritising significant gains elsewhere with the acceptance for some potential for future minor losses within the sub-area.

Proposed actions to implement the preferred approach:

- Undertake System Asset Management Plans (SAMPs) to review maintenance regimes and to maintain current level of investment.
- We will need to work with Natural England to create wetland habitat.
- Support the development and recommendations of the Walland Marsh, Dungeness Romney Marsh, Rye Bay and Romney Warren Water Level Management Plans (WLMPs).
- Undertake depth, duration and hazard mapping on Romney Marsh, including looking at coastal and river interactions. To improve the understanding of flood depths and hazard on the marshes.



↑ Outfall at Dymchurch, Romney and Walland Marshes.

Hythe and Folkestone

Our key partners are:

Shepway District Council

Southern Water

Impact of a 1% annual probability flood event

	Today	Future (2100)
Number of properties at risk	2085	2444*

*Figures are predominantly due to coastal flooding and excludes the presence of flood defences. Derived from floodzone 3 which does not distinguish between river and coastal flooding.

The issues in this sub-area

This policy unit covers the urban area of Hythe, and the area of Folkestone which is not part of the Stour CFMP. This is a small urban policy unit. Current predictions are for storm intensity to increase due to climate change, therefore flood risk is expected to increase in the future.

The vision and preferred policy

Policy Option 4 – areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change.



← Royal Military Canal looking west, through Hythe.

The key messages

This policy applies where the current risk is acceptable but future changes are expected to have a significant impact. Flood risk management activities need to respond to the potential increases in flood risk.

Proposed actions to implement the preferred approach:

- Improve understanding of the watercourses that were previously ordinary watercourses within this policy unit.
- We will need to work with Shepway District Council to develop a System Asset Management Plan (SAMP). This plan should aim to maintain flood risk at the existing level taking climate change into account.
- We will need to work with Southern Water and Shepway District Council to develop a Surface Water Management Plan (SWMP) for Folkestone and Hythe.
- Provide development control advice to ensure no increase in run-off from new developments and seek opportunities to reduce current run-off rates where appropriate.



↑ Royal Military canal looking east, through Hythe.

Rye

Our key partners are:

Rother District Council

Southern Water

Natural England

The issues in this sub-area

The Rye policy unit covers this urban area at the confluence of the Rivers Rother, Brede and Tillingham. Flood risk in Rye is high, with approximately 1,190 properties lying within the 1 in 100 year flood event floodplain (note that this does not distinguish between river and coastal flooding, and excludes the presence of flood defences). Flooding is largely caused by rivers, although tide locking effects can be significant and will increase with rising sea levels.

The vision and preferred policy

Policy Option 4 – areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change.

The key messages

This policy applies where the current risk is acceptable but future changes are expected to have a significant impact. Flood risk management activities need to respond to the potential increases in flood risk.

Impact of a 1% annual probability flood event

	Today	Future (2100)
Number of properties at risk	1190	1428*

*Future scenario figure extrapolated from similar catchment modelling in Southern region.

Proposed actions to implement the preferred approach:

- Provide development control advice to ensure no increase in run-off from new developments and seek opportunities to reduce current run-off rates where appropriate. Considerable land is required for development in this policy unit.
- Develop a System Asset Management Plan (SAMP). This plan should aim to maintain flood risk at the existing level taking climate change into account.
- We will need to work in partnership with Rother District Council and Southern Water to develop a Surface Water Management Plan (SWMP) for Rye. This will address the important issue of surface water flooding in this unit.
- Support the development and recommendations of the Rye Harbour SSSI Water Level Management Plan (WLMP). Support the development of the WLMP for the new Dungeness, Romney Marsh and Rye Bay Site of Special Scientific Interest (SSSI). Water Level Management Plans are key for managing flood risk and biodiversity needs in this unit.



↑ Sluice Gate on the River Tillingham, Rye.

Rural Rother

Our key partners are:

Wealden District Council

Rother District Council

Ashford Borough Council

Tunbridge Wells Borough Council

Shepway District Council

Natural England

Internal Drainage Board

The issues in this sub-area

This policy unit covers areas of the Rother and Romney CFMP that are not covered by the other policy units. In the past there has been little or no risk of flooding from rivers, surface water or foul water flooding. Three to four properties have been known to flood from the Marsham Sewer at the base of Chick Hill, near Cliff End.

Impact of a 1% annual probability flood event

	Today	Future (2100)
Number of properties at risk	Minimal	Minimal

The vision and preferred policy

Policy Option 6 – areas of low to moderate flood risk where we will take action with others to store water or manage run-off in locations that provide overall flood risk reduction or environmental benefits.

The key messages

River flood risk is low. We will seek opportunities for more sustainable flood risk management activities in this policy unit.



↑ View North across Rural Rother, near Udimore village.

Proposed actions to implement the preferred approach:

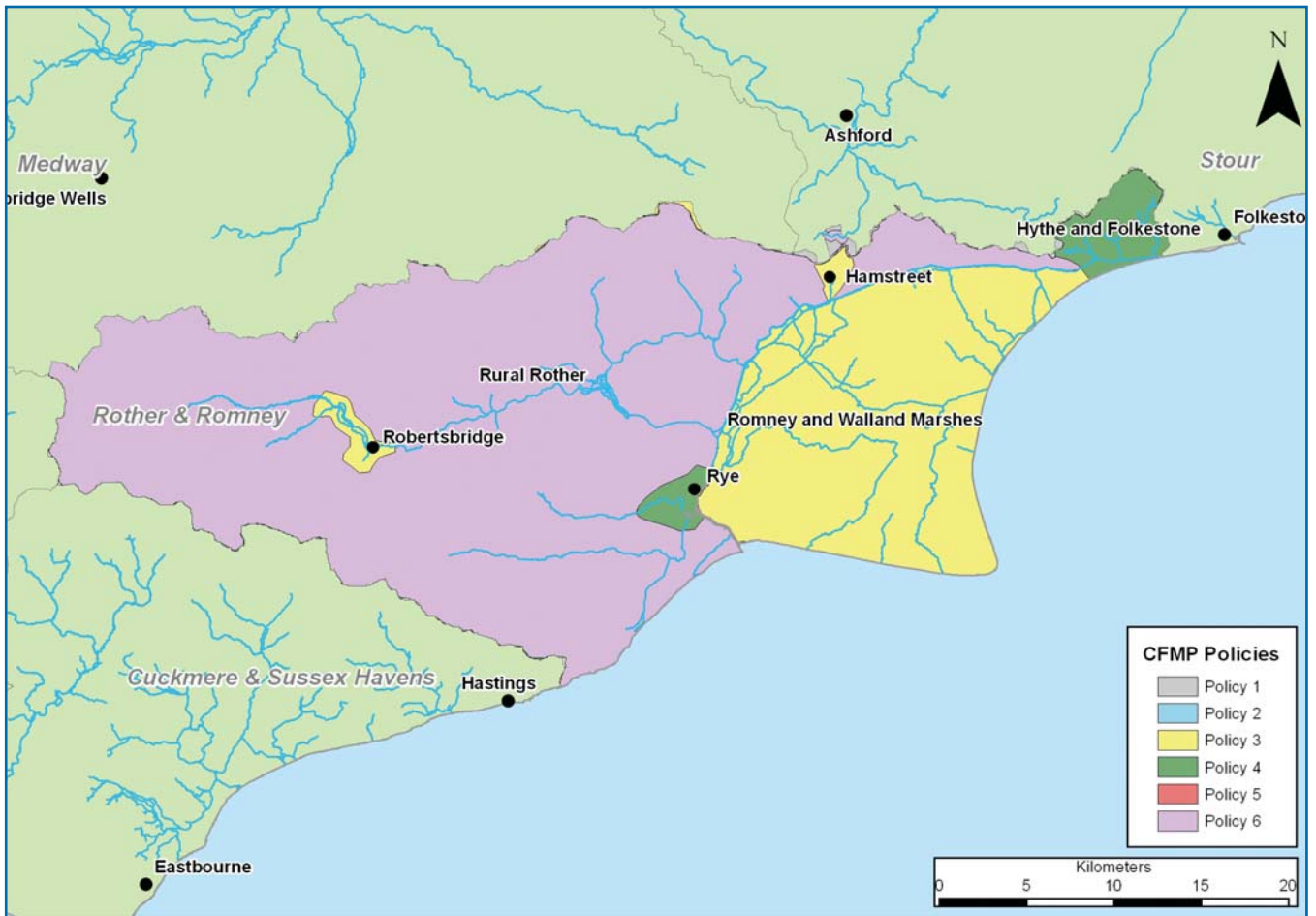
- Support the development and recommendations of the Rye Harbour and Pett Level SSSI Water Level Management Plans (WLMP). Support the development of the WLMP for the new Dungeness, Romney Marsh and Rye Bay Sites of Special Scientific Interest (SSSI). WLMPs are key for managing flood risk and biodiversity needs in this unit.
- Develop a System Asset Management Plan (SAMP). This plan should aim to increase the frequency of flooding to deliver benefits elsewhere. For example, investigate areas identified in the High Weald integrated catchment management and river restoration study where wetland habitat or washlands can help to reduce flooding. (Link with the regional habitat creation programme, River Rother restoration strategy and Rother - the potential for the integrated management of rural floodplains project).
- Investigate opportunities to work with landowners to create wetland habitat, The High Weald integrated catchment management and river restoration study should be updated with data review and ground truthing to prioritise sites for further investigation. (Link with the regional habitat creation programme, River Rother restoration strategy and Rother- the potential for the integrated management of rural floodplains project).



↑ Flooded fields within Rural Rother, off the Udimore road.

Map of CFMP policies

Map of the policies in the Rother and Romney catchment.



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