North Solent
Shoreline Management Plan
Coastal sub-cells 5A, 5B and 5C

Selsey Bill to Hurst Spit,
including Chichester, Langstone and Portsmouth Harbours
& Southampton Water

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New Forest District Council have prepared this plan and the supporting appendices on behalf of and in conjunction with the members of the North Solent SMP Client Steering Group.

This document should be referenced as:
New Forest District Council (2010), North Solent Shoreline Management Plan

North Solent SMP including Policy Statements & Action Plan		**Volume 1**
Appendix A	**SMP Development**	**Volume 2**
Appendix B	**Stakeholder Involvement**	
Appendix C	**Baseline Process Understanding**	**Volume 3**
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1 INTRODUCTION

1.1 The Shoreline Management Plan

A Shoreline Management Plan (SMP) provides a large-scale assessment of the risks associated with shoreline evolution, coastal flooding and erosion and presents a policy framework to address these risks to people and the developed, historic and natural environment in a sustainable manner. In doing so, an SMP is a high-level document that forms an important part of the Department for Environment, Food and Rural Affairs (Defra) strategy for flood and coastal defence (Defra, 2001).

The SMP provides broad scale assessment of the coastal flooding and erosion risks and advice to operating authorities and private landowners on the management of their defences. The Government's principal aims in relation to coastal issues, as set out in Defra's strategy "Making Space for Water" (Defra 2005), are to:

- reduce the threat of flooding and coastal erosion to people and their property; and

- deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.

This document has been developed on behalf of the Coastal Local Authorities and the Environment Agency, and with the support of other local and regional organisations with various responsibilities and powers for managing the coast. This plan provides the first revision to the combined Western Solent and Southampton Water SMP, adopted in 1998, the East Solent and the Harbours SMP, adopted in 1997,.

The 386km of coastline covered by this Plan extends from Hillfield Road, Selsey Bill, in the east, to North Point, the tip of the recurve of Hurst Spit, in the west, and includes Portsmouth, Langstone and Chichester Harbours, Southampton Water and the tidal extent of the main rivers (Lymington, Beaulieu, Test, Itchen, Hamble, Meon, Wallington, etc.); this encompasses sediment cells 5A, 5B and 5C. Figure 1 shows the area covered by the North Solent SMP.

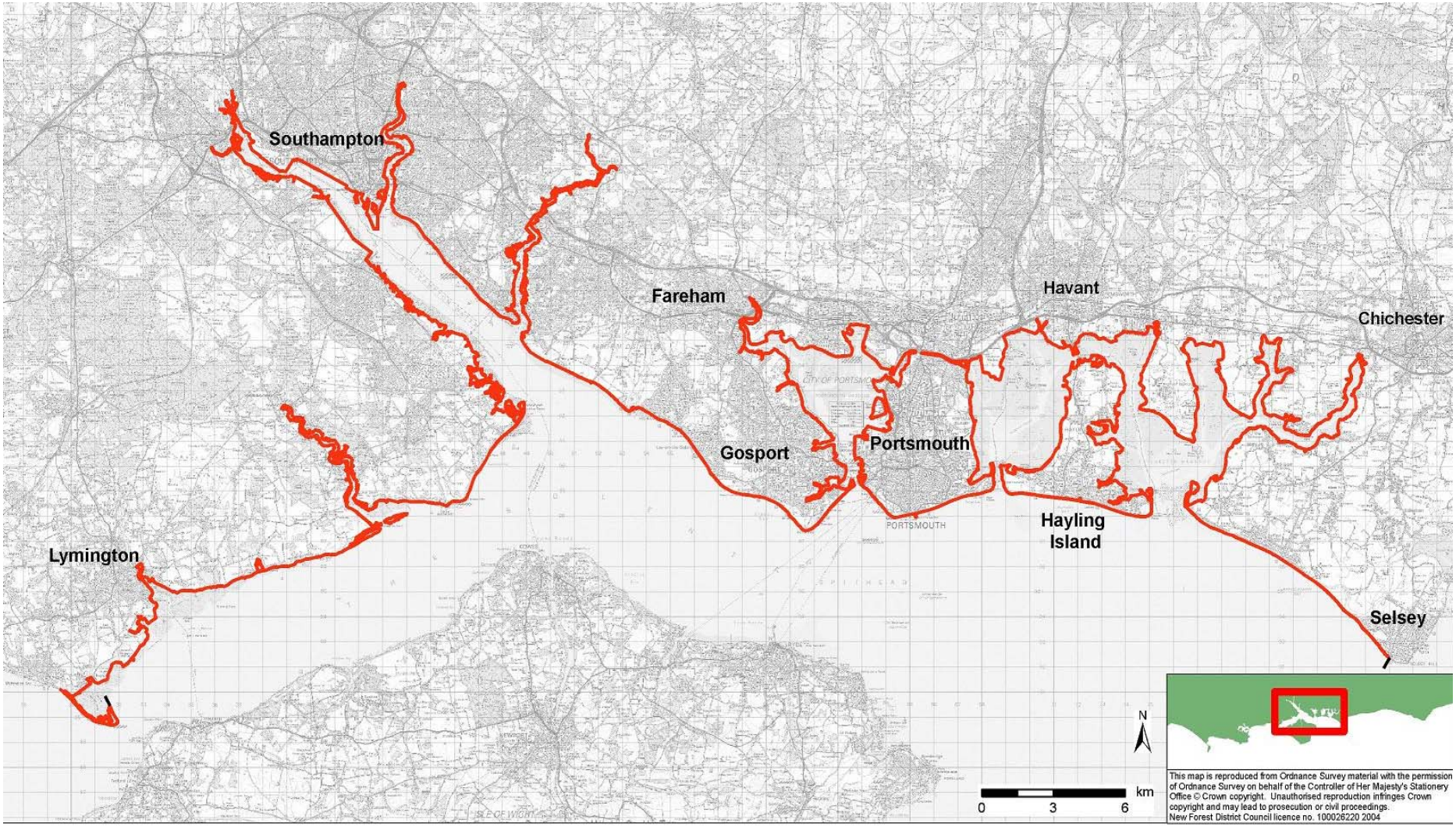


Figure 1: North Solent SMP area

The North Solent shoreline has a number of factors that make the region unusual when compared to other areas of the UK, notably:

- Approximately 80% of the shoreline has a European or International nature conservation designation as Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and or Ramsar sites, and a high proportion of the undesignated coastal areas function and support species, such as high tide roosting and feeding sites for internationally important populations of waders, wildfowl and geese. (See Figures 2 to 4). There is also a suite of national and local designated sites.

- The majority of the North Solent has high levels of residential, commercial, industrial or agricultural development. [The South East England Regional Assembly (SEERA) has proposed that approximately 4,000 new homes per year should be provided in South Hampshire between 2006 and 2026 (Partnership for Urban South Hampshire 2008 (PUSH), see http://www.push.gov.uk),].

- Approximately 76% of the shoreline is protected from flooding and/or erosion with structures and/or beach management. (See Figure 5). The majority of these existing defences have European and International nature conservation designated site(s) landward and seaward of the line of defence. This has significant implications when complying with environmental legislation.

- Approximately 75% of the existing defences (both publicly maintained and privately owned and maintained) will reach the end of their residual or engineering design life within 20 years; works are therefore required to manage the coastal flood risk.

- At least 60% of the shoreline is privately owned and/or the defences are maintained by third parties. (See Figure 6). Private landowners have certain permissive development rights to protect their property and to continue to maintain existing defences, provided it does not constitute ‘development’ of any kind without the need for planning permission but they should always check with their Local Planning Authority before carrying out any works. These rights apply and remain regardless of the SMP policies. A number of these privately owned sites and defences provide protection to areas of significant environmental importance.

- The Solent Dynamic Coast Project identified the paucity of habitat creation opportunities through which the effects of habitat loss caused by coastal squeeze could be compensated. (This research was undertaken in advance of the SMP).

There is a level of uncertainty regarding availability and likelihood of securing

public funding for defences maintained by Operating Authorities and the continued maintenance of defences by private owners. Failure or non-maintenance of defences would result in a significant risk of increased tidal flooding and adverse impacts to properties and other assets and/or loss of landholdings and environmentally important areas.

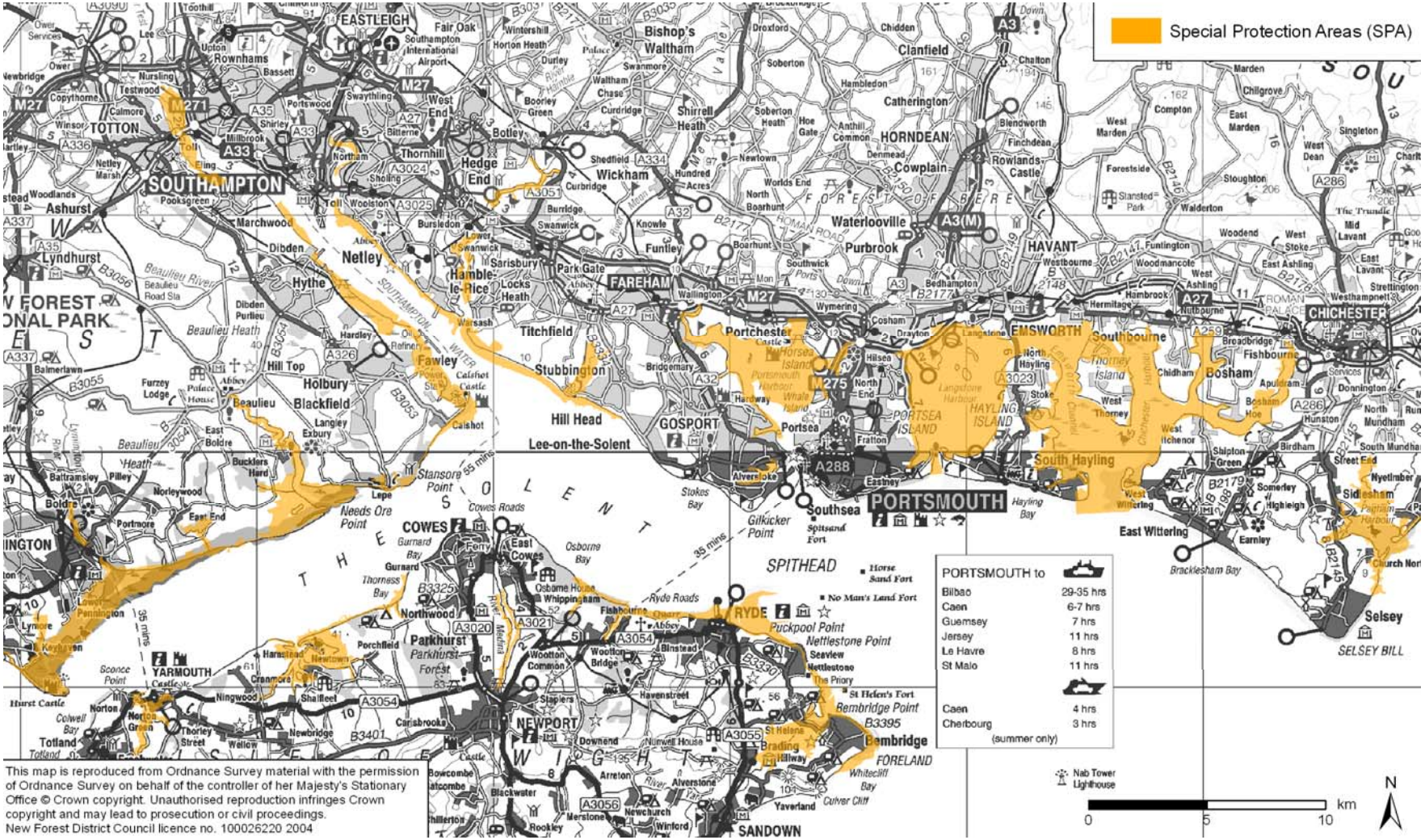


Figure 2. Special Protected Areas (SPAs) within the North Solent SMP area

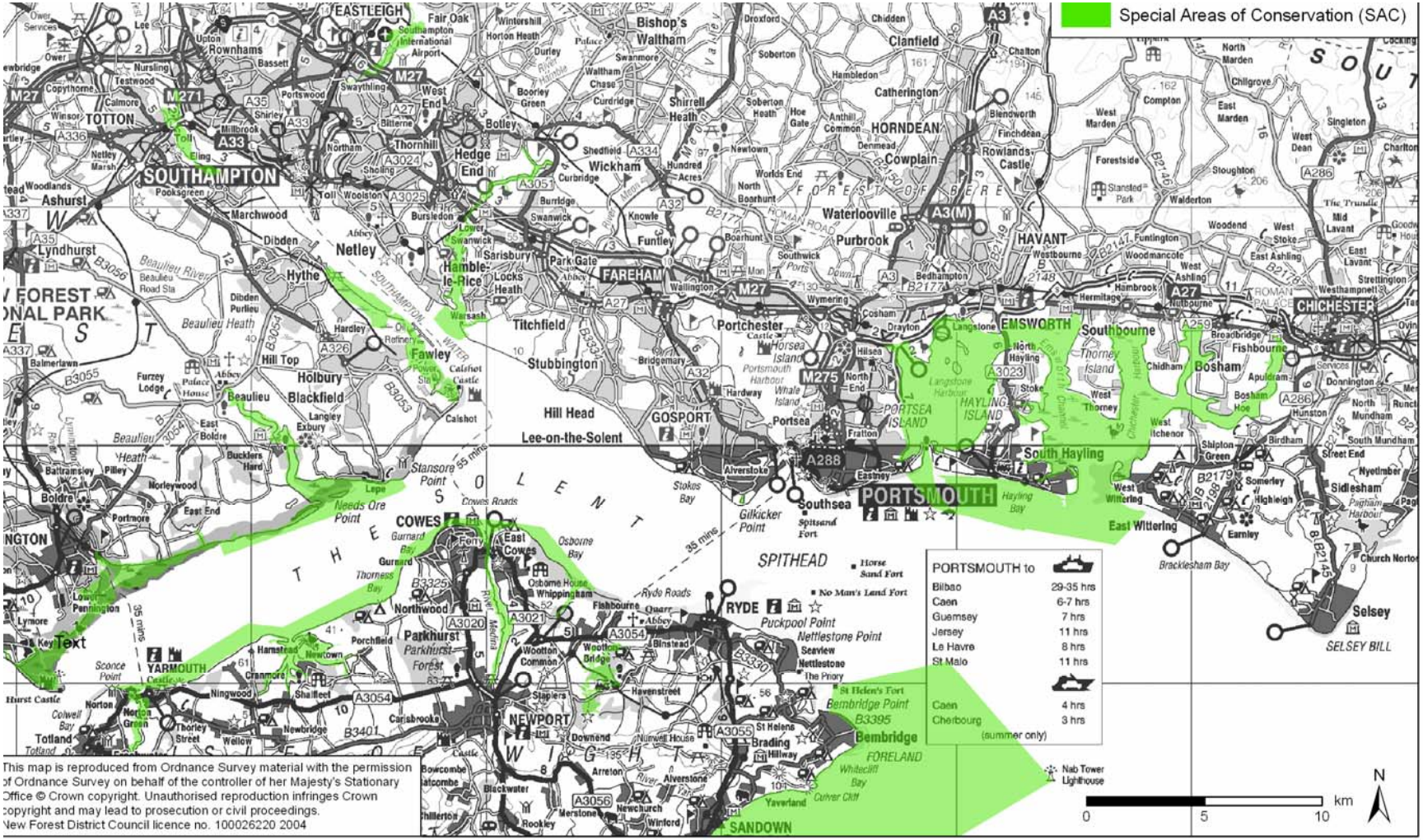


Figure 3. Special Areas of Conservation (SACs) within the North Solent SMP area

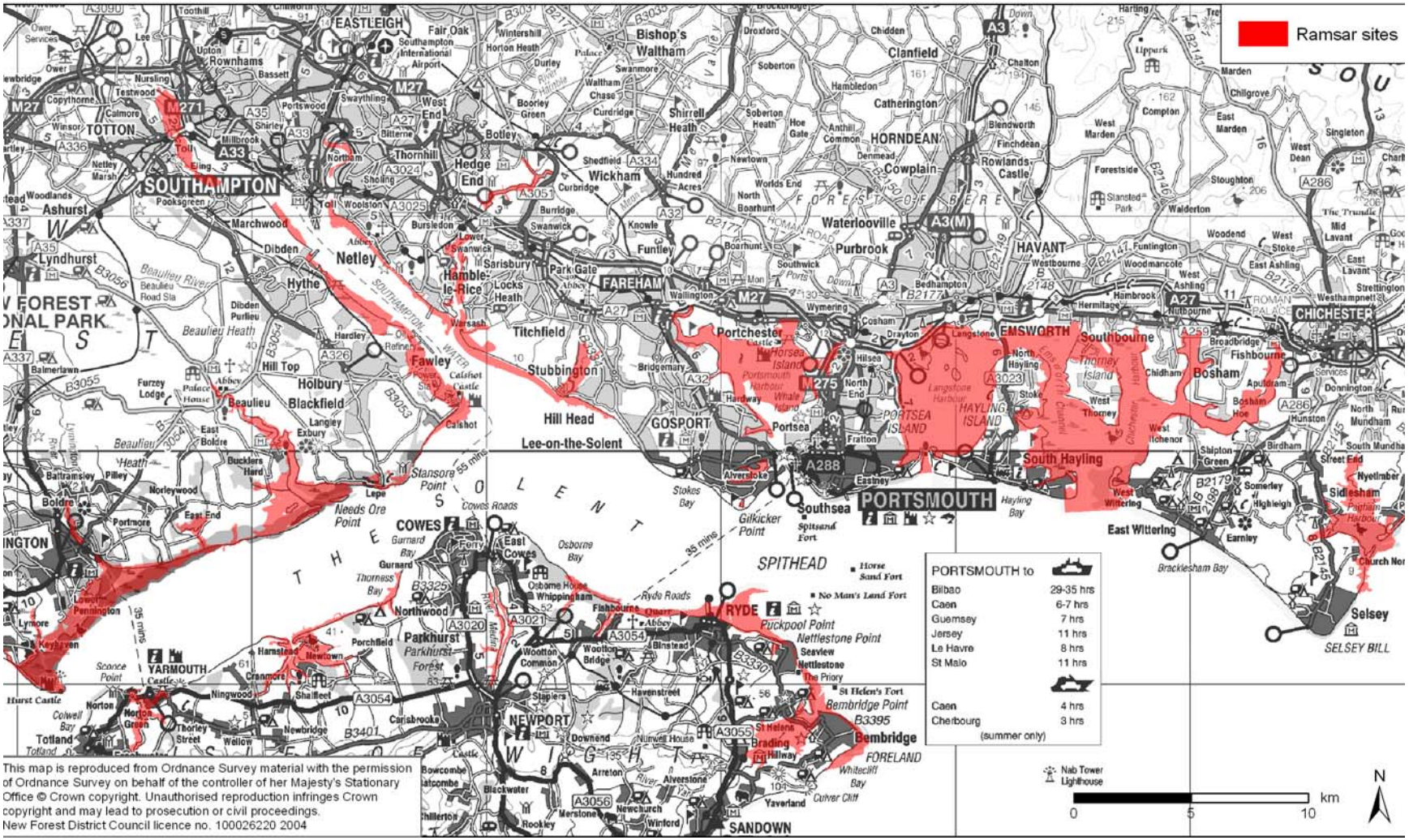


Figure 4. Ramsar sites within the North Solent SMP area

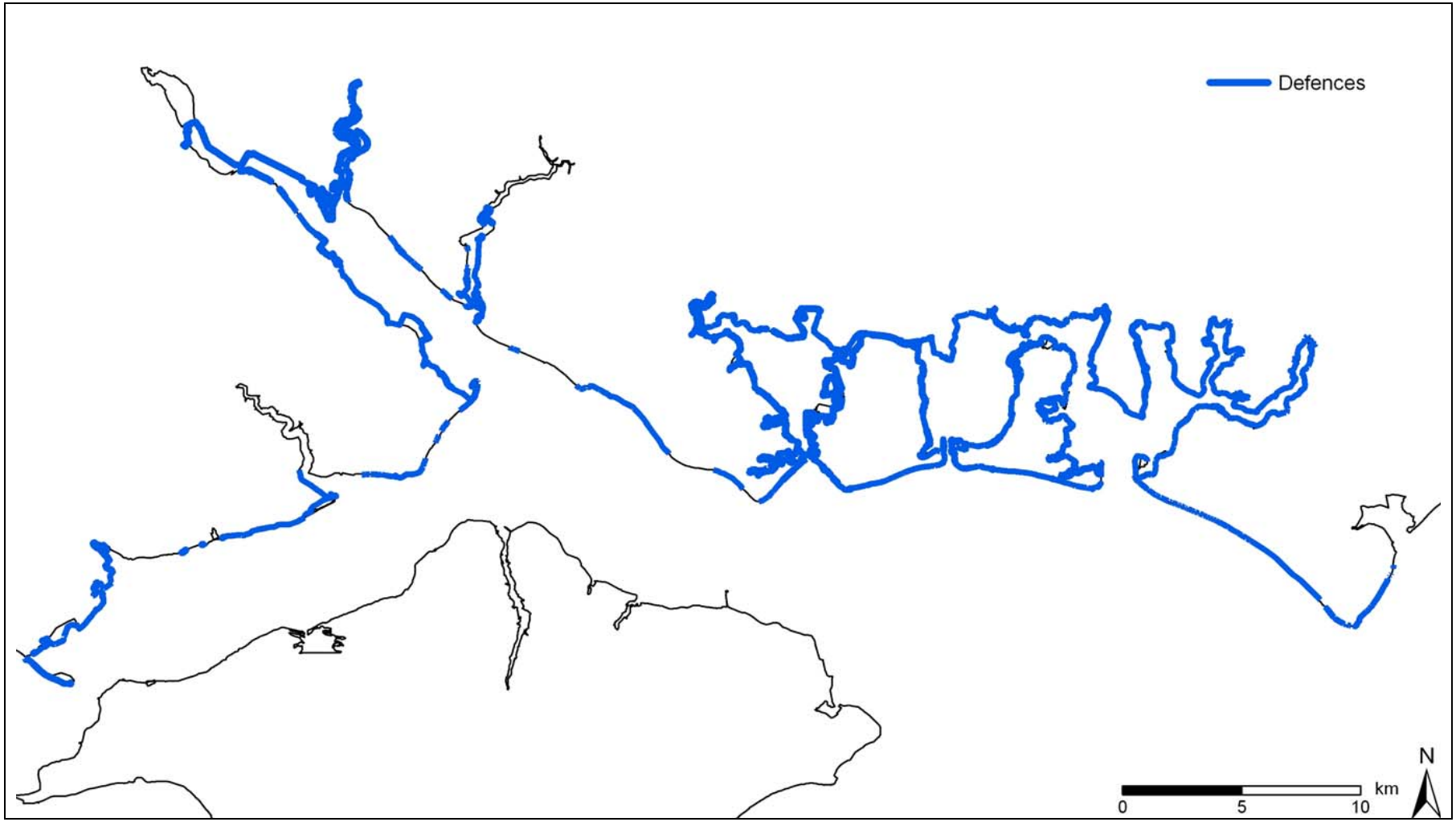


Figure 5. Existing shoreline defences across the North Solent

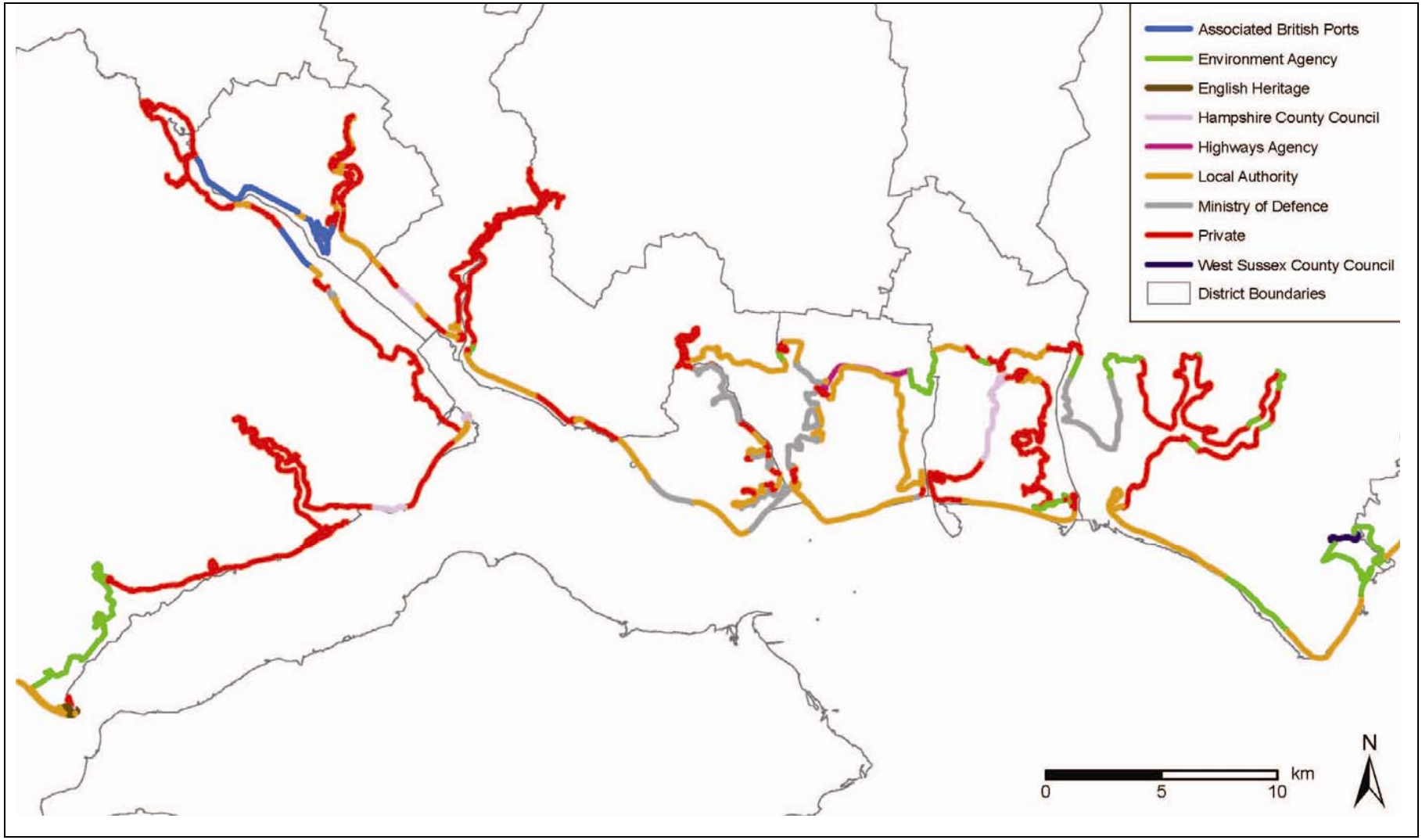


Figure 6. Shoreline Overview, indicating defence maintenance

1.1.1 Guiding Principles

The SMP is a non-statutory policy document for coastal flood and erosion risk management planning. It does not set policy for anything other than coastal flood and erosion risk management. It takes account of legislative requirements and other existing planning initiatives and is intended to inform wider strategic planning. Full details of the procedure followed in development of the SMP are set out in Appendix A.

The SMP aims to provide realistic and achievable policies that are in accordance with current legislation and constraints. The policies must also be technically sustainable, environmentally acceptable and economically viable. There is no value in a long-term plan which has policies driven only by short-term politics or works that prove to be to detrimental in the longer-term. Nevertheless, the plan must be sufficiently flexible to adapt to changes in legislation, politics and social attitudes. The plan, therefore, considers objectives, policy setting and management requirements for 3 main epochs:

- from present day (taken nationally as being 2005) 0 – 20 years (short term) (Epoch 1)
- medium-term 20 – 50 years (medium-term) (Epoch 2)
- long-term 50 – 100 years (long-term) (Epoch 3)

The SMP was developed between December 2006 and January 2010 and produced in accordance with the revised Procedural Guidance (Defra, 2006) for the second generation of SMPs.

The SMP is an important tool for raising awareness to the public, landowners, other land managers and operating authorities of the increasing risk and implications of climate change and sea level rise on the existing defences and management practices. It provides a ‘route map’ for decision makers to assist in moving from the present situation towards the future. The SMP identifies sites and options for continuing to maintain defences to provide long-term benefits to a wide community. It also identifies sites where the type and timing of change is currently unknown, where change in the management of the defences is likely or will be necessary.

Flood and erosion defences reduce the risk to the assets they protect but they do not remove the risk completely. To be suitably adaptable to future change and future risks all new development of residences or infrastructure in flood and erosion risk areas should be appropriately adaptable, resilient and resistant. Decisions on the land use within flood and erosion risk areas should fully consider the risk and be adaptable to change.
The policies that comprise this Plan have been defined through the development and review of shoreline management objectives, representing both the immediate and longer-term requirements of stakeholders, for all aspects of the coastal environment. Together with a detailed understanding of

the coastal processes operating on the shoreline, these objectives provide a thorough basis upon which to appraise the benefits and impacts of alternative policies, both locally and SMP wide. In this way, the selection of policy takes equal account of all relevant features in identifying the best sustainable management solutions.

Considerable effort has been applied to private land ownership, maintenance of third party defences, the identification of inter-tidal habitat creation opportunities and the requirements for transitional freshwater habitats arising from potential managed realignments, which were not addressed in sufficient detail within the SMP guidance.

The planning process should recognise that the coast is a dynamic place requiring adaptive solutions for uses and development. Local planning authorities take account of SMPs and its policies both during the preparation of their Local Development Documents and in the determination of planning applications. In addition, the statutory planning process also considers other planning documents and a range of government Planning Policy Statements (PPSs) and their predecessors Planning Policy Guidance Notes (PPGs). The South East Plan adopts a whole-catchment approach to water management and acknowledges the links between biodiversity and water quality, flood and erosion risk management.

Each planning application will be considered on a case-by-case basis to identify the relevant policies, planning and related advice and constraints. Flood risk will be taken into account at all stages in the planning process to avoid inappropriate development in areas at current or future risk from flooding, and to direct development away from areas of highest risk in accordance with the sequential test. In general, development should not worsen tidal flood risk elsewhere. Flood protection measures should minimise damage to nature conservation and biodiversity interests. The use of surface materials which increase surface water run-off will be discouraged.

Planning applications will be considered on a site by site basis. Planning and Development Control Officers will consider the relevant and applicable statutory plans and planning policies and will have regard to the non-statutory SMP. The Local Planning Authority will seek the advise of statutory consultees, such as the Environment Agency (e.g. flood risk, etc.), Coastal Protection Authority (shoreline erosion and coastal processes, etc.), Natural England (environmental issues, European and national nature conservation designations, etc.), and their views will be taken into account when considering a planning application. Therefore, planning permissions will not be determined solely by the SMP coastal defence policy.

Statutory plan and planning policies are the main considerations when determining planning decision, but regard will be given to the SMP during the consideration process. Having regard to the SMP and through PPS25, Local Development Frameworks and Sites and Development Management Plans are required to define Coastal Change Management Areas, where new development will be subject to varying degrees of restriction. The relevant

local planning authority should be consulted to ascertain the relevant operative development plan policies. It is important to note that SMPs do not take into account future development aspirations.

The non-statutory SMP is part of evidence base to guide the spatial location of development and add detail to statutory plan and planning policies, and other documents such as Strategic Flood Risk Assessments (SFRAs). These plans identify current infrastructure potentially at risk from erosion and/or tidal flooding, now and over next 100 years, where current defences reduce risks, and raise awareness of the rising risk over time if defences are not maintained or strengthened/raised in future and where limited financial resources are either not available or unlikely to be secured. This may impact on future viability of development through evidence for insurance risk.

1.1.2 Objectives

The objectives of the SMP are:

- to define, in general terms, the risks to people and the developed, historic and natural environment of coastal evolution over the next century
- to identify the proposed policies for managing those risks
- to identify the consequences of implementing the proposed policies
- to inform planners, developers and others of the risks of coastal evolution and of the proposed policies when considering future development of the shoreline, land use changes and wider strategic planning
- to comply with international and national nature conservation legislation and biodiversity obligations
- to set out procedures for monitoring the effectiveness of the SMP policies

1.2 Structure of the SMP

This SMP is presented in two parts: the plan and a series of supporting documents presented as appendices to the plan.

1.2.1 The Plan

The management plan sets out the proposed policies for managing the risks of coastal flood and erosion risks and shoreline evolution over the next century. It is intended for general readership and is the main tool for communicating intentions. Whilst the justification for decisions is presented, it does not provide all of the information behind the recommendations, this being contained in the supporting documents. The plan is presented in six sections:

Section 1 (this section) gives details on the principles, structure and background to its development.

Section 2 presents the basis for meeting the requirements of the EU Council Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (the Strategic Environmental Assessment Directive).

Section 3 describes the concepts of sustainable policy and an appreciation of the constraints and limitations on adopting certain policies.

Section 4 presents a broad overview of the proposed policies, discussing their rationale, implications and the requirements to implement and manage them.

Section 5 gives details of how the policies might be implemented and the local implications of these policies in terms of management activities, property, built assets and land use, landscape, nature conservation, historic environment, amenity and recreational use.

Section 6 provides an action plan - a programme for future activities required to progress the plan between now and its next review. (The Action Plan will be presented with the Final SMP and is not included within the Draft SMP)

Although many readers will focus upon the local details in Section 5, it is important to recognise that the SMP is produced for the North Solent coast as a whole, considering issues beyond specific locations. Therefore, statements must be read in the context of the wider-scale issues and policy implications, as reported in Sections 2, 3 and 4 and the appendices to the Plan.

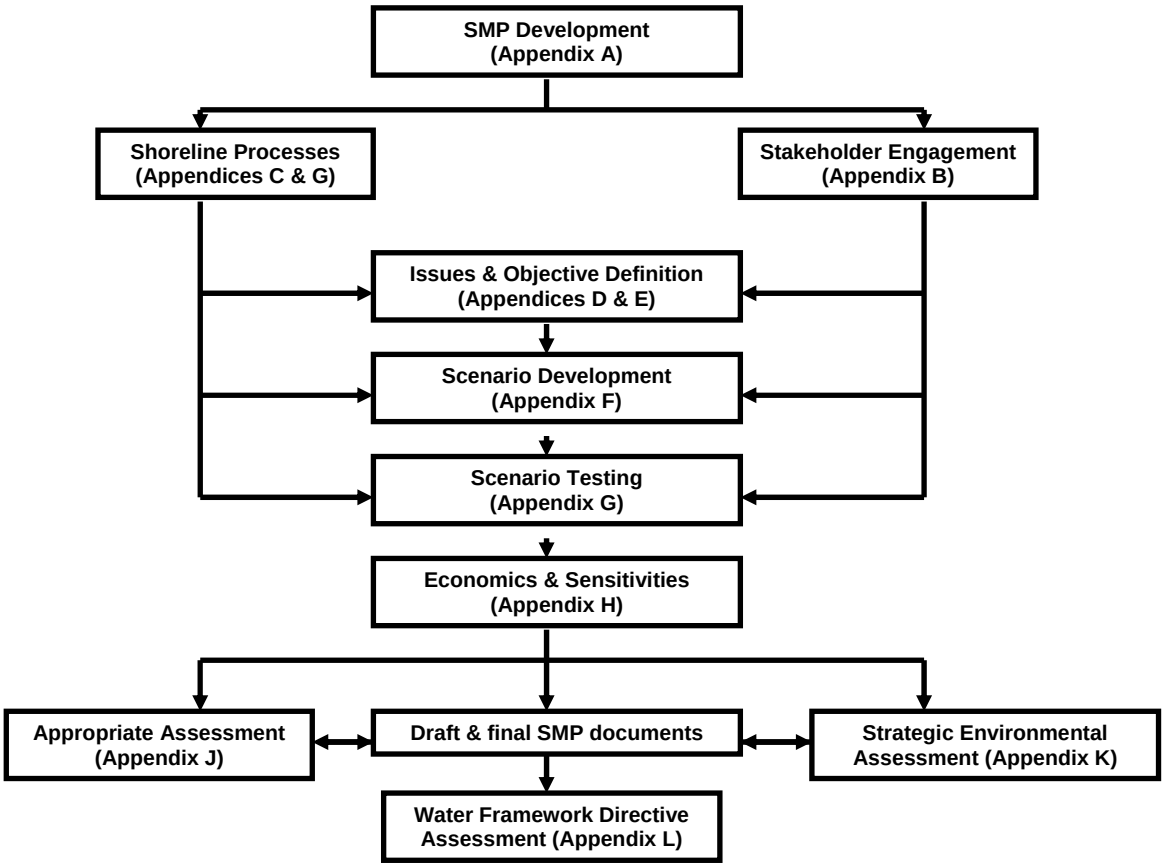
1.2.2 The Supporting Documents

All information used to support the Shoreline Management Plan is contained in a series of Appendices. They are provided to ensure that there is clarity in the decision-making process and that the rationale behind the policies being promoted is both transparent and auditable. The appendices, which are largely technical in nature, are:

Appendix	Subject	Detail
A	SMP Development	Reports the history of development of the SMP, describing fully the plan and policy decision-making process
B	Stakeholder Engagement	All communications from the stakeholder process are provided here, together with information arising from the consultation process
C	Baseline Process Understanding	Includes a baseline process report, defence assessment, and assessments of implications on coastal processes and defence requirements under two scenarios. If there were no defences - No Active Intervention (NAI) and if the existing defences were maintained - With Present Management (WPM) assessments
D	Theme Review	This report identifies and evaluates the environmental features (human, natural, historical and landscape)
E	Issues & Objective Evaluation	Provides information on the issues and objectives identified as part of the Plan development, including appraisal of their importance
F	Initial Policy Appraisal & Scenario Development	Presents the consideration of generic policy options for each frontage, identifying possible acceptable policies, and their combination into 'scenarios' for testing
G	Scenario Testing	Presents the policy assessment and appraisal of objective achievement towards definition of the Proposed Plan
H	Economic Appraisal & Sensitivity Testing	Presents the economic analysis undertaken in support of the Proposed Plan
I	Metadatabase and Bibliographic database	All supporting information used to develop the SMP is referenced for future retrieval and examination
J	Appropriate Assessment	An assessment of the effect the plan will have on European sites.
K	Strategic Environmental Assessment	An appraisal of the potential environmental consequences of developing the plan specifically related to the requirements of the EU Council

		Directive 2001/42/EC (Strategic Environmental Assessment Directive)
L	Water Framework Directive Assessment	An assessment of the implications of the Water Framework Directive.

The broad relationships between the appendices are as below:



1.3 The Plan Development

1.3.1 Revision of the SMP

Since the first round of SMPs, there have been a number of initiatives which have led to improved understanding of how the coast functions and evolves. Part of the SMP process is to regularly review and update the SMP, as necessary, taking account of new information and knowledge gained in the interim. The North Solent SMP has been developed using the best available data and information. This review has considered:

- latest studies (e.g. Futurecoast, climate change) and mapping which has been used during the development of this plan.

- The Environment Agency's Indicative Flood Mapping, as published in 2007, has been used for flood risk in 2007. The coastal flood risk maps for 2108 from the Pagham to East Head Coastal Defence Strategy and covered West Sussex area of the SMP region. The coastal flood risk maps for 2115 were obtained from the Partnership for Urban South Hampshire (PUSH), see http://www.push.gov.uk), and the New Forest District Council and New Forest National Park Authority Strategic Flood Risk Assessments; these covered Hampshire area of the SMP region.

- issues identified by most recent defence planning e.g. Pagham to East Head Coastal Defence Strategy (approved), draft Portchester to Emsworth CDS, draft River Itchen, Weston Shore, Netley, River Hamble CDS, Portsea Island CDS (approved) and other site-specific detailed investigations.

- changes in legislation e.g. the EU Habitats and Birds Directives and Regulations

- changes in coastal management planning requirements e.g. the need to consider 100 year timescales in future planning, modifications to economic evaluation criteria, etc.

- Catchment Flood Management Plans for New Forest, Test and Itchen, South East Hampshire and Arun and Western Streams, as presented in Figure 2. (Post adoption statements approved autumn 2008) (see Figure 7)

- the results of the Strategic Regional Coastal Monitoring Programme and in–house monitoring, research and datasets.

Further reviews will be carried out in future years by Operating authorities (Local Authorities and the Environment Agency), when deemed necessary, and will include changes to policies, particularly in light of more detailed studies of the coastline, climate change, legislative requirements and future

developments and pressures. This plan does not account for proposed developments, only those that were constructed or were being progressed during the time that the SMP was being developed.

1.3.2 Production of the North Solent SMP

This SMP has been led by a project management group comprising technical officers and representatives from:

- New Forest District Council/Channel Coastal Observatory (Lead Authority)
- Test Valley Borough Council
- Southampton City Council
- Eastleigh Borough Council
- Winchester City Council
- Fareham Borough Council
- Gosport Borough Council
- Portsmouth City Council
- Havant Borough Council
- Chichester District Council
- Environment Agency Southern Region and Solent & South Downs Area teams
- New Forest National Park Authority
- Chichester Harbour Conservancy
- Hampshire County Council
- West Sussex County Council
- Natural England

The diversity of pressures on the shoreline has resulted in an extremely difficult stretch of coastline to manage at a strategic level. All of these factors as well as economic (Appendix H of main SMP document) and environmental considerations have been assessed in the policy appraisal process (Appendices D, E, F and G of main SMP document) to provide the most sustainable shoreline policies over the next 100 years**.**

The SMP process has involved up to 220 interest groups and individuals who were informed of the SMP review and their views sought through the process. Meetings with stakeholders have been held to help to identify and understand the issues, review the objectives and set direction for appropriate management scenarios, and to review and comment upon the proposed plan policies. The SMP is based upon information gathered largely between December 2006 and October 2009. The main tasks have been:

- analysis of coastal processes and shoreline evolution for baseline cases of not defending and continuing to defend the coastline as at present

- analysis and production of indicative erosion risk maps for open coast and harbour frontages

- review, revision and assessment of coastal defence assets data and information

- development and analysis of issues and objectives for various locations and assets

- theme reviews, reporting upon human, historic and natural environmental features and issues, evaluating these to determine the relative importance of objectives

- agreement of objectives with interest groups, heritage community and stakeholders, to determine possible policy scenarios

- development of policy scenarios based on key objectives and primary drivers for sections of the frontage

- examination of the coastal evolution in response to these scenarios and assessment of the implications for the human, historic and natural environment

- determination of the proposed plan and policies prior to compiling the SMP document

- consultation on the proposed plan and policies

During and following the public consultation period, consultation responses will be considered and final policies determined. Assessments will be concluded and Action Plan prepared which identifies necessary works and studies arising from the SMP process. The Action Plan will also identify requirements for integrating SMP and CFMP policies and implementation approaches, to ensure gaps are identified and studies activated to improve understanding of systems and processes and the management of the entire tidal and freshwater river is considered holistically and sustainably.

The final SMP will need to be formally adopted by the Local Authorities and the Environment Agency Regional Flood Defence Committee, prior to submission to the Environment Agency for approval. The Environment Agency will approve the SMP on behalf of Defra. The final SMP will then be available for dissemination.

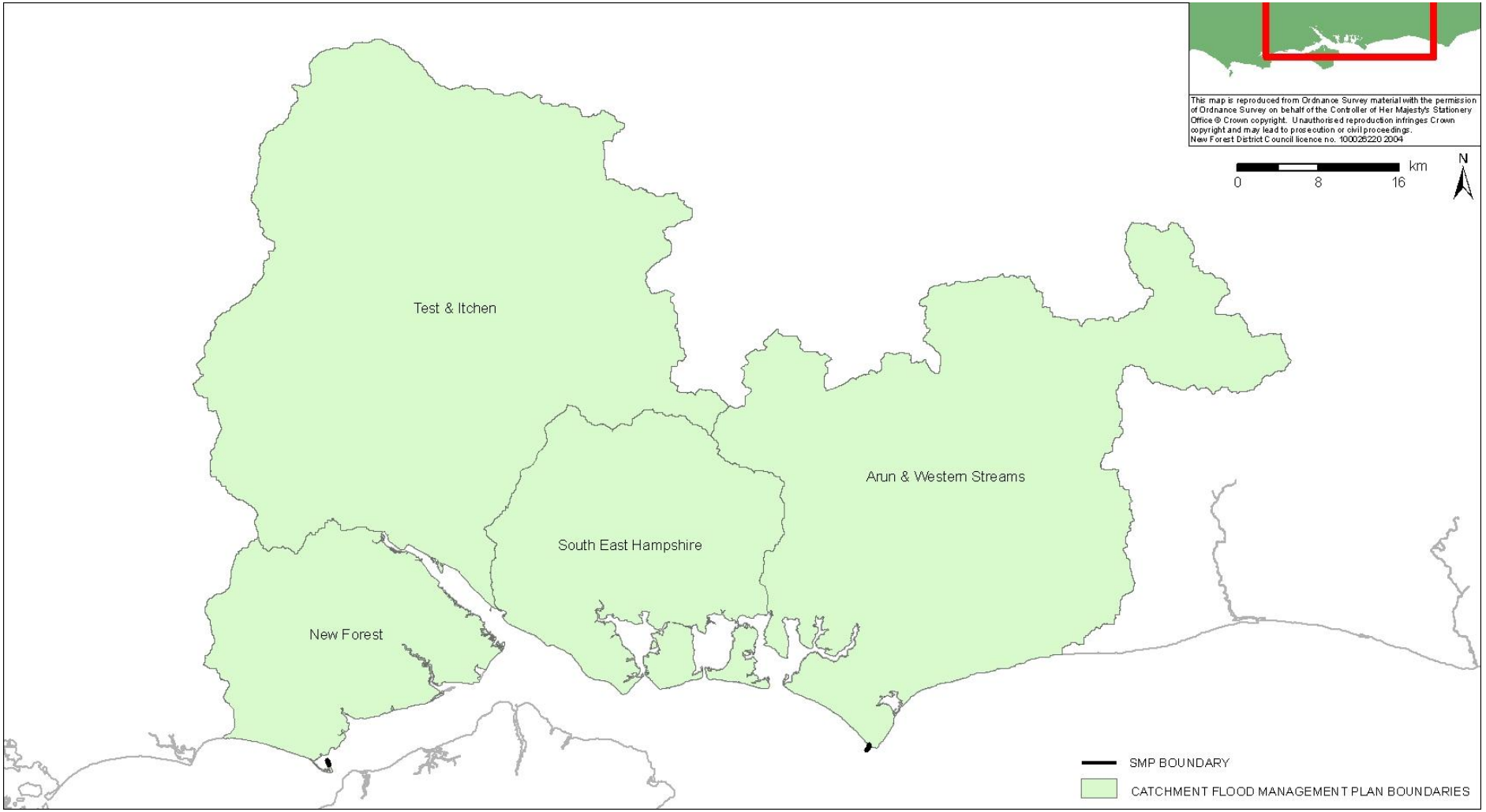


Figure 7. Catchment Flood Management Plan areas within North Solent SMP area

1.4 Policy Units

Extensive and detailed discussions were held between Client Steering Group and Local Planning Authorities, landowners and stakeholders in order to determine the boundaries of the individual Policy Units, which could be considered discrete from adjacent frontages due to geomorphology or coastal processes and its pertinent features and issues. The possible management of these frontages, failure or non-maintenance of defences and the expected consequences and interactions of coastal processes and potential implications on tidal flood and erosion risk areas, adjacent shoreline frontages, properties, access, landuse and features, etc., were also key considerations when determining the Policy Unit boundaries. These broader considerations are covered by grouping Policy Units under Management Areas, highlighting the overall interaction between sections of the coast. In taking forward policies the overall interaction between Policy Units will need to be taken into account (see section 5).

These discussions and assessment also aided identification of localised areas where the management approach may potentially be different to the overarching strategic-scale policy approach (i.e. a long length of shoreline may be considered to have similar features, land use, etc. when considered at a broad scale, but may have localised policy drivers that may require a localised management approach applicable to a short length of frontage).

Each length of shoreline frontage is termed a Policy Unit and is defined by the overarching policy drivers applicable to relatively long lengths of shoreline that necessitated or required a specific policy to be proposed. Figure 8 shows the Policy Units within the North Solent SMP area.

In order for the analysis to provide an understanding of coastal evolution, each Policy Unit is divided into three epochs - short-term (0-20 years), medium-term (20-20 years) and long-term (50-100 years). For consistency between SMPs, the output is provided for years 2025, 2055 and 2105. A single SMP policy is determined and applied per epoch for each Policy Unit in order to achieve the aim of the SMP of determining an achievable long-term vision for the North Solent coast.

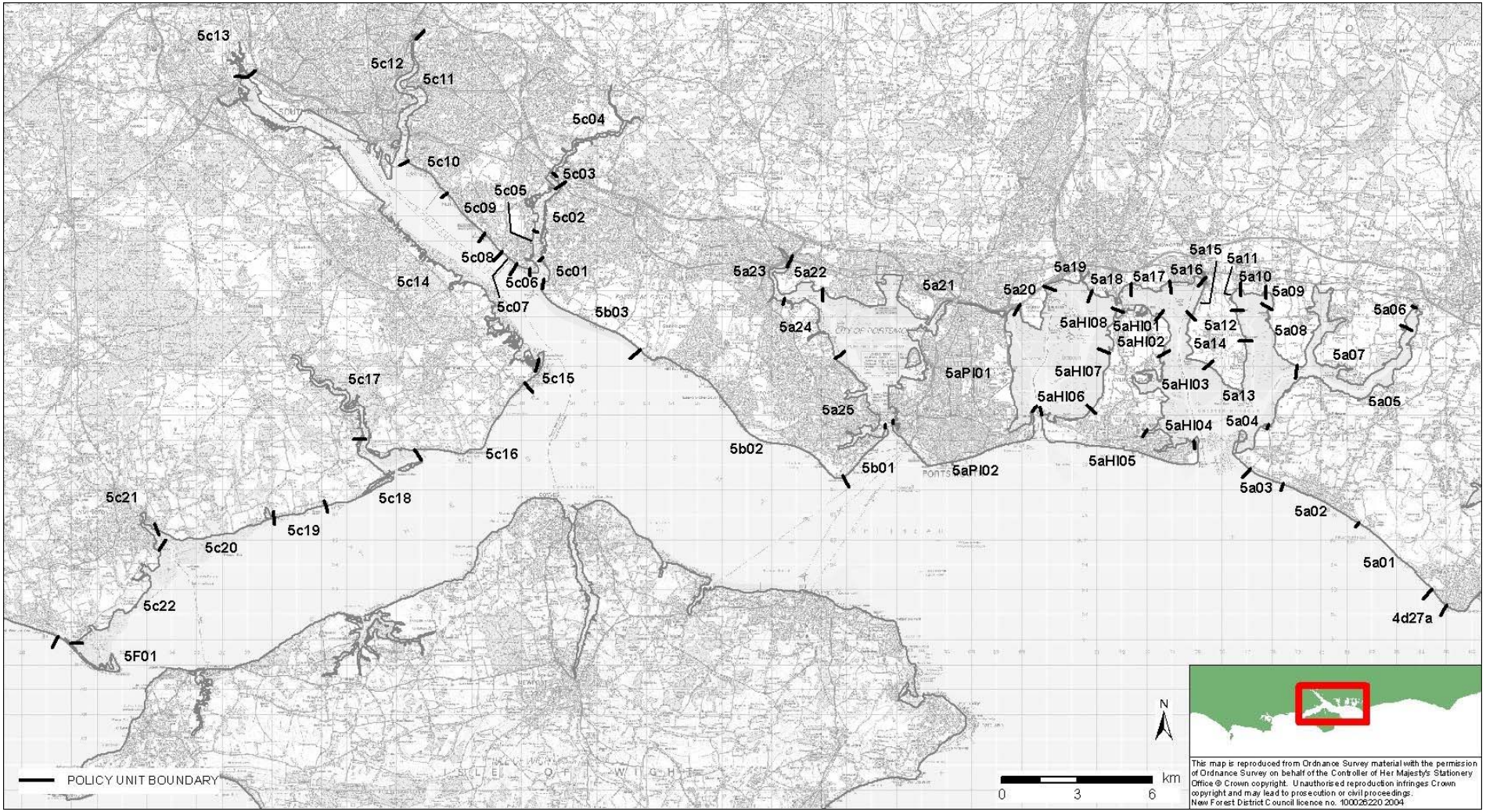


Figure 8. North Solent SMP Policy Units

1.5 The SMP Policies

The SMP is non-statutory and does not set policy for anything other than coastal defence management. It does not aim to provide sufficient detail for the implementation of the defence or management works. It is the intent of the policies rather than the definitions given below, that have driven the assessments and determination of the proposed policies for future management of the North Solent shoreline. The SMP policies proposed for public consultation are those that aim to result in sustainable and improved management of the shoreline, when considered at the broad system scale, and need to assess the flood risk implications to wider areas and communities if defences failed or were not maintained.

There are four generic Defra policy options to choose from:

- **Hold The Line (HTL)** - Maintain or upgrade standard of protection provided by defences. This policy should cover those situations where work or operations are carried out in front of the existing defences (such as beach recharge, rebuilding the toe of a structure, building offshore breakwaters, etc.) to improve or maintain the standard of protection provided by the existing defence line. This policy also involves operations to the back of existing defences (such as building secondary floodwalls) where they form an essential part of maintaining the current coastal defence system.

- **Advance The Line (ATL) -** construct new defences seaward of existing defences. Use of this policy should be limited to those policy units where significant land reclamation is considered.

- **Managed Realignment (MR)** - allowing the shoreline to move backwards or forwards, with management to control or limit movement (such as reducing erosion or building new defences on the landward side of the original defences).

- **No Active Intervention (NAI)** - a decision not to invest in providing or maintaining defence.

Hold the Line (HTL)

A policy of HTL intends that defences and beach management activities are maintained or improved to provide protection from coastal flood and erosion to important assets or features at the coast. Such assets might include centres of development and redevelopment, industry and commerce, agriculture, nature conservation designated sites, etc. The method of maintaining or improving the line of defence may consider local adjustments to the alignment of defences or that existing structures are replaced or new defences constructed, depending on the local conditions and requirements identified.

Due to the high proportion of the North Solent shoreline that is privately owned and the maintenance of defences that are privately funded, there are frontages where a HTL has been proposed but the works identified to manage the coastal flood risk are considered economically marginal or not economically viable. Privately funded works may still be permissible, although there may be conditions associated with this such that private works do not result in negative impacts on other interests. Where applicable, the Draft SMP states that no public funding would be available for maintenance of privately-owned defences, although private owners may deem the works affordable.

Although the broad economic viability of the proposed policies has been assessed in this SMP, a proposed policy of Hold the Line or Managed Realignment does not guarantee public funding through the Flood and Coastal Erosion Risk Management (FCERM) budget for maintenance or capital works. It is also the case that policy options that are considered economically viable may not achieve national priority funding through the finite FCERM budget.

Advance the Line (ATL)

An ATL policy may be considered where aligning the defence line seaward of existing shoreline position advancement would provide a more sustainable and effective opportunity for land reclamation or increased shoreline width; this may be achieved through the construction of structures seaward of the existing shoreline, such as offshore breakwaters. Alternatively, introducing or modifying the alignment of the shoreline may encourage sediment accretion, thereby promoting sustainable management of down-drift beach widths.

However, discussions within the Client Steering Group indicated that this policy was not applicable within the entire North Solent SMP area due to the complexity of the coastal processes, the number and extent of nature conservation designations and the use of the nearshore zone for navigation, transport and recreation. Accordingly, ATL has not been proposed for any of the North Solent shoreline.

Managed Realignment (MR)

The intention of a policy of MR is to either create or allow the conditions for the coast to realign and retreat. For example, this policy may be considered for issues relating to flood storage capacity, sediment transport, economic viability (i.e. shorter lengths of secondary defences), or for environmental reasons to meet the legal obligation to maintain the extent of coastal wildlife habitat in the face of sea level rise, such as inter-tidal habitat creation for offsetting coastal squeeze.

However, it may not be technically feasible or sustainable to maintain existing defences on the current defence line, and despite secondary defences being proposed, the implementation of MR policies may adversely affect or result in the loss of property, agricultural land, heritage or other assets, depending on the location of secondary defences.

Within the North Solent there are a number of sites where managed realignment could be considered but the resulting development of inter-tidal saltmarsh and mudflats would result in the loss of coastal grazing marsh. Managed Realignment at these sites can only be progressed once the legally-required compensatory habitats have been created. Therefore, existing defences need to be maintained until compensation habitat has been created elsewhere. Recent environmental advice indicates that coastal grazing marsh habitats take in the order of 50 years to be recreated depending on the site-specific features and their function e.g. roost and feeding sites. Further more detailed studies will be required to confirm the future management of these sites due to the uncertainty of realignment or timing of realignment.

In October 2009, Natural England revised their original advice with regard to the estimated timeframe that would allow development of coastal grazing marsh habitat of good biological quality in the majority of situations to be recreated. The original advice suggested such a process would take in the order of 50 years; however the revised advice suggested a period of 20 to 50 years. The implications of this revision will be taken into account in the final SMP and Appropriate Assessment.

No Active Intervention (NAI)

A policy of NAI has been proposed for lengths of coast which are allowed to change and evolve naturally. It has been predicted that increased erosion of these frontages may provide sediment to the foreshore of other sections of the coast and act as a natural means of protecting property, land use within the hinterland and environmentally important sites and features from coastal flooding.

Adaptive Management (AM)

This is not an SMP policy, but has been taken from the Pagham to East Head Coastal Defence Strategy for the East Head frontage. It is locally a politically acceptable policy term after almost a decade of discussions and consultation.

Adaptive Management promotes flexible decision making through the implementation of a Management Plan. An Adaptive Management approach is designed to address the uncertainties and work with the coastal processes to provide a proactive management approach. A suite of potential management options and possible actions will be applied as required. A key element of this approach will be the monitoring regime to understand how it is responding combined with beach management activities to manage the specific risks. As understanding of the system improves and as the coastline achieves an alignment more in line with natural processes it is likely that decreasing levels of intervention will be required.

Localised Policy Options

A number of locations were identified within defined Policy Unit frontages that required a different but localised management approach for relatively short

sections within the Policy Unit. For example; a Policy Unit may have an overall requirement for a HTL policy, but there may also be potential opportunities on a short stretch of shoreline for localised managed realignment.

These relatively short lengths of localised policy requirements were considered as localised policy options to the overarching policy, rather than as individual and separate Policy Units. Further studies would be required to confirm the future type and/or timing of management. This approach primarily reflected the level of uncertainty relating to the features that may be potentially affected by realigning defences, the function each site may contribute to the network of sites, the importance of the network being maintained and re-creatability of such sites. There are also other sites that may provide a potential opportunity for localised habitat creation, currently behind privately maintained defences, that the economic appraisal deemed were not economically viable (due to such factors as requirement for and length of secondary defences, losses of designated coastal grazing marsh that would need to be recreated at a more sustainable site elsewhere, etc.). Therefore, these sites have not been included within the proposed policy definition as a localised policy option, but have been identified as potential sites that may be reconsidered following further more-detailed studies.

Coast Protection Authority

The Coast Protection Act 1949, which applies to the coastline of England and Wales, establishes Maritime (or Unitary) District as Coast Protection Authorities and vests in them general permissive powers to carry out Coast Protection Work, which is defined as "any work of construction, alteration, improvement, repair, maintenance, demolition or removal for the purpose of the protection of any land....". Protection is defined as "protection against erosion or encroachment by the sea".

Under the Environment Act 1995 the Environment Agency has a duty to exercise a general supervision over all matters relating to flood defence in England and Wales. The EA is also a formal consultee on certain planning and development control matters relating to coast protection and flood defence. Following recent changes and Ministerial delegation, the EA has taken responsibility for what were Defra’s Coastal Protection functions. The EA now has a Coastal Strategic Overview role for sea flooding and coastal erosion risk management.
In general coast protection authorities have power to carry out coast protection work, whether within or outside their area, as may appear to them to be necessary or expedient for the protection of any land in their area; and may enter into an agreement with any other person to carry out such works.

Where it appears that land requires protection the CPA provides general powers to either serve notice on the owner and occupier of the land to undertake the maintenance and repair of defences or for the coast protection authority to undertake the works if necessary.

For further information regarding the Coastal Protection Act 1949 and coastal protection authority’s powers to carry out coast protection works, or to check

and discuss the necessary licences and consents required for proposed maintenance or improvement works to flood and coastal defences, please contact your local authority or the Environment Agency, or visit www.northsolentsmp.co.uk

Private Defences

Private landowners within the Solent region have a key role in the way the shoreline is managed. Third party funded ownership and maintenance of defences have been very important factors that have been acknowledged during the appraisal of policies. The North Solent SMP recognises that private landowners have certain rights to protect their property and to continue to maintain existing defences, provided it does not constitute 'development' of any kind without the need for planning permission but they should always check with their Local Planning Authority before carrying out any works. In general, planning permission would not be needed for works of maintenance or minor works required to enable continued use of existing structures while they are structurally sound. These rights apply and remain regardless of the SMP policies.

During the development of the SMP it has been clearly stated that no public funding is available for the maintenance of privately owned defences, as is currently the case. There is therefore, a risk that if defences are not maintained by the landowner, flood risk to landholdings, properties and environmentally important sites could increase. Coastal communities have raised concerns over the uncertainty of funding and continued maintenance of privately owned and maintained defences and the risks associated with either non-maintenance or failure of private defences. Landowners and coastal communities will need to be engaged with subsequent flood and erosion risk management strategy studies to identify scale of risks and possible alternative sources of funding. Current advice indicates that there is no legal obligation for a landowner to maintain defences or liability if defences fail which causes flooding elsewhere. A range of issues relating to privately owned and maintained defences have been discussed during consultations with landowners. The landowner's intentions have been sought regarding future management of their defences; these intentions have been considered in the final policies and reflected in a change of policies where an objective-led policy of Managed Realignment was initially proposed.

However, there may be the requirement for new or additional defences on currently undefended frontages in response to sea level rise or flood risk increases; this could be applicable to undefended frontages within a frontage with a proposed Hold the Line or No Active Intervention policy. New construction works, or works of improvement (such as increasing the height, width or length of the defences), demolition or removal of defences will almost certainly require planning permission and may require various consents and licences depending upon the type, location and timing of the proposed works, and will consider the relevant planning policies for the area, as is currently the case.

When considering a planning application on a case-by-case basis, Planning and Development Control Officers will consider the relevant and applicable statutory plans, planning policies, related advice and constraints and will have regard to the non-statutory SMP. Planning operates independently of other legislation and consent under the following regimes may well also be required: Food and Environment Protection Act (FEPA) licence, Coast Protection Act 1949 Section 34 Consent, Land Drainage Consent, Environmental Impact Assessment (EIA), Appropriate Assessment (AA), Strategic Flood Risk Assessment (SFRA), etc. The Local Planning Authority will, therefore, seek the advise of statutory consultees, such as the Environment Agency (e.g. flood risk, etc.), Coastal Protection Authority (shoreline erosion and coastal processes, etc.), Natural England (environmental issues, European and national nature conservation designations, etc.), and their views will be taken into account when considering a planning application.

Planning permissions will not be determined solely by the SMP coastal defence policy. The SMP policies relating to privately owned and currently undefended frontages would therefore not prevent an application from being approved, as the SMP is only one of the material considerations taking into account in reaching a decision by the planning authority along with any formal views from the statutory agencies involved in coastal issues. An information note for landowners and planners has been prepared to provide guidance on coastal planning issues.

Defences maintained by Ministry of Defence

The Ministry of Defence (MOD) advised that they will continue to operate from their existing sites, which includes a number of coastal frontages, and they will manage their flood defence assets accordingly in order to maintain the required operational capabilities of their facilities. Therefore, funding through MOD budgets will need to be secured to undertake the necessary maintenance and improvements works that have been identified.

Coastal Defence Strategies

During development of the North Solent SMP, significant work has been undertaken towards three Coastal Defence Strategies (CDSs) within the SMP study area. Rather than repeat appraisal work in the SMP for these relevant frontages, policies recommended or proposed under these CDSs have, where possible, been used directly in the SMP. Other sectoral strategies, of varying status (i.e. concluded and approved, concluded and not approved, not concluded or approved) have also been available to the SMP and are stated in the relevant Policy Statements. Table 1 shows the SMP policy units covered by the relevant strategies and the corresponding strategy frontage.

The emerging draft Portchester to Emsworth CDS has previously been out to public consultation and is nearing completion of revisions. The draft Itchen, Weston Shore, Netley and River Hamble CDS frontages will be out to public

consultation during summer and autumn of 2010. The North Solent SMP policies for these frontages may therefore, require revisions to reflect the final policies arising from these CDS; this policy review requirement has been identified and included in the Action Plan for the North Solent SMP.

SMP Policy Unit	Coastal Defence Strategy	SMP1 Management Unit Reference or area
5A01	Pagham to East Head (approved)	Medmerry
5A02		East Wittering & Bracklesham
5A03		Cakeham
5A04		West Wittering
5A16	Portchester to Emsworth (emerging draft)	Emsworth
5A17		Warblington
5A18		Langstone
5A19 (part)		Brockhampton Quay
5A21 (part)		M27, Farlington Marshes
5A20		Horsea Island
5A21 (part)		Portchester and Paulsgrove
5C01	River Itchen, Weston Shore, Netley and River Hamble (draft)	HAM8
5C02		HAM 5,6,7
5C03		HAM4
5C04		HAM2, 3
5C05		HAM1
5C06		NET6
5C07		NET5
5C08		NET4
5C09		NET2, 3
5C10		NET1
5C11		ITCH3,4
5API01	Portsea Island (approved)	Portsea Island harbour frontages and open coast
5API02		
5AHI04	Selsmore to Mengham Strategy (not concluded and not approved)	
5AHI05	Eastoke Strategy (approved)	Eastoke, Hayling Island
5C15	Western Solent Coastal Defence Strategy (in progress)	Calshot, Lepe, Beaulieu, Lymington, Pennington, Keyhaven, Hurst Spit, West Solent
5C16		
5C17		
5C18		
5C19		
5C20		
5C21		
5C22		
5F01		

Table 1 SMP Policy Units and Coastal Defence Strategy Frontages

2 ENVIRONMENTAL ASSESSMENT

Environmental, social, technical and economic issues have all been considered in developing the draft North Solent SMP. Accordingly, it is important to understand the relationship and interaction between the requirements for coastal defences and the built and natural environment, landscape, amenity open space, heritage and recreation, in order to provide a high level of protection to the environment in its broadest sense.

This chapter outlines the strategic process undertaken for the environmental appraisal of the North Solent SMP based on the key requirements of the European SEA Directive (2001/42/EC) and EC Habitats Directive (92/43/EEC).

2.1 SEA Directive Requirements

The requirement for a Strategic Environmental Assessment (SEA) comes from the European Directive 2001/42/EC of the European Parliament and of the Council on the assessment of the effects of certain plans and programmes on the environment.

The objectives of the SEA Directive are to provide for a high level of protection to the environment and to contribute to integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring an environmental assessment is carried out for certain plans and programmes. The SEA Directive introduced the statutory requirement of an SEA for plans and programmes into the UK in July 2004. This was further implemented by secondary legislation for England and Wales via The Environmental Assessment of Plans and Programmes Regulations 2004 (SI 1633, 2004), known as the ‘SEA Regulations’.

The SEA Directive is intended to ensure that environmental considerations are incorporated into decision making, alongside other economic and social considerations, in an integrated way, during the development of plans and programmes. The Directive requires that the assessment process identifies, describes and evaluates the likely significant effects on the environment of implementing the plan and reasonable alternatives taking into account the objectives and the geological scope of the plan (Article 5.1). There is no legal requirement to undertake an SEA for SMPs because they are not required by legislative, regulatory or administrative provisions. However, SMPs do set a framework for future planning decisions and have the potential to result in significant environmental effects. Therefore, the Department for Environment, Food and Rural Affairs (Defra) recommended that SMPs should broadly comply with the requirements of the Directive, and that the environmental appraisal of SMPs be undertaken in line with the approach in the SEA Directive (Defra 2006).

In March 2009, the Environment Agency's SMP Quality Review Group (QRG) instructed that a separate SEA would be required, instead of being integrated into the main SMP. The EA issued guidance in April 2009 (SEA: advice for application to SMP - Operational Instruction 80-09) as to how the separate SEA should be produced, but the guidance was aimed at newly-beginning or yet to begin SMPs, rather than for an SMP which had already completed the majority of the phases within the policy appraisal process, as was the case with the North Solent SMP. A methodology was produced, approved by the EA, which aimed to demonstrate clearly how the decision making process adopted by the North Solent SMP was compliant with the SEA Directive; further details are presented in Appendix K. Environmental considerations (nature conservation, land use, heritage, landscape, etc.) were comprehensively incorporated throughout the policy appraisal process. Following the Draft SMP guidance, these factors and implications were integrated within the various supporting appendices and reports. The timing of the requirement for a separate SEA report (Appendix K) has therefore been produced post-policy appraisal, as the proposed policies had already been determined.

2.2 The Existing Environment

The coastline covered by this plan has a rich diversity in its physical form, human usage and natural environment including cliffs of both habitat and geological interest, low-lying plains fronted by dunes and beaches, towns and villages along the coastal fringe and areas of agricultural land. This combination of assets creates a coastline of great value, with a tourism economy of regional importance.

The current state of the environment is described in the Appendix D Theme Review. This identifies the key features of the natural and human environment of the coastline and includes commentary on the characteristics, status, relevant designations and importance of the features and the ‘benefits’ they provide to the wider community. In addition to the review of the natural and human environment, the extent and nature of existing coastal defence structures and management practices are presented in Appendix C, along with an assessment of shoreline dynamics and interactions, which identifies the contemporary physical form of the coastline and the natural processes operating upon it.

2.3 Environmental Objectives

An integral part of the SMP development process has been the identification of issues and definition of objectives for future management of the shoreline. This was based upon an understanding of the existing environment, the aspirations of stakeholders and an understanding of the likely evolution of the shoreline under a hypothetical scenario of ‘No Active Intervention’ (Appendix C), which identifies the likely physical evolution of the coast without any future

defence management and hence the potential risks to shoreline features. These objectives include all relevant plans, policies, etc, associated with the existing management framework, including all identified opportunities for environmental enhancements.
The definition and appraisal of objectives has formed the focus of engagement with stakeholders during development of the SMP (as identified in Appendix B). The full list of issues and objectives defined for this SMP are presented in Appendix E.

Appendix G includes consideration of how the objectives, and hence the 'environment', would be affected under the proposed policy scenarios for each frontage, with reference to international and national designations and obligations and biodiversity. Section 5 of this document also details the potential environmental effects of the proposed policies.

2.4 Identification and Review of Alternative Policy Scenarios

Appendix F presents the assessments of the generic policies and policy scenarios identified at each location along the coastline. Using the findings of Appendix F, 'policy scenarios' have been defined. These policy scenarios identify the policy combinations (over the three epochs) taken forward for detailed consideration. The policy scenarios have then been appraised to assess the likely future evolution of the shoreline, from which the environmental impacts have been identified. The results of this assessment, in terms of risks to coastal features, were then used to evaluate the achievement of objectives for the proposed policy scenarios. This is reported in the issues and objectives table in Appendix G.

2.5 The Environmental Effects of the Plan

Based upon the output from the testing of policy scenarios, 61 Policy Units have been defined and a Policy Statement has been developed for each Policy Unit, and presented in Section 5. The Policy Statements present the proposed policy scenario for each Policy Unit, identifying its justification and how it will be achieved over the 100 year period. They also present the detailed implications of the policies and identify any mitigation measures that would be required in order to implement the policy.

This document includes the 'Plan for Balanced Sustainability' (Section 4.1), defining the broad environmental impacts of the plan. This Section also presents the 'Predicted Implications of the Proposed Policies' (Section 4.2) under thematic headings.

2.6 Stakeholder Engagement

The SEA Directive requires the responsible authority undertaking the SEA to seek the views of the consultation bodies on the scope and level of detail of the Environmental Report. Although a separate scoping report has not been produced as part of the SEA process; stakeholders have been consulted on several stages of the SMP development as part of the SMP process.

The Key Stakeholder Group included representatives from landowners, interest groups, nature conservation bodies, industry and heritage organisations. Elected Members were also involved in reviewing the proposed policies prior to public consultation. In this way, the views of those whom the SMP policies affect were involved in its development, ensuring that all relevant issues were considered and all interests represented.

Appendix B Stakeholder Engagement documents all the communications from stakeholders and information arising from the consultation process as part of the SMP development.

2.7 Appropriate Assessment

An Appropriate Assessment is a decision by the 'Competent Authority' (in this case New Forest District Council as lead Authority for the North Solent SMP, on behalf of the Operating Authorities within the Solent) which needs to demonstrate that the plan would not have an adverse effect on the integrity of a European site, either alone or in-combination with other plans and projects.

A European site (also referred to as A *Natura 2000* site) is either a Special Area of Conservation (SAC) identified through the EU Habitats Directive (Council Directive 92/43/EEC) or Special Protection Area (SPA) identified through the Birds Directive (Council Directive 79/409/EEC). Additionally, Ramsar sites listed under the Ramsar Convention 1976 are considered under this heading for the purposes of carrying out an Appropriate Assessment, even though they are not technically classed as European sites.

The legal requirement for an Appropriate Assessment is established in Article 6(3) of the EU Habitats Directive (Council Directive 92/43/EEC), which states:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to Appropriate Assessment of its implications for the site in view of the site's conservation objectives".

This has been transposed into national laws through the Conservation (Natural Habitats, &c.) Regulations 1994 (revised in 2010), known as the 'Habitats Regulations'. Recently the European Court of Justice ruled that the UK had failed to correctly transpose the provisions of Article 6 (3) and (4) of the Habitats Directive into UK Law. The amended regulations came into force

in 2007; Regulation 85 states the requirement of an Appropriate Assessment for land-use plans. Although SMPs are themselves not land-use plans they do have the potential to influence the development of land. Therefore, the Department for Environment, Food and Rural Affairs (Defra) and Natural England (NE) agreed that SMPs require an Appropriate Assessment if it is likely to have a significant effect on a European site.

The vast majority of the north Solent defences are fronted and/or backed by European designated sites or by non-designated sites that support the function of designated sites (e.g. high tide roost sites); therefore the North Solent SMP policies will have some form of significant effect upon these designated habitats whether defences are held, re-aligned or not maintained, thereby triggering the requirement for an Appropriate Assessment.

Intertidal habitat losses and gains and freshwater, grazing marsh and saline lagoon losses were quantified for the SMP and Appropriate Assessment using the findings from the Solent Dynamic Coast Project (SDCP) (SDCP, 2008). The SDCP (2008) followed the Solent Coastal Habitat Management Plan (CHaMP, 2004), adding additional historical data sets to examine saltmarsh loss. In addition, a Geographical Information System technique, using lidar, was applied to predict future mudflat and saltmarsh loss and identify potential inter-tidal habitat creation sites.The full detail of the Appropriate Assessment is provided in Appendix J. This assessment tests the impact of the preferred SMP policies to confirm whether the policies will have an adverse impact on the European designated sites.

2.8 Monitoring Requirements

Where the proposed policies for any Policy Unit have specific monitoring/study requirements to clarify uncertainties, this is identified in the relevant ‘Policy Unit Statement’. Detailed monitoring, as will be stated in the Action Plan for the final SMP, could be undertaken within the existing Southeast Strategic Regional Coastal Monitoring Programme or undertaken as part of Coastal Defence Strategy studies. The latter will also define mitigation requirements. Environmental data collection required to monitor the significant impacts of the SMP are identified in Appendix K, Annex K3. Key monitoring requirements include:

- Extent of coastal flooding and number of houses affected
- Injuries or loss of life caused by coastal flooding incidents
- Loss of assets due to coastal flooding and coastal erosion
- Number of incidents of coastal flooding and disruption to infrastructure
- Continued monitoring of BAP habitat gains/losses particularly in areas subject to coastal squeeze and where managed realignment has been identified
- Continued monitoring by Natural England of SSSI units that underpin the
- European designated sites

- Bird surveys to monitor the impact of the SMP policies on feeding and roost sites
- Loss/disruption to footpaths
- Loss of agricultural land and impacts on Environmental Stewardship schemes from management realignment policies
- Water quality of coastal, transitional and ground water bodies
- Quantities of natural and recycled resources used for maintenance of coastal defences
- Additional investigations to survey and record any loss/damage to heritage
  assets as a result of adopting and implementing policies

3 BASIS FOR DEVELOPMENT OF THE PLAN

The full detail of the coastal processes and assessment of coastal and flood defences for the North Solent SMP region is provided in Appendix C.

3.1 Historical Perspective

Much of the present shoreline of the English Channel has been shaped by sea level rise during the Holocene period, following the last glaciation. Flooding of the English Channel commenced as sea levels rose. By approximately 8,000 years ago the entire English Channel, including the Dover Straits, was inundated; the Western Solent entrance formed approximately 7,500 years ago following the drowning of the Solent River system when the chalk ridge between the Isle of Purbeck and the Isle of Wight was breached. The northern coastline of the Solent is largely low-lying and dominated by major drowned valleys that form the existing estuarine system.

Sea level attained a level close to its present position around 5,000 years ago, and the modern hydrodynamic regime has been operating since this time. In the early stages of this inundation, the onshore migration of significant quantities of sediment resulted in the formation of shingle barriers that rolled back to form the present shoreline and many of the present beaches. After sea level reached its present position, mudflats and saltmarsh began to form around the peripheries of the sheltered estuary systems.

The Solent region, responding to isostatic readjustment, is experiencing a fall in land levels of an estimated 0.5mm/yr; UKCIP (2002) quote a 0.9mm decrease in land levels for the South East region. Over the last 2,000 years sea level rise has continued, but at much lower rates resulting in ongoing, but less dramatic, changes at the shoreline. With continued or accelerating rates of relative sea level rise, changes to the present coastal systems will result.

The North Solent SMP shoreline, including the harbours, has been significantly influenced and defined by anthropogenic activity over hundreds of years, as evidenced through its rich heritage. Land reclamation and the enclosure of former saltmarsh areas by the construction of defences have taken place periodically since the Roman times. This has led to a corresponding decrease in tidal prism of the estuary and harbours. The degree of future geomorphological change within the Solent estuary and harbours may be dependent on a change in driving forces such as sea level rise, storminess, increases in fresh water flows and the ability of the system to respond to these drivers.

3.2 Sustainable Policy

The following assumptions and criteria were used when considering policy scenario options for a Policy Unit:

Existing heavily-populated centres of development and redevelopment within these areas will continue to require protection to minimize risk of tidal flooding and erosion until the end of the second epoch. Beyond this epoch, key policy drivers and flood and erosion risk will determine the long-term policy to be appraised. Residential development is currently restricted to existing developed areas (e.g. Southampton City, Portsmouth City, large towns), largely due to landscape and nature conservation designations, and extent of tidal flood and erosion risk areas. Although increasing housing targets will require further development within the North Solent area, this need will largely be met outside of the SMP study area, or outside the identified potential flood or erosion risk areas (see Partnership for Urban South Hampshire (PUSH) http://www.push.gov.uk)

Existing industrial development, requiring a coastal location or maritime access will continue to require protection to minimize risk of tidal flooding and erosion until the end of the second epoch. Beyond this epoch, key policy drivers and flood and erosion risk will determine the long-term policy to be appraised. Industrial development is currently restricted to existing developed areas. Coastal industrial assets include Naval and MOD facilities, Southampton container port, Portsmouth ferry terminal, oil refinery, power stations, etc.

Advance the Line policy option to be assessed where there is potential for land reclamation or for defences seaward of existing line of defence. Discussions within the Client Steering Group indicated that this policy is not applicable within the entire North Solent SMP area due to the complexity of the coastal processes, the number and extent of nature conservation designations and the use of the nearshore zone for navigation, transport and recreation. It has, therefore, not been considered further in the development of the plan.

Consideration of making beneficial use of dredgings has been discussed by members of the Client Steering Group in relation to other studies and coastal defence strategies for a number of years, and was raised at key stakeholder meetings. Recycling dredged sediments should be considered at a Coastal Defence Strategy level, as an option for implementing an SMP policy; for example, for raising of beach levels to protect foundations of existing seawalls, or for stabilising saltmarsh margins to prolong their natural flood defence functions.

Managed Realignment policy options have been assessed where there is potential for the shoreline retreat to improve coastal processes, shoreline alignment or habitat creation purposes. Sites identified on private landholdings are considered during the policy appraisal stages of SMP development but can only be achieved following discussions with and consent of the private landowners. No proposed managed realignment or environmental enhancement opportunities will be imposed or implemented in these circumstances without the landowner’s full consent. The landowner’s willingness or otherwise to consider the proposed policy was sought and

recorded through the public consultation and reflected in the preferred policy in the final SMP.

Land ownership is considered a key factor but was not considered as an objective-led policy driver. Discussions with landowners and land managers are essential in order to determine viability and feasibility of proposed habitat creation opportunities.

Private landowners have certain rights to protect their property and to continue to maintain existing defences, provided it does not constitute 'development' of any kind without the need for planning permission but they should always check with their Local Planning Authority before carrying out any works. These rights apply and remain regardless of the SMP policies. The SMP and its policies do not remove the rights of the private owner to maintain their defences to protect their property, land or assets; nor does the SMP policy prejudice any application for planning permission for improvements to existing defences. Engineering works continue to require the applicant to seek planning permission and the other necessary licences and consents, prior to works being carried out; such applications will need to be considered by the relevant planning authority on a case by case basis, to take into account site specific conditions and factors.

Following discussions with the Client Steering Group and EA it was agreed that for the coastline frontage between Pagham Harbour and Chichester Harbour entrance, the policies recommended and approved through the Pagham to East Head Coastal Defence Strategy (CDS) would be endorsed by the SMP process.

The recommended policies arising from the draft Portchester to Emsworth CDS have been the only policy scenarios to be assessed (for the frontages covered) as they had been through lengthy public consultation and completed policy scenario and economic assessments to determine and recommend policies. It should be noted that these policies have not been approved by the Portchester to Emsworth CDS Project Team members.

The recommended policies arising from the draft River Itchen, Weston Shore, Netley and River Hamble CDS have also been the only policy scenarios to be assessed for the frontages covered, as they had completed a detailed economic appraisal and Appropriate Assessment to determine and recommend policies.

3.2.1 Coastal Processes and Coastal Defence

Climate Change and Increasing Tidal Flood Risk

The coastline is undergoing constant change due to long-term and large scale impacts of climate change, namely sea level rise, through to the day-to-day effects of waves and tidal currents. It is the implications of climate change that will determine sustainable shoreline management into the future.

The first round of Shoreline Management Plans considered the impacts of future climate change and sea level rise by applying the precautionary Ministry of Agriculture, Fisheries and Food (MAFF) guidance of 6mm per annum. Defra have subsequently modified these sea level rise allowances in 2006, in response to research and improved predictive climate modelling, and advice from the Intergovernmental Panel on Climate Change (IPCC) and UK Climate Impacts Programme (UKCIP) (FCDPAG, 2006). Global mean sea level rise projections for the 2110s were extrapolated from the 2020s, 2050s and 2080s. The baseline for calculating sea level rise for a given year was 1990. The latest guidance takes into account land movement and the effects of thermal expansion of the sea, up to the year 2115. Additional contributions from tidal surges and waves are not included. The new allowances are shown in Table 2.

Administrative Region	Assumed Vertical Land Movement (mm/yr)	Net Sea Level Rise (mm/yr)				Previous Defra (2002) allowances
		1990-2025	2025-2055	2055-2085	2085-2115	
Eastern England, East Midlands, London, South East England	-0.8	4.0	8.5	12.0	15.0	6mm/yr
South West and Wales	-0.5	3.5	8.0	11.5	14.5	5mm/yr
North West and North East England, Scotland	+0.8	2.5	7.0	10.0	13.0	4mm/yr

Table 2. Regional net sea level rise allowances (FCDPAG, 2006).

Figure 9 shows the latest, exponential Defra predicted sea level rise compared with the old 6mm per annum guide. The Defra guidance of 4mm per annum sea level rise until 2025 is actually a lower rate than was previously applied. From 2025 onwards, the new predicted rate rises steeply, eventually resulting in mean sea level being 0.4m higher than the previous 6mm per annum guide. This has serious implications when planning for future sea defences. Figures 10 to 15 indicate the increasing residual risk of tidal flooding within the North Solent region i.e. the risk of flooding if existing defences failed or not maintained, or overwhelmed by a storm event that exceeded the design limits of the existing defences.

Rising sea levels will increase the probability of flooding for low lying areas protected by a hard defence or barrier beach/spit, as the amount of freeboard between water level and crest level of the defences will be reduced. Waves would break further inshore and potentially increase risk of wave overtopping of structures or features and the tidal prism of the harbours, estuaries and

tidal rivers may also increase, which may impact on urbanized residential and industrial areas and the extent of environmentally sensitive habitats.

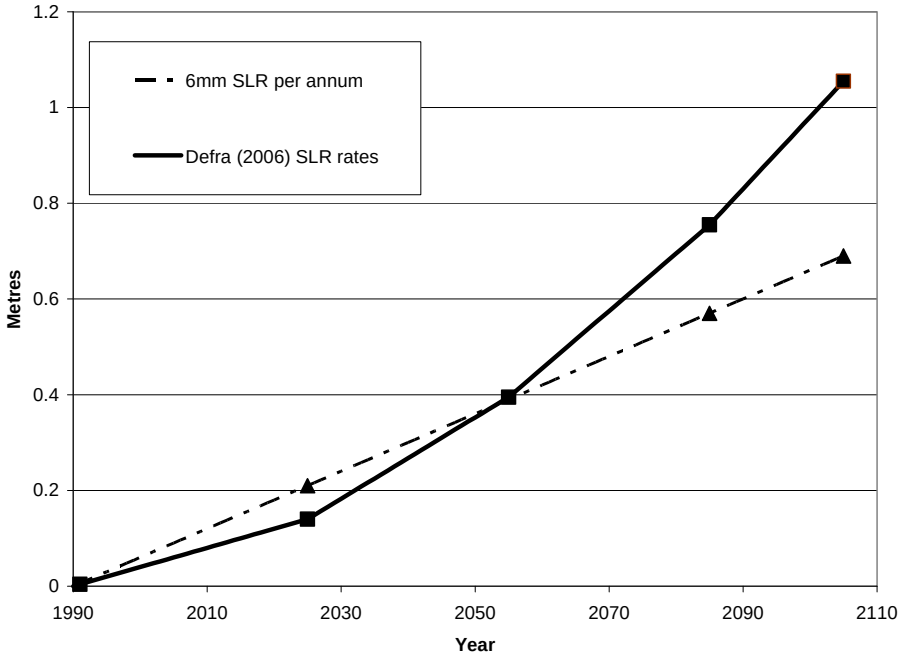


Figure 9: Comparison of current Defra sea level rise allowances with previous guidance of 6mm per annum for South East England region

Recent climate studies have indicated that there are significant changes occurring within our climate; with more severe storms (intensity, frequency, duration, etc.), increasing rainfall and rising sea levels. Increasing rainfall in-between longer periods of dryer weather can lead to increased fluvial flows in catchments and consequently increased erosion downstream within estuaries of inter-tidal areas and pressure on defences.

It is extremely important that the long-term plan in the SMP recognises these future issues and reflects likely future constraints to management planning. Thus the SMP acts as an early warning to those other plans and initiatives that are vital to the communities and infrastructure within the coastal/estuary zones.

Changes at the coast

The past, present and future forms of the North Solent shoreline are shaped by anthropogenic constraints, the antecedent geology, natural forces and coastal vegetation. As well as being rich in biodiversity, the North Solent is highly developed and has a thriving tourist industry. Because the North Solent is highly developed, 76% of its shoreline is protected from flooding and/or erosion. The geomorphological and ecological systems are heavily managed and engineered and do not always behave in a natural manner.

The reclamation of extensive areas of former coastal lowland for agriculture, port industrial and residential development has produced many areas where the shoreline is today artificially seaward of its natural position. Human intervention to construct embankments and drain the backing land for agricultural production and, historically, storage of contaminated materials, has also produced numerous sites that are now internationally, nationally and locally designated for their nature conservation importance and value. Many of these are also important amenity and recreational areas, both on land and in the nearshore marine environments. Under natural circumstances (i.e. no development or defences) these coastal frontages would have naturally evolved into inter-tidal or coastal habitats. The man-made defences that now protect areas of freshwater and terrestrial habitats also prevent natural landward migration of inter-tidal habitats, termed coastal squeeze.

The ability of the system to respond to future conditions is limited by constraints such as the underlying geology, available sediment supply and location, position and standard of protection of the sea defences. Another key constraint for the adaptability of the shoreline is that the majority of the Solent region has considerable residential, commercial, industrial and agricultural development. Development pressures are likely to increase over the short to medium term. At least 60% of the shoreline is privately owned and/or the defences are maintained by third parties. A number of these privately owned sites and defences provide protection to areas of significant environmental importance.

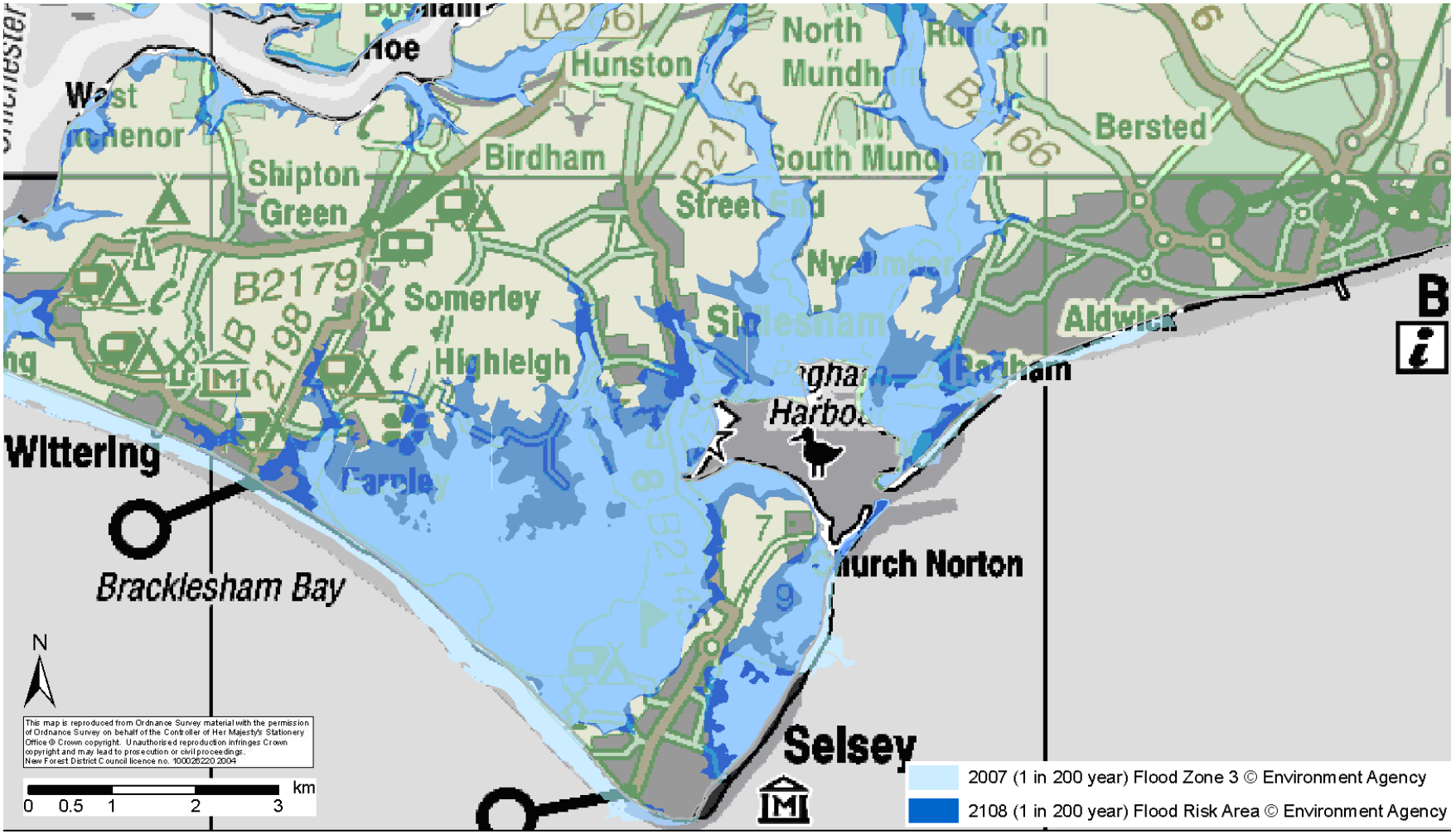


Figure 10: Increasing residual tidal flood risk over next 100 years – Pagham Harbour and Selsey Bill

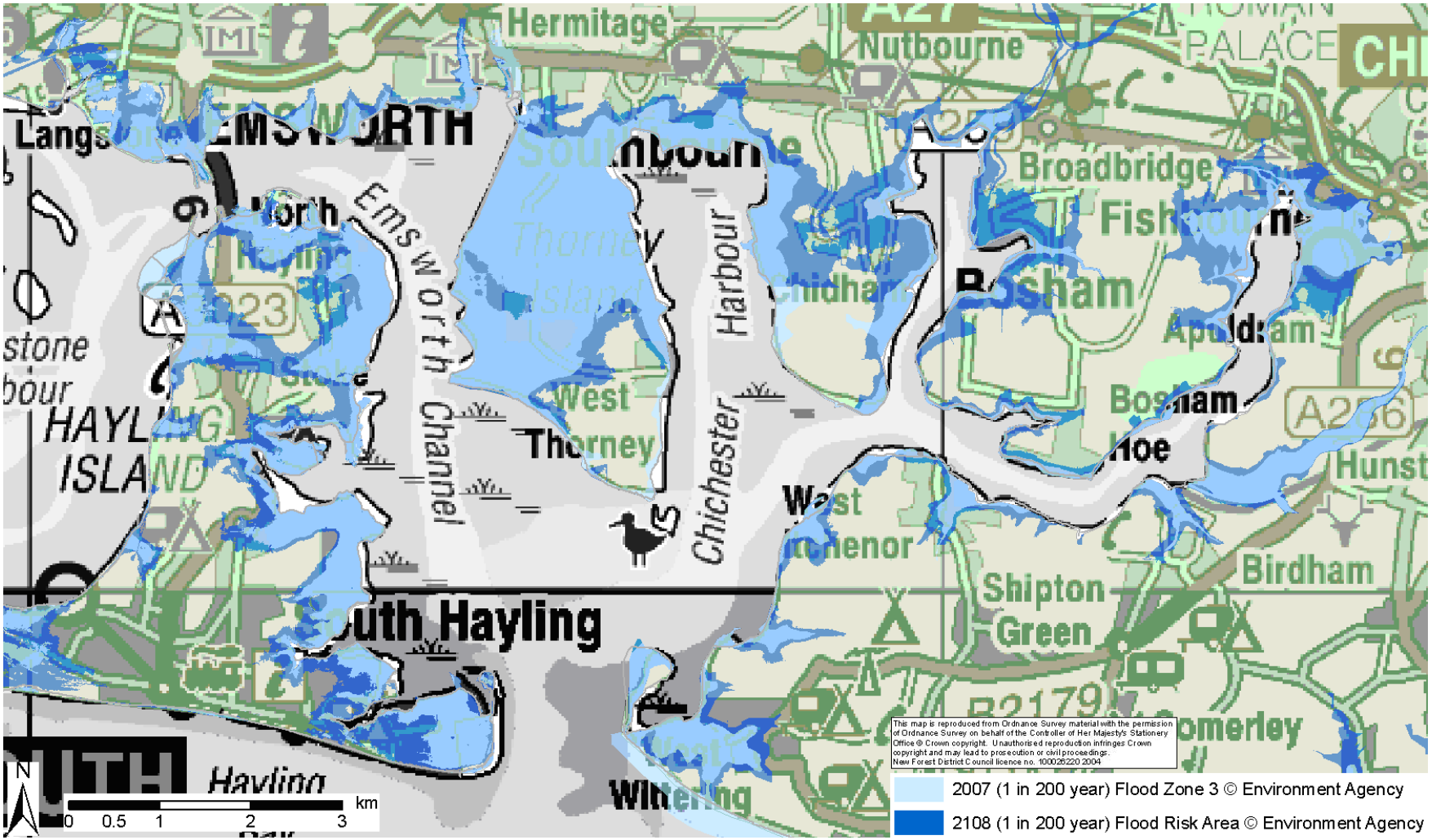


Figure 11: Increasing residual tidal flood risk over next 100 years – Chichester Harbour

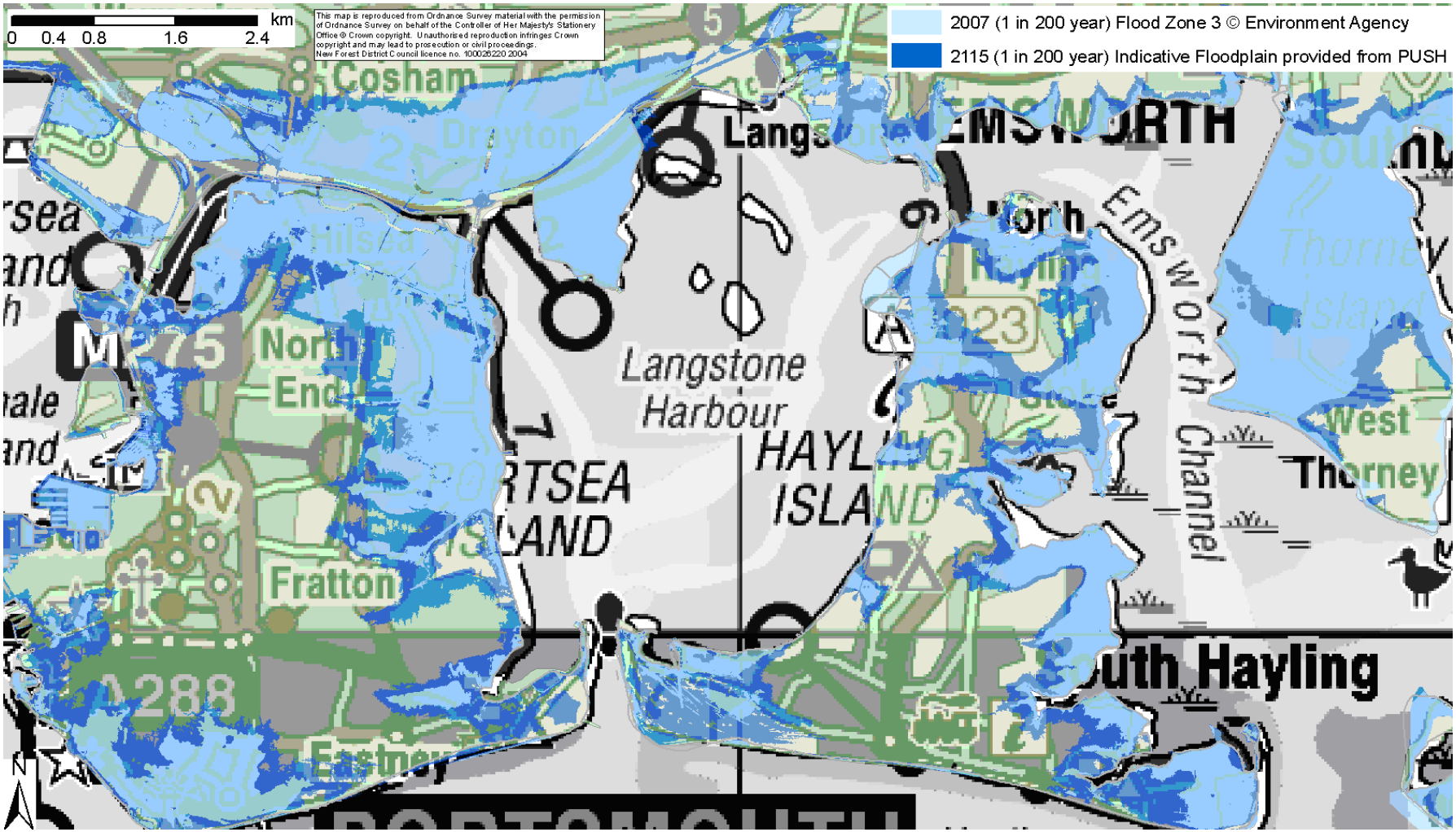


Figure 12: Increasing residual tidal flood risk over next 100 years – Langstone Harbour

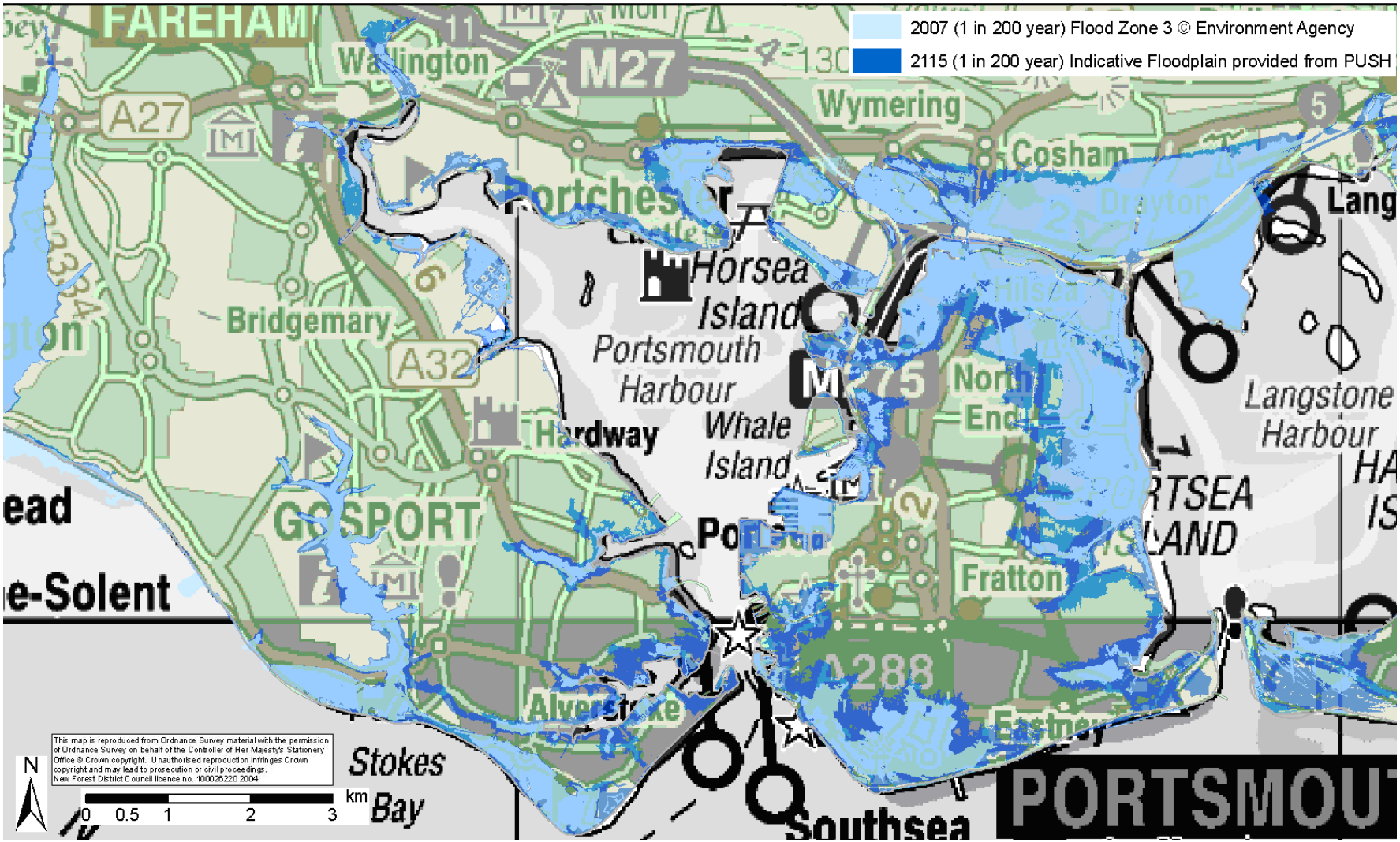


Figure 13: Increasing residual tidal flood risk over next 100 years – Portsmouth Harbour

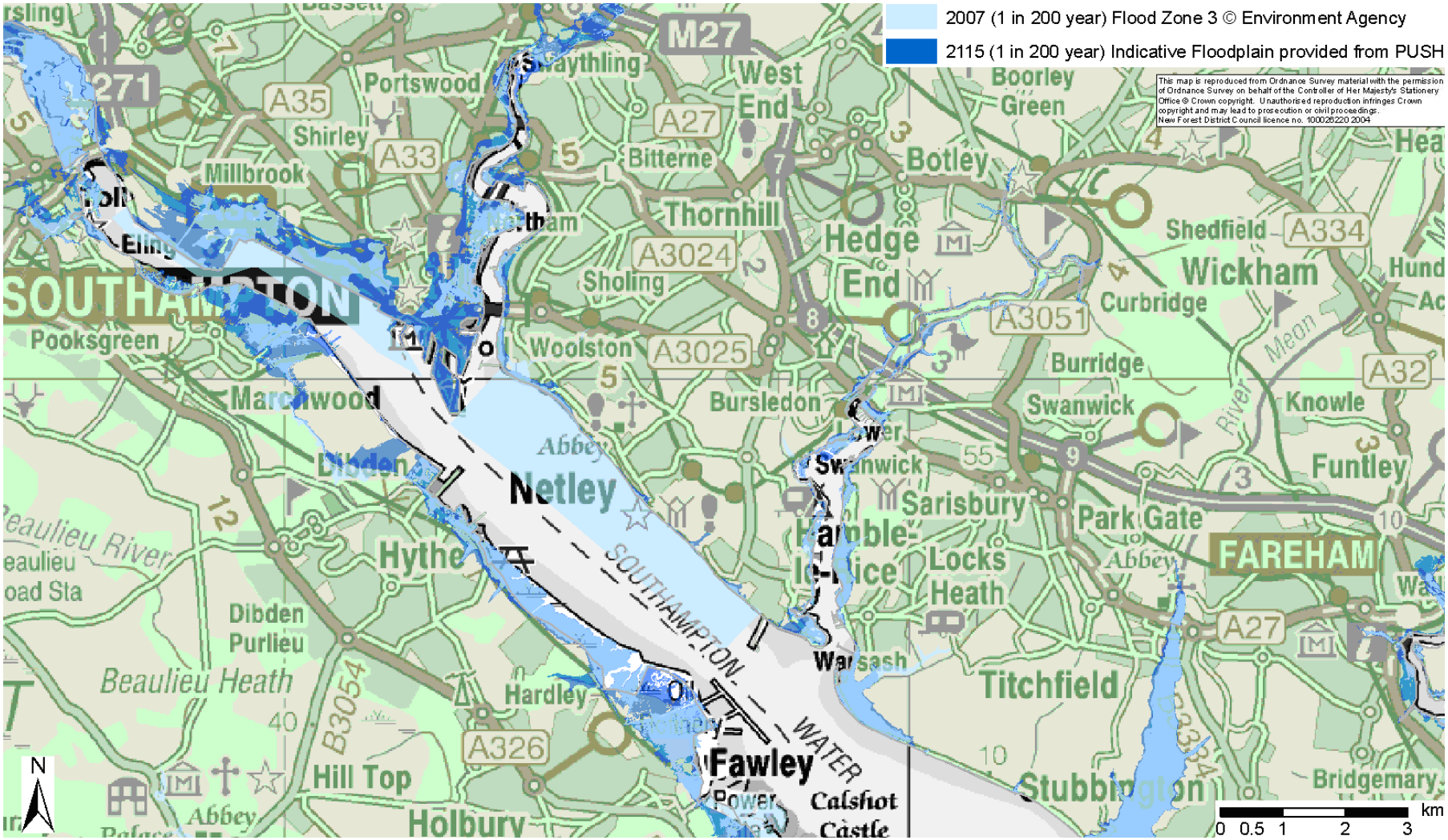


Figure 14: Increasing residual tidal flood risk over next 100 years –Southampton Water

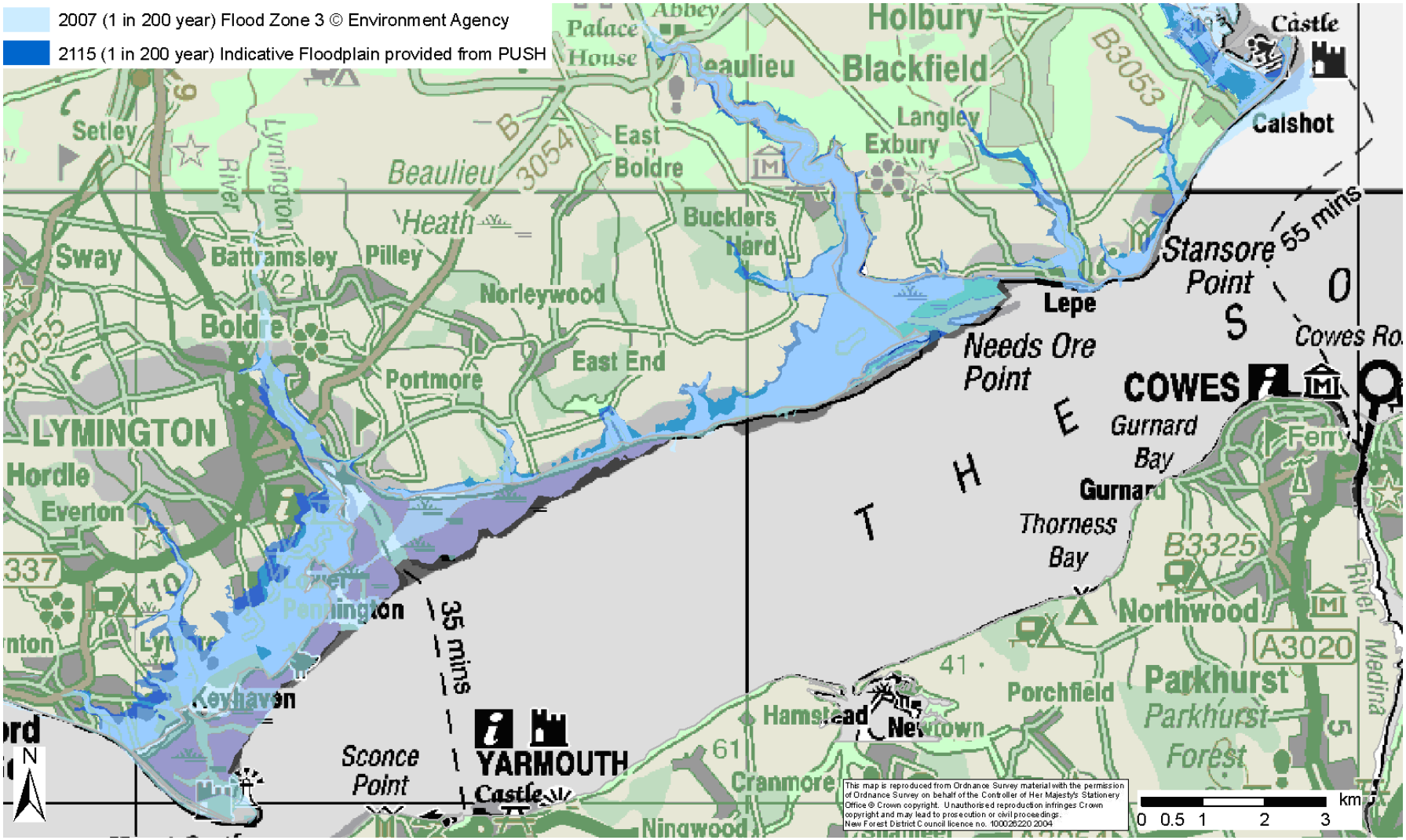


Figure 15: Increasing residual tidal flood risk over next 100 years – West Solent

Sediment movement

The North Solent is a highly complex region, comprising open coast and harbours that are partially sheltered by the Isle of Wight. Beaches, vegetated shingle, low lying cliffs, sand dunes, inter-tidal habitats, lagoons and coastal grazing marsh comprise the geomorphological and ecological systems located on the open coast and in the harbours, the majority of which are designated for their nature conservation value. There are great variations in coastal morphology and processes operating over short distances due to changes in coastal orientation, exposure/sheltering, elevation and geology.

Beaches, saltmarshes and low lying coastal floodplains provide a natural form of defence that react to storm waves; they do not prevent further erosion or flooding but do help to limit and control the rate and extent at which this takes place by dissipating wave energy across their surface, thereby reducing the impact on the defences or shoreline. They also form environmentally important habitats. Depending on the sediment supply to a naturally-functioning coastline, the alongshore movement of sediment eroded from cliffs or transported onshore from offshore, may provide beaches and estuaries with material locally and further afield. A natural shoreline sediment system is one that is allowed to behave dynamically without any alongshore and cross-shore disruption due to coastal erosion and flood risk management; it may therefore be eroding, stable or accreting.

Flood and coastal defences constructed to protect developments, agricultural land and contaminated and landfill sites, particularly within the harbours, estuaries and tidal rivers have resulted in only limited sections of the shoreline being free to erode, providing little material to the estuary system. The extent of current defence structures means that substantial lengths of the north Solent shoreline are generally in an ‘unnatural’ form and position. It is likely that for much of the SMP frontage, the removal or failure of defences would result in considerable tidal flooding and erosion of the developed and agriculturally productive hinterland. On the large lengths of shoreline backed by low lying land this would cause inundation of the flood plain, creating a new shoreline and habitat in the process along the landward edge of the low lying area.

The majority of sediment input into the North Solent system is either locked up in rivers behind tidal sluice gates, behind coastal protection and flood defence works or has been reclaimed over the years. Some sediment sinks of the North Solent have undergone aggregate dredging for construction works. In the past, spoil from maintenance dredging would be dumped at the Nab Tower. These activities have contributed to a depleted sediment budget on the whole. Therefore beach renourishment and recycling are central to management on a number of beaches throughout the region to offset losses. Beach Management Plan sites within the North Solent SMP area include Hurst Spit, Lee-on-the-Solent and Hayling Island.

Defence impacts

There is often a public perception that shoreline change can and should be halted though engineering works. There is often a demand to continue to hold the existing defence line to protect assets, but this is coupled with an expectation that the shoreline will continue to look exactly as it does now. However, the dynamic nature of our coasts and estuaries, mean that these expectations are unrealistic in many, if not all, instances. If shoreline defences are maintained in the same locations as at present, then the size and cost of maintaining or improving the defences will need to increase considerably.

Changes in climatic conditions may result in more severe and frequent storm-waves that are be able to penetrate closer into shore under rising sea levels. Defences would need to be wider to remain stable against larger and more frequent storm waves. Rising sea levels and erosion, scour and loss of beach material would require defences to have deeper foundations to cope with undermining and narrowing of inter-tidal areas, and be greater in height to limit the amount of water passing over the top of them in storms. This would particularly be evident on the open shore, but would also apply to the more sheltered harbours and tidal reaches, which would become more exposed and vulnerable under rising sea levels.

Maintaining current defence lines will also result in increased loss of important inter-tidal habitats through coastal squeeze as sea levels rise. With high rates of sea level rise and low rates of sediment supply, inter-tidal saltmarsh and mudflat habitats would continue to suffer erosion where defences constrain the landward movement of the shoreline. This situation would also be caused if inter-tidal habitats are in front of high or rising land. The loss of inter-tidal habitats that acted as natural flood defences, is likely to lead to increased levels of wave and tidal energy impinging on defences, which will make them more expensive to maintain. It must therefore, be recognised that, in the very long term, continuing to defend long stretches of shoreline with increasing exposure and vulnerability may become technically and economically unsustainable.

There is also an increasing risk associated with holding the line and continuing to occupy and develop the backing hinterland. Should inundation take place during an extreme event for example, where assets and lives are at risk, the need to relocate, or mitigate, for the increased risk to assets, should be considered in the future. It is still very important to recognise that maintaining current alignments may not be possible indefinitely, and that a change in management may be required. This may be due to the uncertainty of the timing of such flood events, or the manner by which adaptation measures can be actioned, or it is likely that such changes need to be considered outside of the SMP timescale (i.e. beyond 100 years).

Theoretically the maximum extent of any realignment is limited by the extent of the floodplain. However, in reality there are a number of other constraints which mean that the extent of any realignment is likely to be less than this. Within the present SMP, indicative realignment extents have been identified using the available information (see applicable Policy Unit maps). The example extents identified have been chosen after considering:

- The avoidance of built assets, infrastructure and internationally designated habitats where practicable
- The provision of more economic, shorter and sheltered defences, incorporating high land where possible
- The creation of inter-tidal habitat

The actual realignment extent along any frontage where Managed Realignment has been proposed will be the subject of further studies before any realignment scheme is undertaken, and will be subject to landowner's consent and continuing consultation prior to a realignment of defences or commencement of a change in defence management. These studies will be required to:

- Identify the best alignment of defences on technical, social, economic and environmental grounds
- Define the exact standard and position of any realigned defences along these frontages
- Assess hydrodynamic impacts of Managed Realignment
- Investigate future morphological evolution

There should be detailed consideration of future land use, development and infrastructure improvements in all areas of flood and erosion risk, particularly where the policy is not Hold the Line, to enable the shoreline, and the assets affected by it, to adapt in a sustainable, controlled and balanced way.

3.2.2 Economic Sustainability

The cost of continuing to protect shorelines to the extent and on the same alignment is a nation-wide issue. Many of the defences that exist today have been the result of reactive management without consideration of the long-term consequences, including financial commitment.

The cost of maintaining all existing defences will increase significantly compared to present expenditure levels. In simple terms this means that

either more money needs to be invested in coastal defence, or defence expenditure has to be prioritised. The cost to provide or rebuild defences that are both effective and stable currently averages between £2.7 million and £5.1 million per kilometre (for revetments, seawalls, beach recharge, etc.); the maintenance costs range from between £10,000/km for revetments, seawalls and groyne fields, to £20,000/km for beach management schemes.

Consequently those areas where the UK taxpayer is prepared to continue to fund a defence may well become even more selective. As a result, the threshold for when an area ceases to be considered nationally viable to continue to be sustainably defended could well shift. Whilst it is not known how attitudes might change, it is not unreasonable to assume that future policy-makers will be more inclined to resist investing considerable sums in protecting property in high risk areas, such as the coast, if there are substantially cheaper options, such as constructing new properties further inland. The implications of these national financial constraints are that protection is most likely to be focussed upon areas where there are large amounts of assets potentially at flooding or erosion risk, where the highest level of benefit would be achieved for the investment made i.e. more properties could be protected per pound of investment. The consequence is that rural communities and privately owned landholders will often be more affected.

It is extremely important that the long-term policies in the SMP recognise these future issues and reflect likely future constraints. Failure to do so would not ensure future protection; rather it would give a false impression of a future shoreline management scenario that could not be justified and would fail to be implemented once funding was sought.

Considering the high level, broad-scale level of the data available and taking into account the additional information from strategies and plans not specifically evaluated in the SMP, the proposed policies are believed to be cost effective in terms of economics. However, it should be noted that in many areas direct funding under coast protection or flood defence may not be available due to the need for prioritisation of this funding at a national level. It should be noted that, although the economic viability of the proposed policies has been assessed in this SMP, a proposed policy of Hold the Line or Managed Realignment does not guarantee funding for defence maintenance and/or capital works along these sections of the shoreline. Indeed, where defence works have been identified, but are unlikely to secure central government flood and coastal defence grant in aid, alternative sources of funding may be available to Local Authorities and County Councils.

In order to improve management of the overall flood and coastal erosion risk management programme, Defra have developed a suite of Outcome Measures, which will enable Government to set the balance of the programme

in a transparent and challengeable form. Further information on these Outcome Measures can be found at:
www.defra.gov.uk/environment/flooding/policy/strategy/outcomemeasures.htm

The Ministry of Defence (MOD) advised that they will continue to operate from their existing sites, which includes a number of coastal frontages, and they will manage their flood defence assets accordingly in order to maintain the required operational capabilities of their facilities. Therefore, funding through MOD budgets will need to be secured to undertake the necessary maintenance and improvements works that have been identified.

As stated previously, and elsewhere in the supporting documents, the majority of the North Solent's coastal defences are privately owned, maintained and funded, and these private landowners have a key role in the way the shoreline is and will be managed. The North Solent SMP recognises that there are private individuals and organisations that have rights or powers to protect their own property and to continue to maintain existing defences on a like-for-like basis without the need for planning permission.

There may be the requirement for new or additional defences on currently undefended frontages in response to sea level rise or flood risk increases; this could be applicable to undefended frontages within a frontage with a proposed Hold the Line or No Active Intervention policy. Planning permission would be required for new or additional defences and each application would be considered individually on its merits, looking at the relevant planning policies for the area. The SMP policies relating to currently undefended frontages would therefore not prevent an application from being approved, as the SMP is only one of the material considerations taking into account in reaching a decision by the planning authority along with any formal views from the statutory agencies involved in coastal issues.

During the development of the SMP it has been clearly stated that no public funding (in the form of Flood and Coastal Defence Grant In Aid) is available for the maintenance of privately owned defences, as is currently the case. There is therefore, a risk that if defences are not maintained by the landowner, flood risk to landholdings, properties and environmentally important sites could increase. Landowners and coastal communities will need to be engaged with subsequent flood and erosion risk management strategy studies to identify scale of risks and possible alternative sources of funding.

It must be recognised that the justification for a particular policy is not necessarily dependant on economic viability alone, as impacts on other benefits may be considered more important e.g. holding and maintaining existing defences to sustain a designated habitat. Such sites may not be considered economically viable under current Treasury guidance; this is particularly applicable to privately owned and maintained defences where the owner may consider the costs of maintenance of defences or maintaining

existing defences to a lower standard of protection affordable, but under national Treasury criteria would be deemed not economically viable.

The potential for collaborative partnership working e.g. between Local Authorities and private landowners, will be an essential component of delivering the agreed plan. This approach would be in line with the Government's strategy "Making Space for Water" that states that alternative and co-funding options for coastal management and defence projects should be considered.

3.2.3 Environmental Sustainability

Environmental sustainability is difficult to define as it depends upon social attitudes, which are constantly changing. Historically, communities at risk from coastal erosion relocated, recognising that they were unable to resist change. However, in more recent times, many coastal defences have been built without regard for the impacts upon the natural environment. Today, because we have better technology, we are less prepared to accept change, in the belief that we can resist nature. Inevitably, attitudes will continue to alter; analyses of possible 'futures' are already taking place (e.g. Foresight Future Flooding, 2004 and 'Making Space for Water'), considering the implications for many aspects of life, including approaches to flooding and erosion under different scenarios. It is not possible to predict how attitudes will change in the future; therefore the SMP is based upon existing criteria and constraints, whilst recognising that these may alter over time to accommodate changing social attitudes.

Natural environment

The North Solent SMP shoreline contains a variety of landforms and habitats. The special quality of the natural habitats and geological/geomorphological features is recognised in a number of international, European, national and local designations, protected under statutory international and national legislation, as well as regional and local planning policies.

There is a legal requirement to consider the implications of any ‘plan or ‘project’ that may impact on a Special Protection Area (SPA) or Special Area of Conservation (SAC), through the European Union Habitats Directive (Council Directive 92/43/EEC) and Birds Directive (Council Directive 79/409/EEC).

The EU Water Framework Directive also requires that water bodies such as estuaries reach at least ‘good status’ by 2015. A key requirement for the SMP is therefore to promote the maintenance or enhancement of biodiversity, through identifying biodiversity opportunities.

Coastal management can have significant impact on habitats and landforms, both directly and indirectly. In places, coastal defences may be detrimental to nature conservation interests, e.g. coastal squeeze of internationally designated inter-tidal habitats in front of defences. However, in other locations the presence of defences sustains, albeit temporally, the present interests of a site e.g. coastal grazing marshes at Farlington Marshes, Keyhaven and Pennington Marshes, and high tide roost sites within Portsmouth, Langstone and Chichester Harbours and Southampton Water.

However, one must recognise that the preservation of freshwater habitat, coastal grazing marshes and saline lagoons may be at the ‘expense’ of alternative habitats i.e. saltmarsh, which are considered to be more dynamic and able to respond to changes in coastal conditions and processes. Coastal habitats may also form the coastal defence e.g. Hurst Spit, Calshot Spit, Hook Spit, Black Point, East Head. Therefore coastal management decisions need to be made through consideration of both nature conservation and coastal flood and erosion risk management.

Although the conservation of ecological features in a changing environment remains key in terms of environmental sustainability, future management of the coast needs to allow habitats and features to respond and adjust to change, such as accelerated sea level rise. It is recognised that coastal habitats cannot always be protected *in situ* because a large element of their ecological interest derives from their dynamic nature and this is important to ensure the continued functionality of any habitat. This poses a particular challenge for nature conservation and shifts the emphasis from ‘preservation’ to ‘conservation’.

Natural England (formerly English Nature) are actively seeking to ensure that coastal erosion and flood risk management proposals are designed to ensure that all designated sites are conserved and, wherever possible, enhancement opportunities that benefit ecology and geology are implemented, whilst also allowing the coast to remain naturally dynamic. Under Section 28G of the Countryside and Rights of Way Act 2000, Natural England is provided with the responsibility and power to safeguard England's finest and most vulnerable wildlife and geological features. Therefore, accommodating the objectives of environmental bodies, such as Natural England, requires flexibility in the assessment of nature conservation issues, possibly looking beyond the designation boundaries to consider wider scale, or longer-term, benefits.

There are other potential opportunities for localised managed realignment or environmental enhancements where biodiversity opportunities could be achieved, and also serves to highlight where future development in the flood plain would be inappropriate. Again, the majority of these sites are on privately owned land.

Human (Socio-Economic) Environment

The human environment covers such aspects as land use (both current and future), heritage and landscape (which may be both natural and man-made).

Land-use

Historically, development of the coast has taken place unconstrained

Planning Policy Guidance 20 (PPG20: Coastal Planning) identified that approximately 30% of the coastline of England and Wales is developed, with much of this development taking place before the introduction of the Town and Country Planning Act 1947. In the North Solent, the proportion of the coastal zone that is developed is considerably higher, with pressures for increased development in the future. Growth of built development, both commercial and residential, within the coastal zone over the centuries has increasingly required engineering works to defend properties and assets against the risk of erosion and flooding. However, continued construction of hard-engineered coastal and flood defences to protect development may not be economically sustainable in the long-term. Local Development Frameworks now identify the need for 'sustainable development' (section 39 of the recently reformed Planning and Compulsory Purchase Act, 2004), which recognises that opportunities for development on the coast are limited due to risk of flooding, erosion, land instability and conservation policies. PPG20 states that in the coastal zone, development plan policies should not normally permit development that does not require a coastal location.

The South East Plan (2009) builds upon this, adopting a catchment wide approach to water management and acknowledging the links between

biodiversity, water quality and flood and erosion risk management. Policies NRM4 (sustainable flood risk management) and NRM8 (coastal management), in particular, require local planning authorities to take account of Shoreline Management Plans, with the former advocating an integrated approach to coastal planning and management.

Planning Policy Statement 25 (PPS25: Development and Flood Risk) sets out the Government's policies for planning authorities to ensure that flood risk is properly taken into account at all stages in the planning process and to prevent and direct development away from areas at high risk of flooding. Where new development is, exceptionally, necessary in such areas, policy aims to make it safe, without increasing flood risk elsewhere, and, where possible, reducing flood risk overall. The new planning policy supplement Development and Coastal Change (March 2010) aims to strike the right balance between economic prosperity and reducing the consequences of coastal change on communities and sets out a planning framework for the continuing economic and social viability of coastal communities and to deliver appropriate sustainable development in the right places, taking full account of coastal change. PPS25 and its Supplement are part of the holistic approach to managing risk set out in the Government's strategy for flood and coastal erosion management, Making Space for Water (Defra 2005) and Defra's *Adapting to Coastal Change – Developing A Policy Framework*.

The Government is committed to managing the impact of coastal erosion and flooding in a sustainable manner, and this includes ensuring that our spatial planning policies shape sustainable communities to adapt to the risks presented by climate change. Coastal change, as exacerbated by climate change, has implications for development on the coast and is, therefore, a major consideration for spatial planning in shaping places that are resilient to climate change. Positive planning has an important role in helping communities to manage risk and adapt to an ever changing coastline.

Within the Solent region port activity and marine industries are important to the national, regional and local economy; the marine industry ranges from large-scale operations in Southampton and Portsmouth to small boatyards on the River Hamble and in Chichester Harbour. The Solent Waterfront Strategy (SEEDA, 2008) has revealed that the Solent marine sector contributes significant economic benefits to the local area (£5.5 billion), providing 25,000 direct jobs and makes up around 25% of the Solent economy. The Port of Southampton is owned by Associated British Ports (ABP) and is the UK's second largest container port and cruise passenger port (with over 1 million passengers in 2009). The Port handled some 40 million tonnes of cargo during 2009, over 21% of all the UK's non-EU seaborne trade; in addition the Port handled over 500,000 units of ro-ro traffic, some 14% of UK total. The Ports has been identified as a key international gateway and critical component of the nation's transport system (ABP, 2009). Southampton City Council's Core Strategy recognises that the Port is a vital part of the city's

economy, the regional economy and of national importance. The medium to long-term strategic plans for the Port are outlined in the Port of Southampton Master Plan 2009 which proposes to double the container capacity of the port by 2020. Other proposals that need to be considered are the reconstruction of container berths and a channel deepening of Southampton Water and the eastern Solent approach. Portsmouth Commercial Port is owned by Portsmouth City council and is the second largest passenger terminal in Britain. Portsmouth is also the home to two-thirds of the Royal Navy's surface ships. Southampton, Portsmouth and Lymington provide essential ferry services to the Isle of Wight. In addition to commercial ports, there are industrial and MOD sites requiring waterside locations for operational reasons, access or transportation. These include:

- Exxon Mobil Oil Refinery in Fawley;
- Oil Terminal in the River Hamble;
- power stations at Fawley and Marchwood;
- incinerators, waste and renewal energy plants;
- MOD facilities and operational assets at Portsmouth and Marchwood;
- marinas, sailing clubs, boat yards, and moorings in Chichester, Langstone and Portsmouth, Lymington and Beaulieu Rivers in the west Solent, and in Rivers Itchen and Hamble);
- sewage treatment infrastructure, such as Budds Farm, Apuldram
- recreational sites and amenities (e.g. Calshot Activity Centre, sailing and wind surfing schools, etc.).

Regionally important transport links at risk from coastal flooding and erosion protected by current defences include mainline railway links from Lymington, Southampton and Portsmouth, main roads including M27, M275, A35, A33, A27 in addition to smaller limited connections to rural areas around Chichester Harbour and the west Solent. Important infrastructure services located close to the coast include Eastney pumping station, Budd farm sewage works at Langstone, Southern water pumping station at Portchester and sewage treatment works at Apuldram, Bosham and Thorney.

The Solent is one of the busiest water recreation resources in the UK, hence water based recreation and the shoreline are important components to the recreational and amenity resource; the area attracts a diverse range of recreational pursuits in addition to water based activities, including bird watching, wildfowling, walking and cycling.

The North Solent shorelines are an important area for tourism and recreation use. Recreational facilities within the North Solent area include extensive and popular coastal and riverside paths used for cycling and walking (e.g. Solent Way), water based activities including sailing, windsurfing and angling (e.g. Calshot, West Witterings beach, Chichester Harbour, Hamble River) and

areas of open amenity space and parks (Lepe Country Park, New Forest National Park).

Tourism plays an important role in the region and is increasingly valuable for the local economy in terms of visitor spending and providing employment opportunities. The North Solent area has a diverse range of activities and attractions and includes the nationally important New Forest National Park and Chichester Harbour. An estimated 25,000 people use Chichester harbour for water-related activities each year and 640,000 visitors used the three car parks in Itchenor, Bosham and East Head in 2001 (CHC, 2009). The New Forest National Park receives more than 13 million visitor days each year (NFNP, 2008).

Assets landward of current defences, such as access routes to the shoreline and public rights of way may be protected through maintaining existing defences; it must be recognised that modifications, improvements, realignment or abandonment of existing defences will require adaptive measures to be investigated and perhaps incorporated with defence works if appropriate. The continuation of these industrial, commercial, tourist and recreational activities is essential to sustain the economy of the region as a whole. Further information is provided in the Theme Review Appendix D5.1.

The majority of high grade land (grades 1-2) is concentrated around Chichester Harbour, along the west Solent and upper reaches of the Hamble River. Land classified as grades 1–3a is often protected for agricultural uses. Areas of productive agricultural land around Chichester Harbour and on Hayling Island lie within the predicted coastal flood risk area and are protected by privately owned and maintained defences.

There are several former and current landfill sites at risk from coastal flooding and erosion that are currently protected by coastal defences. Despite the continued maintenance of existing defences, these areas of contaminated land could potentially cause pollution to coastal waters. Long-term management of such sites will need to be determined following detailed investigations that address the socio-economic, technical feasibility and environmental implications of management options. The key areas containing former and current landfills include Pennington, Dibden Bay, Southampton docks, Esso Refinery land, Stokes Bay, Horsea Island, several sites on Portsea Island and Brockhampton Quay.

Heritage

Heritage features are valuable for a number of reasons (English Heritage, 2006) as they:

- are evidence of past human activity
- provide a sense of place (or roots) and community identity

- contribute to the landscape aesthetics and quality
- may represent an economic asset due to their tourism interest
- are unique and if destroyed they cannot be recreated

Whilst they are vulnerable to any coastal erosion, the very process of erosion is also uncovering sites of historical interest. Only a few sites are protected by statutory law, but many more are recognised as being of high importance.

Government advice in PPS5 Planning for the Historical Environment promotes the preservation of important heritage sites, wherever practicable. However, due to the dynamic nature of our coastlines, this is not always possible or sustainable. Once they have been damaged or destroyed they cannot be recovered or re-created. However, there are a great many other features which shoreline management policy could potentially affect, such as the preserved artefacts contained in buried landscapes. Therefore each site must be considered individually and balanced against other objectives at that location; relocation of heritage features is unlikely, recording and documenting of heritage features would be a more realistic management approach.

The historic environment of the North Solent coastline includes evidence of past environments, archaeological sites, historic buildings and the historic aspects of the wider landscape. The long maritime history of this part of the South East coastline has resulted in a large number of important heritage sites, and areas with heritage potential, being present. Major heritage features include historic fortifications, harbours and dockyards, military installations, wreck sites, coastal settlements and industry. Such sites include Beaulieu (conservation areas and listed buildings); Southampton City (including mid Saxon town of Hamwic); Hamble River (historic wreck site Grace Dieu); Portsmouth City; Hayling Island (Tourner Bury Hill fort & Sinah Common); and historic villages in Chichester Harbour (Bosham, Fishbourne, Emsworth, Dell Quay, West Itchenor). Details of heritage features covered by statutory and local planning designations and non-designated assets are listed and mapped in Theme Review under Historic Environment Appendix D4.

Landscape

At the SMP level it is difficult to predict the impact that implementing the SMP policies will have on the existing landscape and visual amenity. Further details on how the policies will be implemented will be addressed at the strategy and scheme level with additional assessments.

Parts of the SMP shoreline are designated and protected for their landscape quality; these include the New Forest National Park, the Chichester Harbour Area of Outstanding Natural Beauty, Special Landscape Areas and Character Areas. Further details are provided in Theme Review under Landscape Appendix D3. However, in general, landscape is difficult to value objectively as it is a mixture of the natural environment and social and cultural history.

The general trend in England over the last century has been a change in landscape character resulting in a decline in diversity, distinctiveness and ecological richness (NE, 2009).

Coastal defences in some parts of the North Solent will potentially influence the landscape character as well as urban development on floodplains. Degraded landscapes may also be enhanced by restoring the character of the land with restoration, retreat or realignment schemes.

4 THE PROPOSED PLAN

4.1 Plan for Balanced Sustainability

The SMP is built upon seeking to achieve balanced sustainability, i.e. it considers people, nature, historic and economic realities. The preferred policies proposed for the present-day provide a high degree of compliance with objectives to protect existing communities against flooding and erosion. The proposed long-term policies promote greater sustainability for parts of the shoreline where natural process and evolution provide a practical means of managing the shoreline. However, the protection of the significant assets present along sections of the shoreline remains a strong focus for the long-term sustainability of the economy and communities of this area.

The rationale behind the preferred plan is explained in the following sections of text, which consider the SMP area as a whole. Details of the preferred policies for individual locations to achieve this Plan are provided by the individual Policy Unit statements in Chapter 5.

4.2 Predicted Implications of the Preferred Plan

Direct comparison is made below between the preferred plan/policies and a scenario of No Active Intervention. This scenario considers that there is no expenditure on maintaining or improving defences and that defences will therefore fail at a time dependent upon their engineering design or residual life. This approach defines the benefits of implementing the proposed plan, as it highlights what would be lost under No Active Intervention against what would be gained if the preferred policy was implemented. Where No Active Intervention is the preferred policy then obviously this methodology is not required.

4.2.1 Implications for property, the economy and land use

The implications and consequences of the potential tidal flood and coastal erosion risk to the properties, assets and landholdings, etc. in the North Solent area, were determined under the two baseline scenarios of ‘No Active Intervention’ and ‘With Present Management’ policy options.

‘No Active Intervention’ (NAI) policy scenario assumes there is no expenditure on maintaining or improving existing coastal and flood defences throughout the North Solent SMP area, and that therefore defences will fail at a time dependent upon their residual life and the condition of the fronting beaches and inter-tidal areas. Erosion rates have been applied taking into account the residual life of the existing defences.

‘With Present Management’ (WPM) policy scenario considers that all existing defence practices are continued, and that defences are maintained to provide

a similar level of protection to that provided at present. The residual risk of tidal flooding remains, even when defences are maintained (i.e. a storm event could generate conditions that exceed defence design; or defences may fail resulting in flooding)

For urban and industrial areas of the SMP shoreline, the recommended plan in the long-term is to maintain and improve existing defences where it is economically viable to do so. This is to minimise risk to property and assets along the extensively developed sections of the estuaries. However, for some significant sections of the shoreline, a change in management policy has been identified in the longer term where a long term Hold the Line policy will not be economically viable, technically sustainable, or environmentally acceptable. In these locations policies of No Active Intervention or Managed Realignment need to be considered. The SMP has identified areas where a more naturally functioning coastline would be to the benefit of the natural environment and to estuarine processes. However, there would be potential changes to land and environmental assets should these policies be implemented.

Within the Solent region, erosion risk is much less of a threat than the risk from coastal flooding. In terms of erosion risk for the SMP region, no properties are expected to be lost in the first epoch, 1 residential property in the second epoch (5B03), and 15 residential and 5 commercial properties in the third epoch (5C16, 5C04 and 5B03). This compares to the No Active Intervention baseline where erosion losses throughout the SMP frontage could total 535 residential, 26 commercial properties, with 2 residential properties in first epoch; 193 residential and 4 commercial in epoch 2; and 340 residential and 22 commercial in third epoch). Consequently the plan provides for protection from erosion to over 500 properties over the next 100 years.

There are, however, significant numbers of assets that could potentially be at risk from tidal inundation under the No Active Intervention baseline. If there were no flood defences (i.e. if they had failed due to no ongoing maintenance or investment), assessments indicate that in the first epoch 22,127 residential and 2,767 commercial properties would be at risk – a total of 24,894 properties; and in the long-term these figures would increase to 46,628 residential and 4,777 commercial properties would be at risk – a total of 51,405 properties. (Please note that only properties included in the National Property Dataset have been included, i.e. properties with an address point. Therefore, properties with no address point, such as out houses, farm buildings, etc. have not been included in these totals. Therefore these totals are indicative and not definitive and are likely to underestimate the number and, therefore, value of properties potentially at risk. Coastal Defence Strategies and other studies arising from the SMP (and identified in the Action Plan) will need to consider approaches for identifying and including such properties and buildings, to determine more detailed economic appraisals of management options). Table 3 details the number and type of properties per Council, potentially within the tidal floodplain and affected by coastal flooding, assuming no defences, for 2007 and 2115.

Local Authority	Number of properties in tidal floodplain from a 1 in 200 year event (assuming no defences)			
	Commercial		Residential	
	2007	2115	2007	2115
Chichester District Council	94	189	2,113	4,583
Havant Borough Council	136	166	1,618	3,069
Portsmouth City Council	1,340	2,010	14,416	26,479
Gosport Borough Council	92	308	860	3,394
Fareham Borough Council	106	258	526	1,636
Winchester City Council	0	1	0	3
Eastleigh Borough Council	82	73	21	67
Southampton City Council	644	1,345	1,729	5,236
Test Valley Borough Council	0	0	0	0
New Forest District Council	273	427	844	2,161
Total	**2,767**	**4,777**	**22,127**	**46,628**

Table 3: Total number and type of properties per Council, potentially within tidal floodplain, assuming No Defences, for 2007 and 2115.

Table 4 presents the total number of properties, per Council, potentially at risk from erosion within the 0-20, 20-50 and 50-100 year epoch under a No Active Intervention (NAI) (i.e. no defences) and With Present Management (WPM) scenario.

Local Authority	Number of properties in erosion risk zones per epoch (not cumulative)					
	NAI	WPM	NAI	WMP	NAI	WMP
	Epoch 1 (0-20 years)		Epoch 2 (20-50 years)		Epoch 3 (50-100 years)	
Chichester District Council	74	0	342	1	762	0
Havant Borough Council	26	4	279	3	473	0
Portsmouth City Council	4	0	97	0	347	0
Gosport Borough Council	15	0	66	0	136	0
Fareham Borough Council	3	1	54	38	38	5
Winchester City Council	0	0	0	0	0	0
Eastleigh Borough Council	5	1	2	1	18	1
Southampton City Council	0	0	6	0	93	4
Test Valley Borough Council	0	0	0	0	0	0
New Forest District Council	0	0	2	0	28	8
Total	**127**	**6**	**848**	**43**	**1895**	**18**

Table 4: Total number of properties at risk from erosion, per epoch, for Local Authorities

Under the recommended policies the great majority of these assets will be protected, through maintenance or improvements to existing defences or, where managed realignment is proposed, through construction of setback or secondary defences. Throughout the Solent region there is a significantly high proportion of privately owned and maintained flood defences that provide protection to extensive areas of agricultural farmland and environmentally important sites. In the long-term, these defences may provide flood protection

to a much wider community, properties, infrastructure assets and facilities, as the risk of coastal flooding increases with rising sea levels. However, continuing to maintain existing defences may become less economically viable or affordable to private owners, and technically less feasible or practical.

Under the proposed No Active Intervention policy, there may be the requirement in the long-term for property-level flood defences, rather than shoreline defences, particularly on currently undefended frontages.

Implementation of HTL policies will reduce the risk of coastal flooding to the main urban centres of Southampton, Portsmouth, Fareham and Gosport, and other residential centres and supporting infrastructure. Continued maintenance and investment in coastal defences will provide benefits and ongoing flood risk management to important commercial and industrial assets; coastal transport and communication links along the coastline including the mainline railway and main roads (M27,M275, A35, A33 and A27); essential service provision assets, such as sewage treatment infrastructure, cross-Solent power and transmission cables/pipelines.

Where the Shoreline Management Plan recommends a final policy of Managed Realignment (MR) of existing defences, the effect on parties currently protected by the defences will be part of the ‘management’ of that change. The implementation of MR policies at some locations would require setback defences to continue to provide coastal flood risk protection to material assets. The type, location and alignment of setback defences will be determined through subsequent Coastal Flood and Erosion Risk Management Strategies (formerly Coastal Defence Strategies) or other detailed studies, but it is likely that sites, which have a final MR policy, are likely to require setback defences, such as at Medmerry (5A01); East Chidham (5A07); West Chidham (5A08); and Northney (5AHI02).

Proposed NAI policies in the long-term are likely to result in an increased risk from coastal flooding to a small number of assets, as it is considered unsustainable, technically unfeasible and uneconomic to continue to protect in the long term; such sites include water-side and boat yard facilities in the River Hamble, Calshot Activity Centre and local access roads. Private landowners have certain permissive development rights to protect their property and to continue to maintain existing defences, even within a frontage with a preferred NAI policy, provided it does not constitute ‘development’ of any kind without the need for planning permission, but they should always check with their Local Planning Authority before carrying out any works.

Implementation of HTL policies will have a significant beneficial impact on contaminated land of current and former landfill sites reducing the pollution risk to coastal waters from coastal flooding and erosion. The main areas of contaminated land protected through implementation of HTL policies include; Hayling Island (5AHI01, 5AHI03, 5AHI04 & 5AHI08), Portsea Island (5API01 & 5API02), Langstone and Portsmouth Harbours (5A18, 5A21, 5A22, 5A24 & 5A25), Gosport (5B01 & 5B02), Southampton Water (5C07, 5C10, 5C11,

5C12, 5C14) and West Solent (5C22). However, in the long-term there will be an increased risk of pollution to coastal waters from former landfill sites at Riverside Park (5C11) and Redbridge Lane (5C13) and potentially other sites, under proposed NAI policies. Despite the continued maintenance of existing defences, contaminated land or former landfill sites could potentially cause pollution to coastal waters. Long-term management of such sites will need to be determined following detailed investigations that address the socio-economic, technical feasibility and environmental implications of management options. Sources of public funding for associated remedial works relating to contaminated land and former landfill sites will also need to be investigated and determined, as they are unlikely to be met through the Flood and Coastal Defence Grant In Aid.

Implementation of HTL policies will provide substantial economic benefits to residential, commercial, industrial and agricultural areas. For example, the Port of Southampton handled some 40 million tonnes of cargo during 2009, over 21% of all the UK's non-EU seaborne trade; in addition the Port handled over 500,000 units of ro-ro traffic, some 14% of UK total. The Ports has been identified as a key international gateway and critical component of the nation's transport system (ABP, 2009). Southampton City Council's Core Strategy recognises that the Port is a vital part of the city's economy, the regional economy and of national importance. Such economic drivers have been fully considered during the appraisal and determination of final SMP policies

Implementation of HTL policies will provide protection to significant areas of high grade agricultural land (grades 1-2) at risk from coastal flooding around Chichester and Langstone Harbours (e.g. 5A05, 5A06, 5A07, 5A09, 5A11 & 5A18) on Hayling Island (e.g. 5AHI01, 5AHI03, 5AHI07 & 5AHI08) and in the West Solent (e.g. 5C18, 5C19 & 5C22). In general, implementation of MR policies will result in the loss of high-grade agricultural land; however, the amount of loss will depend on the extent of the MR and will be further assessed at the strategy and scheme level through more detailed studies. Proposed NAI policies will result in an increased risk of coastal flooding to agricultural land in the long-term. These frontages include between Meon Road, Titchfield Haven to Hook Park (5B03); River Hamble (5C04); and between North Shore Road to Newtown to West Lane (5AHI07).

The South East is a highly populated area of the UK with a population of 8.3 million in 2007. This equates to 14% of the entire UK population (ONS, 2009). The most densely populated centres in the North Solent study area are the coastal urban areas of Southampton, Portsmouth and Fareham with population densities of 2,500 or more people per sq km (ONS, 2007). Continued increases in population will lead to increased pressure for new residential development along the North Solent coastline. The South East Plan has identified the need for 32,500 additional dwellings annually between 2006 and 2026 (SEERA, 2009).

4.2.2 Implications for nature conservation

The North Solent shoreline supports an important number of wader and wildfowl species and ecological systems such as mudflat, saltmarsh, saline lagoons, coastal grazing marsh, freshwater, vegetated shingle and sand dune habitat which are protected by multiple international, European and national nature conservation designations. The vast majority of the north Solent defences are fronted and /or backed by European designated sites; therefore, implementation of the SMP policies will have both beneficial and adverse effects on coastal habitats covered by international (Ramsar), European (SPA and SAC), national (SSSI and NNR) and local (LNR, SINC/SNCI) designated sites within the Solent.

Due to the variety of land use in the Solent and level and extent of nature conservation designations within the Solent, implementation of HTL policies will result in a change in land use at a local level, with designated habitats landward of defences receiving protection, whilst continued maintenance of defences will exacerbate the loss of others. For example, maintenance of defences will provide protection from coastal flooding to designated habitats landward of defences including coastal grazing marsh, freshwater grazing marsh, saline lagoons and reedbeds. However, this will generally result in an adverse effect to mudflat, saltmarsh and vegetated shingle habitats backed by a seawall through the process of coastal squeeze as sea levels rise. Conversely, the realignment of defences or cessation of maintenance and subsequent failure of defences will benefit some habitats, such as inter-tidal saltmarsh, but cause a decline or reduction in habitats, such as coastal grazing marsh. Any loss of European nature conservation designated habitats or habitats providing a supporting function to these designated areas, will require replacement habitat, either compensation or mitigation, to be re-created in sustainable locations elsewhere

The intention of the NAI policies for currently undefended frontages is to allow the shoreline to continue to function, evolve and adapt naturally to environmental coastal change, thereby having a beneficial effect on mudflat and saltmarsh habitats and downdrift beaches, spits and cliff toes. These frontages include; Warsash North to Swanwick Shore Road (5C02), Bursledon Bridge to Curbridge to Botley to Satchell Marshes (5C04), Ensign Industrial Park to Cliff House (5C08), Lower Test Valley (5C13), Inchmery to Salternshill (5C17) and Sowley to Elmer’s Court (5C20). However, this policy intention does not preclude private owners from continuing to maintain their flood defences, due to their permissive development rights, as previously stated.

Areas identified for MR will create new intertidal mudflat and saltmarsh habitats as they naturally migrate inland; these sites include: Medmerry (5A01); Horse Pond (5A05); East Chidham (5A07); West Chidham (5A08); Hook Lake (5C01); Lymington Reedbeds (5C20) through regulated tidal exchange; and Northney (5AHI02).

However, MR policies may also result in an adverse effect on saline lagoon, coastal grazing marsh and freshwater pastures, reedbeds and saline lagoons through saline intrusion. The majority of these habitats are already protected by international, national and local designations and any loss of habitat, features or function (e.g. high tide roost or feeding sites) they provide will require replacement habitat to be re-created elsewhere ('compensation habitats').

Implementation of the preferred MR policies would result in the requirement for creation of compensation coastal grazing marsh habitats, in advance of the existing defences being managed differently or realigned, at the following sites: Horse Pond (5A05); Hook Lake (5C01); Lymington Reedbeds (5C20); Northney (5AHI02).

(Other sites were proposed but the final policies changed to reflect the landowner's intentions for the future management of their defences; sites included: Ella Nore (5A05); Fishbourne (5A06); Bosham (5A07); Nutbourne (5A10); Conigar and Warblington (5A17); Farlington Marshes (5A20); Beaulieu River (5C18); Verner and Tournerbury (5AHI03). Therefore, the continued intention to maintain these defences, albeit through non-public funding sources, results in the continued protection of the coastal grazing marsh habitats and these component elements of the Solent-wide network of high tide roost and feeding sites. Through the development of the SMP, the EA and Natural England have agreed that the loss of inter-tidal habitats resulting from continued maintenance of these defences, through coastal squeeze, will be delivered through the Flood and Coastal Defence Grant In Aid funded Regional Habitat Creation Programme.

The SMP development and consultation process have raised awareness of the residual risk of failure of privately owned and maintained defences and the significant consequences this would have on European designated sites. The Appropriate Assessment of the final referred policies has informed the Regional Habitat Creation Programme of the scale of the risk and quantified the potential habitat losses that may arise if privately maintained defences either failed or were not maintained.

Predicting the effects of the preferred SMP policies on sand dune and vegetated shingle habitats is difficult at the SMP level and hence these impacts will need to be further assessed at the strategy and scheme level where more detailed information will need to be collected. In general, the implementation of a HTL policy is likely to result in a significant adverse impact on vegetated shingle where the habitat is "squeezed" against a sea wall with sea level rise and storm attack or undergoes barrier rollover processes i.e. Bracklesham (5A02). Conversely however, where nourishment or natural accretion is in line with sea level rise there may be a beneficial impact i.e. Hurst Spit (5F01), Browndown (5B02), Hayling Island (5AHI05). At

East Head, (5A04) an adaptive management approach will allow the currently unsustainable shoreline position to adjust to a more natural profile, which may allow the potential for enhancement and creation of vegetated shingle and sand dune habitats.

The range of habitats within the Solent support large populations of national and international waterfowl and waders. Intertidal habitats provide vital feeding areas at low tide while upper saltmarsh and a wide range of terrestrial habitats inland of the coast (including coastal grazing marsh, wet grasslands and arable fields) provide important areas for roost and feeding sites at high tides. Several of these important sites are not included within protected sites such as SSSI, SPA or Ramsar sites. The large sites located at Farlington Marshes (5A20), Saltgrass Lane (5C22) and on Thorney Island (5C12 & 5C15) have been identified as important large and complex sites within the Solent network whose function as a roost and feeding area for birds could not be compensation in the short-term (Cox 2009).

The impact of the final SMP on the integrity of the European designated sites and non-designated sites that support the function and integrity of the designated sites is addressed in the Appropriate Assessment (Appendix J in the final SMP report). Whether a policy has a beneficial effect or adverse effect on a designated European site depends on whether the conservation objectives, for which the site has been designated, continue to be met.

4.2.3 Implications for landscape

The West Solent shoreline is designated within the New Forest National Park, and the eastern side of Hayling Island along with the shoreline between Langstone and West Wittering are within the Chichester Harbour Area of Outstanding Natural Beauty (AONB); many other sections of this coastline are recognised and protected for their landscape quality through various Character Areas and the Special Landscape Areas. There are also many areas designated as being of ‘local’ landscape value.

The recommended long-term plan for the SMP is to sustain the current urban areas through proactive management of the existing defences, recognising that defences will be need to be upgraded in the long term. However, opportunities for forming a less managed/free functioning dynamic shoreline in other areas have been taken to create a more natural estuary landscape, reducing the extent of manmade structures along the frontages. This is deemed to provide a more sustainable and aesthetically appealing landscape than a policy of defending the existing shoreline, which would involve construction of new, more substantial defences.

In general, implementation of HTL policies in the short-term is likely to not have an adverse impact on the existing landscape both designated (New

Forest National Park and Chichester Harbour AONB) and non-designated, as maintenance of the majority of the current defences under HTL policy will not result in any 'change' to the existing landscape. (This is also the case for privately maintained defences under an NAI policy, where the landowner has indicated their intent to continue to maintain their defences). However, in the long-term maintaining and upgrading defences to maintain the level of protection with rising sea levels may potentially have an adverse impact on the surrounding landscape and visual amenity.

NAI policies for currently undefended frontages will maintain the existing natural landscape and coastal views. These frontages include the shoreline between Titchfield Haven and Hook Park (5B03), along the River Hamble (5C02, 5C04 and 5C05), Beaulieu River (5C17) and between Sowley and Elmer's Court (5C20). Frontages in the West Solent will allow natural change and have a beneficial impact on the existing designated New Forest National Park.

4.2.4 Implications for the historic environment

The North Solent SMP region enjoys an abundance of archaeological and heritage sites resulting from their rich and varied cultural heritage, maritime trading links and historic fortifications and defences; many of which are located on or adjacent to the shoreline. The impacts of the proposed SMP on earth heritage will also be addressed at an appropriate level of detail at the strategy and scheme level.

The majority of statutory designated historic assets including Scheduled Ancient Monuments (SAM), Listed Buildings, Conservation Areas and Registered Parks and Gardens currently at risk from coastal flooding and erosion are located behind current defences where a HTL policy has been proposed. Maintenance and improvements to existing defences will continue to provide flood risk protection.

There are also non-designated historic assets along with many unscheduled sites of importance and areas of archaeological potential that are located behind current defences with a proposed HTL policy. Many listed buildings and Conservation Areas within the urban areas will also be protected under the recommended plan. The policies proposed by the SMP will not have a significant effect on any marine monuments or protected wrecks.

Within the Solent region, the Managed Realignment policy sites may impact upon the historic environment, as the coverage of the coastal heritage resource is so extensive and may result in the permanent loss or damage to both designated and non-designated feature. These increased risks under the recommended long term plan for this SMP must be recognised and

consideration should be given to an appropriate programme of survey, recording and investigation to record these important sites, and those potential features not yet identified. However, following public consultation the final SMP policies were changed to reflect the intentions of those private defence owners that intended to continue to maintain their defences for the long-term. Therefore, the majority of the proposed MR policies have been changed to HTL with a clear statement that no public funding would be available for the maintenance works, as is currently the case.

Heritage sites potentially affected by the final policy of Managed Realignment include those within the Policy Units of Medmerry (5A01) and Hook Lake (5C01). The extent of damage or loss of heritage features will depend on the extent of the realignments and locations of the secondary defences. These additional defences may provide protection from coastal flooding or erosion. The impact of implementing MR policies will be further assessed in detail at the strategy and scheme level.

Under a NAI policy heritage assets may potentially be lost or damaged by coastal flooding and erosion when defences come to the end of their residual lives. Statutory designated heritage features that will be at increased risk from coastal flooding and erosion under a proposed NAI policy include the Conservation Area in Warsash (5C01); Scheduled Ancient Monuments at St Andrews Castle and remains (5C05 and 06), Bitterne Manor (5C11), Luttrell's Tower (5C16) and Calshot Castle (5C15); and a Registered Park and Garden at Royal Victoria Country Park (5C09).

Where a policy results in the loss of heritage features (both known and unknown) it will be important to consider an appropriate programme of survey, recording and investigation to record these important sites and those potential features not yet identified. In general, implementation of HTL policies is likely to have an adverse impact on the geological interest of sites at Bracklesham Bay SSSI (5A02 & 5A03); Hill Head cliffs and Lee-on-the-Solent fossils (5B02); and Calshot cliffs (5C15) by preventing fresh exposures of beds or fossils. However, implementing a HTL policy at Hurst Spit (5F01), which is designated as a key site for coastal geomorphology as part of Hurst Castle and Lymington River Estuary SSSI, will maintain Hurst Spit and its function providing protection to Keyhaven Marshes.

The impact of the Adaptive Management (AM) policy on the geological interest features at East Head GCR site (5A04) is difficult to predict and will depend on how the coastline develops in this complex coastal zone.

An NAI policy covering Lepe beach and Stone Point GCR site (5C16) will allow natural process to continue and is likely have a beneficial impact on the geological interest features through maintaining exposures.

4.2.5 Implications for amenity and recreational use

Recreational facilities may be affected by the policies set out in the SMP. At a number of sites beach management activities are considered and implemented in conjunction with maintenance and improvement to defences. Along with maintaining the defence function of the beach through maintaining the existing beach profile width, height, slope etc, beach replenishment works also consider access to and along the shore and continue to provide amenity beaches. However, if revetments and seawalls are maintained and beach recycling or replenishment operations are not effective or implemented, the amenity beach and the function of the beach will diminish. This could have significant implications to the local and regional economy and coastal communities.

Coastal footpaths within the Solent, along the tidal rivers and harbour shores are often located atop defences. Some sections, e.g. Hayling Billy and Bunny Meadows, the footpath is along the shoreline and may have structures to protect the footpath from deteriorating. These have not been classified or considered as coastal or flood defence structures. Due to shoreline erosion and increased inundation, duration and frequency of flooding and sea level rise, sections of footpaths will be lost at varying times along frontages where No Active Intervention or Managed Realignment are proposed. Where these policies are proposed, adaptation studies are either in progress or planned to determine the longer-term management and provision of access to and along the shore; there may be potential for footpaths to be realigned as the shoreline realigns and/or incorporated into defence design when defences are realigned.

Within estuaries and harbours, the continued loss of saltmarsh may impact on the hinterland, with the shoreline and defences to landward becoming more exposed to waves resulting in increased rates of erosion. This may affect coastal access along shore, or access points to the shore, such as slipways, etc. The decreasing area of natural flood defences such as saltmarsh, will also result in increased fetches within harbours, increased nearshore water depths, changes in direction and velocities of nearshore tidal currents, which will affect wave climate conditions in currently relatively sheltered areas. This may impact on navigation, areas of safe manoeuvring and marine leisure activities within harbours and estuaries.

Changes to the mosaic, composition and distribution of coastal habitats and loss of nearshore and inter-tidal habitats will affect the function of the affected sites and the network of sites, and therefore, affect society’s usage and value of the sites, for recreation, walking, birdwatching, wildlife watching and nature conservation related pursuits.

The continued maintenance of defences will provide protection to significant numbers and variety of heritage and archaeological features and sites, sporting and recreational facilities, green open spaces and a wide variety of land uses, such as agricultural. Coastal access and land use are key elements that need to be considered through subsequent Coastal Defence Strategies and other studies (identified in the Action Plan), which will undertake more detailed economic, environmental and socio-economic assessments when determining management approaches and implementation of SMP policies.

4.3 Recommendations

Achieving this plan may require changes in planning and policy at local, regional and national government levels. Regional planning needs to consider the messages being delivered by this Plan, and ensure that future proposals for regional development and investment are made accordingly. Such planning needs to be looking beyond the current 20 year horizon. Local Development Planning should consider the risks identified in this plan and avoid approving development in areas at risk of flooding and erosion. Local Development Planning also needs to consider that relocation of displaced people and property may require land to be made available within the same settlements, in order to maintain the same level of community and may need to become increasingly flexible to enable this. Locations for new developments may need to be identified.

Environmental and funding bodies will have to make some difficult decisions in developing a long-term vision for a dynamic coastal environment. However, in the short-term there is the need to ensure that conservation interests within designated sites, or in the wider environment, are appropriately addressed by coastal and estuarine management. The findings of the Appropriate Assessment will be fundamental to the implementation of the SMP. In order for long-term solutions to be sought, public and local communities must be involved. Natural England published a Maritime Strategy entitled ‘Our Coasts and Seas: making space for people, industry and wildlife’ to help raise awareness of the issues.

Where policies may result in an increased risk to property and assets, whether due to coastal erosion or flooding, the effect on property owners should be managed through exit strategies for publicly funded and maintained defences, and through landowner management plans for privately owned and maintained defences. These will need to address the removal or relocation of buildings and other facilities well in advance of any loss. The plans for relocation of people also need to be established as does the basis on which mitigation should be funded. However, mitigation measures do not fall solely upon national and local government, and should not be read as such within this plan. Business and commercial enterprises will need to establish the measures that they need to take to address the changes that will take place in the future. This includes providers of services and utilities, which will need to

make provision for this long-term change when upgrading or replacing existing facilities in the shorter term. They should also consider how they will relocate facilities that will become lost to erosion or flooding, and the need to provide for relocated communities. Other parties needing to consider mitigation measures will be the local highways authorities and bodies responsible for local amenities (including churches, golf clubs etc).

In England and Wales the Environment Agency operates a flood warning service in areas at risk of flooding from rivers or the sea. Rainfall, river levels and sea conditions are monitored continually to forecast the possibility of flooding. If flooding is forecast, warnings are issued using a set of four easily recognisable codes; All Clear; Flood Watch; Flood Warning; Severe Flood Warning. Each of the four codes indicates the level of danger associated with the warning. The codes are not always used in sequence; for example in the case of a flash flood, a Severe Flood Warning may be issued immediately, with no other warning code preceding it.

A range of information is also available from the Environment Agency and Local Planning Authorities regarding temporary flood protection measures and contingency planning to help those potentially at risk to prepare for a flood, during a flood and after a flood. More information on flood warnings and contingency planning is available via www.environment-agency.gov.uk

The roles of flood warning and contingency planning are important considerations with respect to managing and reducing the impact of the residual risk, but do not reduce the probability of flooding. Integrated with flood and erosion risk mapping, these measures will aid the definitions and potentially influence the policies for Coastal Change Management Areas. Private land and property owners will need to consider how they will deal with changes to the shoreline that affects their property. Currently, maritime authorities have ‘permissive powers’ to undertake coastal flood and erosion works, but there is no obligation for the operating authorities or national government to assure protection against flooding or erosion. There is no reason, at present, to assume that this will change in the future or that individual losses would be compensated from central funds.

The final Plan provides a long lead-in time for the changes that may take place at the coast at some point in the future, as advised by the Action Plan. This long-term vision for management of the coastal zone has continued the process of informing and engaging with those parties that are likely to be affected by coastal change and enables all parties to work more closely together to adapt and plan ahead accordingly. The further detailed studies to be undertaken to reduce the uncertainties identified regarding economic appraisals and funding sources, environmental objectives and compensation habitat and mitigation requirements, and integrated technical management options that are pragmatic and feasible for delivering the SMP policy and

addressing coastal community concerns. To manage these changes effectively and appropriately, the approach put forward in the SMP needs to be considered now, not in several decades time.

5 POLICY STATEMENTS

This chapter contains a series of statements presenting the final policy and implications for each Policy Unit. These provide local detail to support the SMP-wide preferred plan, presented in Chapter 4, and consider locally-specific issues and objectives, which are presented in the supporting appendices to this document. Consequently, these policy statements must be read in conjunction with those and in the context of the wider-scale issues and policy implications as reported therein. Following the Policy Statements, Table 15 details the proposed policies for consultation with the final policy options and Table 16 provides a comparison of final SMP2 policy options with SMP1 policies.

5.1 Contents

Each Policy Statement contains the following:

Policy Unit/Location reference

Policy Units are identified representing frontages for which a discrete shoreline management policy applies. Each Policy Unit is assigned a reference code identifier which is sequential along the shoreline from east to west or clockwise direction (numbering is based upon the coastal sub-cell numbers 5A, 5B and 5C followed by a unit number). Figures 16 presents the proposed policies for the full North Solent SMP area for epoch 1, 0-20 years; Figure 17 presents the proposed policies for epoch 2, 20-50 years; and Figure 18 present the proposed policies for epoch 3, 50-100 years.

Summary of Policy Unit Characteristics

A summary statement that describes the characteristics and pertinent features that define each Policy Unit.

Proposed Policy Options and Policy Scenarios to implement the draft SMP

The proposed policies (along with existing SMP1 policy for comparison) and activities that will be undertaken in the short (present to 2025), medium (2025 to 2055) and long term (2055 to 2105) to implement the preferred plan. These timescales should not be taken as definitive, but should instead be considered as phases in the management of a location.

Summary of rationale behind the policy decisions

A summary of the rationale behind the proposed policy option decisions as determined through the policy appraisal process, which reflects the requirement for changes in policy over time; for example, caused by changes in extent and implications of potential increase in coastal flood or erosion risk to pertinent features within each coastal frontage, or implications for defence works or feasibility of implementation.

Map of Policy Unit

A map of the shoreline and coastal zone within each Policy Unit is presented, along with a summary of the proposed policies. It is important to note that coastal and flood defences can only reduce and manage the risk of coastal flooding, not eliminate the risk. Therefore, these maps indicate the residual flood risk that remains even if existing defences are maintained. The indicative erosion risk zones are also shown for frontages where there are no defences or management practices, or where a policy of No Active Intervention is proposed. For sites where a policy of Managed Realignment is proposed, an indicative area that may be affected is presented; such sites are dependent on landowner's consent and if to be considered further, more-detailed, site-specific studies to determine secondary defence requirements and alignment. Table 5 details the start and end coordinates of the policy unit boundaries and the lengths of the individual frontage units.

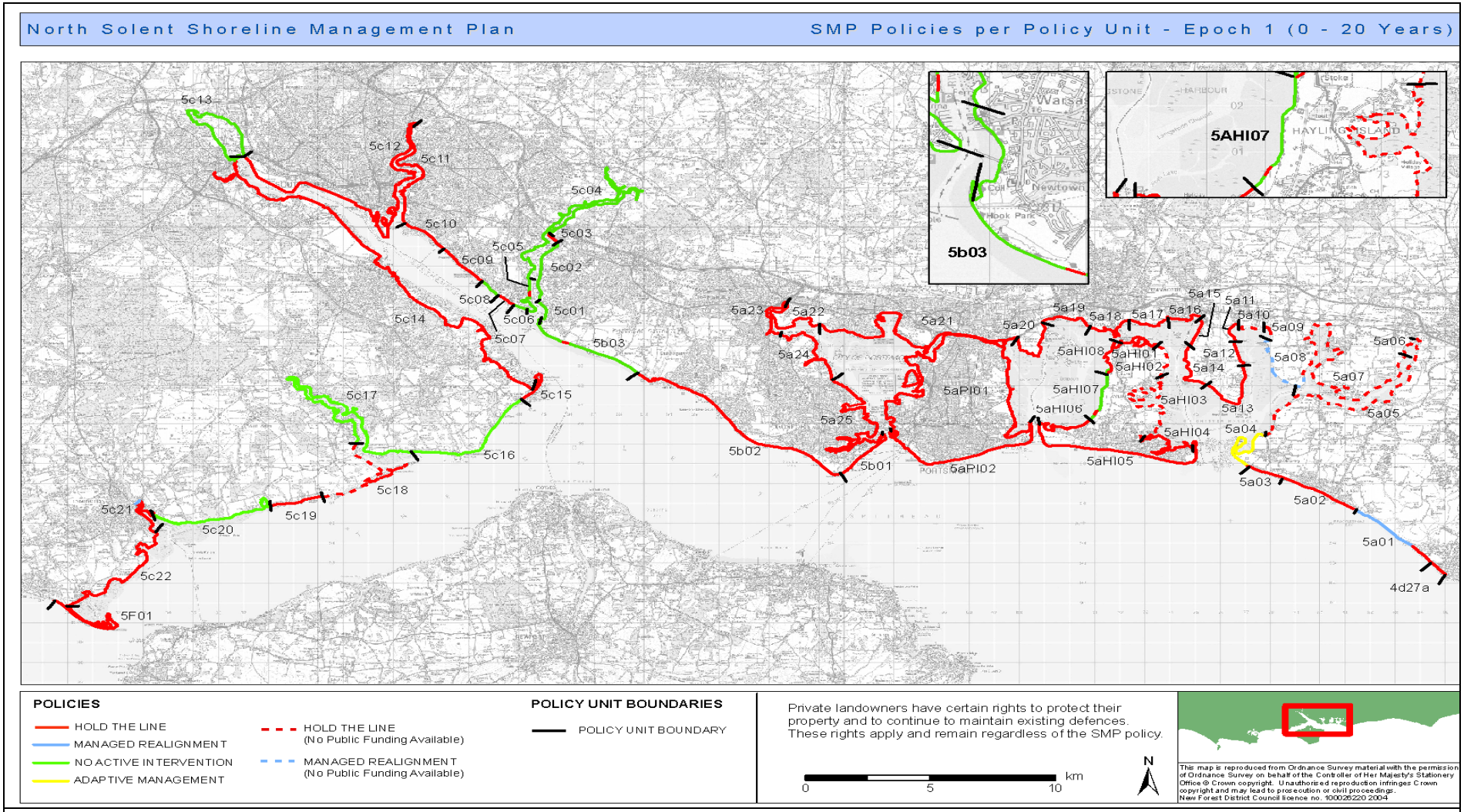


Figure 16: Proposed policies for the North Solent SMP area for epoch 1, 0-20 years

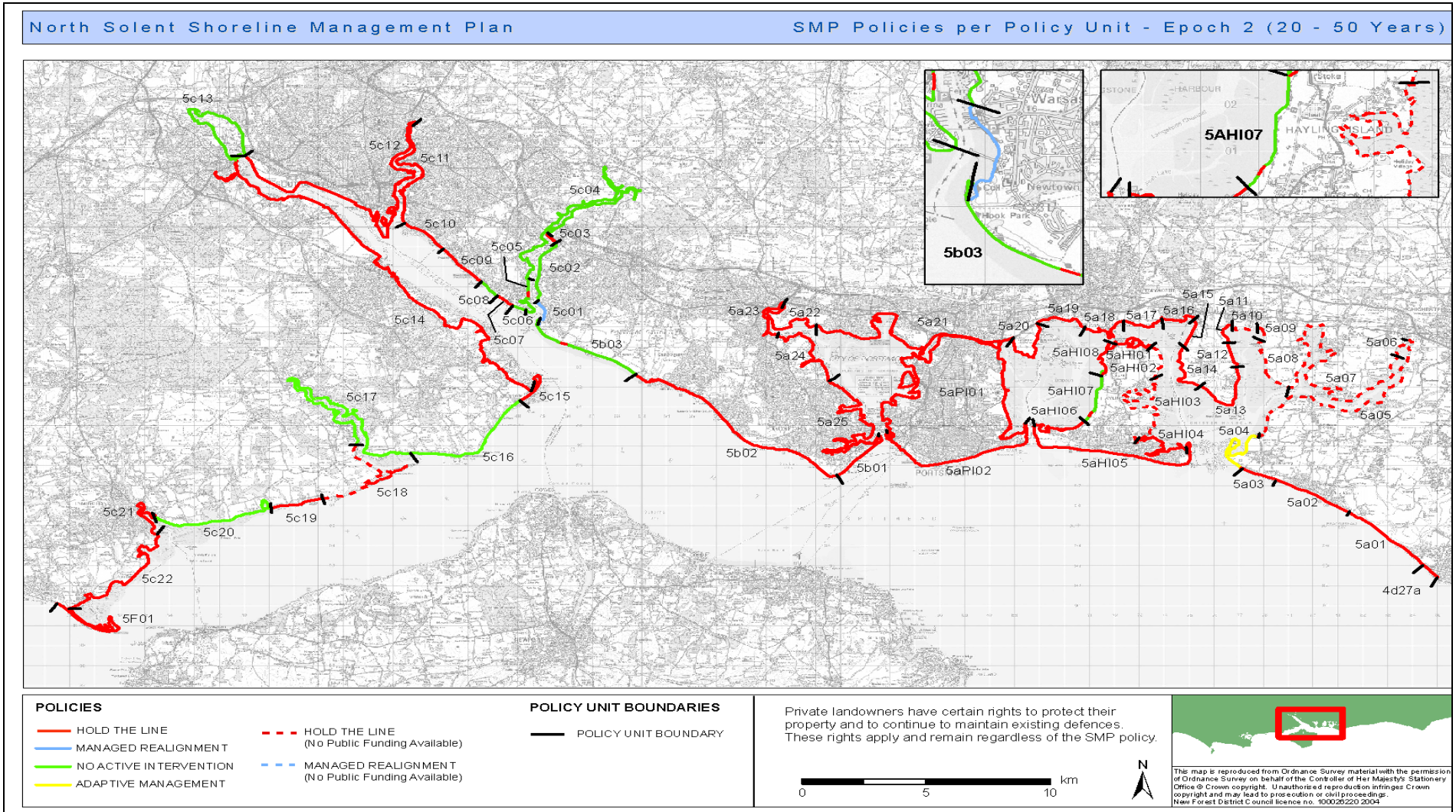


Figure 17: Proposed policies for the North Solent SMP area for epoch 2, 20-50 years

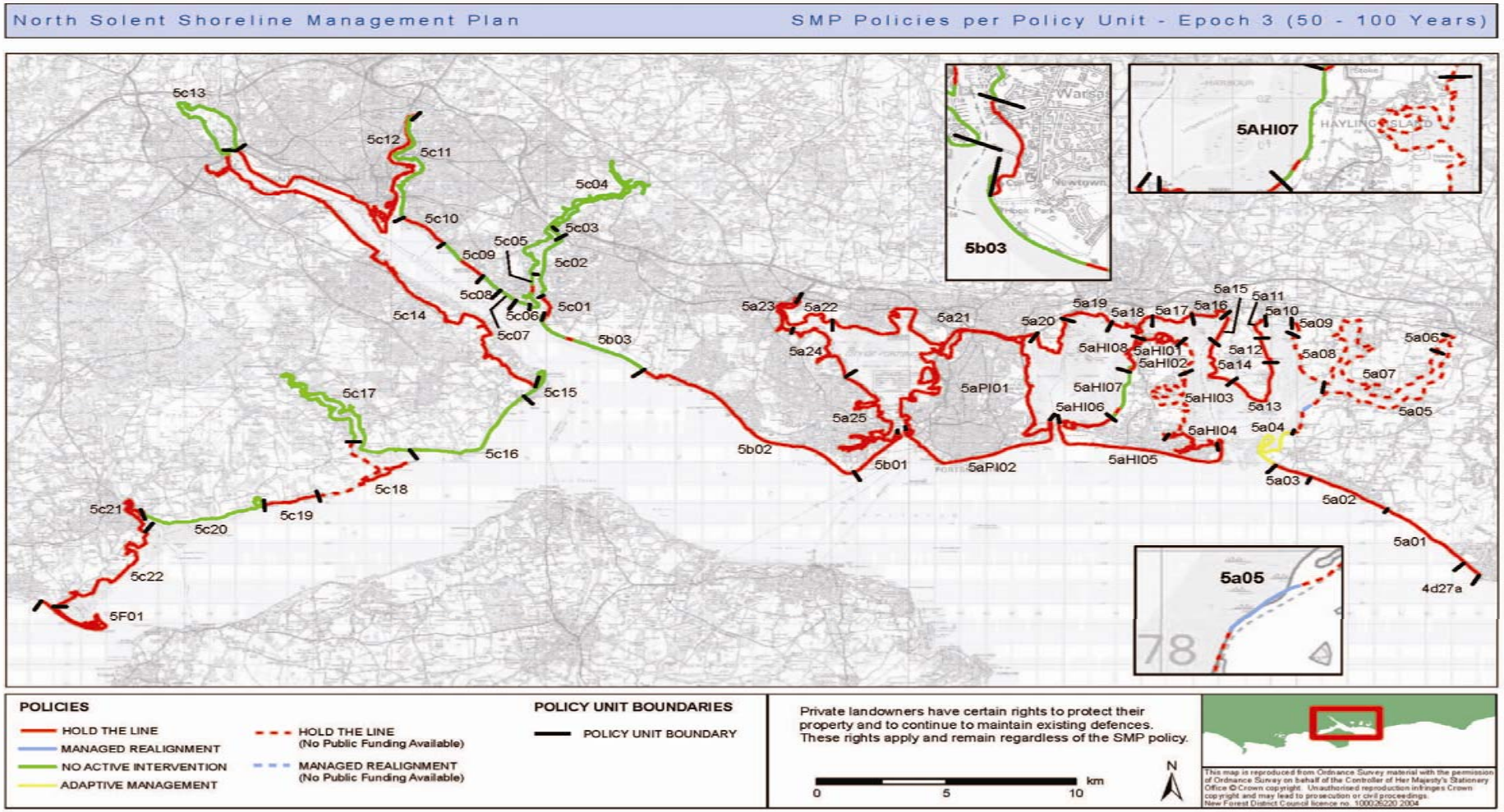


Figure 18: Proposed policies for the North Solent SMP area for epoch 3, 50-100 years

Policy Unit	Start of Line (X)	Start of Line (Y)	End of Line (X)	End of Line (Y)	Length (km)
4D27A	484480.20	93033.62	485055.17	92434.53	0.83
5A01	481460.00	95660.00	484479.35	93040.65	4.04
5A02	478561.76	97285.56	481460.00	95660.00	3.35
5A03	477132.20	97894.10	478561.76	97285.56	1.56
5A04	477127.34	98621.21	477124.23	98606.52	4.77
5A05	480391.30	100981.00	480488.92	100986.50	11.36
5A06	483423.45	103460.68	483748.07	104180.38	0.91
5A07	479000.74	102012.35	483423.45	103460.68	15.68
5A08	478068.40	104267.01	479000.74	102012.35	2.99
5A09	478010.17	104794.20	478010.17	104794.20	0.85
5A10	476773.93	105046.75	477801.09	104960.21	1.30
5A11	476381.87	104698.58	476773.93	105046.75	1.23
5A12	476647.30	104192.61	476987.39	103124.15	1.23
5A13	476987.39	103124.15	475473.59	102025.65	3.89
5A14	475473.59	102025.65	474695.34	103687.35	3.04
5A15	475343.67	105126.70	474797.08	103951.70	1.54
5A16	473906.95	105303.92	475216.62	105365.70	2.30
5A17	473457.32	104983.87	473455.93	104981.22	1.82
5A18	470867.15	104959.46	472412.04	105238.62	3.63
5A19	468928.27	105140.31	470860.60	104963.27	2.40
5A20	467944.26	104433.84	468928.27	105140.31	3.46
5A21	462541.49	104767.29	462543.22	104764.41	14.29
5A22	459002.73	105000.14	460068.52	105060.19	4.56
5A23	458695.96	106205.15	458302.02	104569.24	2.96
5A24	460524.81	102371.53	459352.43	104632.70	5.93
5A25	462658.66	99376.33	460524.81	102371.53	16.07
5B01	460896.29	97513.53	462658.66	99376.33	2.72
5B02	455262.85	101505.10	454504.42	101882.31	10.68
5B03	452764.27	102624.52	448831.62	105083.15	5.33
5C01	448831.75	105082.79	448879.69	106307.49	1.56
5C02	448879.69	106307.49	449566.42	109202.24	3.33
5C03	449566.42	109202.24	449269.25	109670.88	0.68
5C04	448471.93	107410.77	450782.73	110977.03	19.73
5C05	448680.79	105748.80	448384.84	105828.06	2.46
5C06	448680.46	105749.70	447806.98	106061.67	0.99
5C07	447806.98	106061.67	447240.13	106532.31	0.75
5C08	447240.13	106532.31	446548.97	107278.38	1.03
5C09	446548.97	107278.38	445022.91	108907.09	2.25
5C10	445022.91	108907.09	444771.62	109138.51	2.19
5C11	443486.04	110179.09	443948.24	115199.24	8.01
5C12	443948.24	115199.24	437100.00	113575.34	20.93
5C13	437100.00	113575.34	436675.58	113341.18	9.07

5C14	448599.95	101762.81	436675.58	113341.18	25.42
5C15	448168.53	101318.75	448599.95	101762.81	2.60
5C16	443730.27	98615.66	448168.53	101318.75	5.99
5C17	441549.95	99017.29	443730.27	98615.66	16.18
5C18	440183.63	96350.03	441549.95	99017.29	10.48
5C19	438132.64	95878.20	440183.63	96350.03	2.15
5C20	433447.12	95522.46	438132.64	95878.20	6.54
5C21	433500.72	94572.82	433447.12	95522.46	4.26
5C22	429950.05	90838.95	433500.72	94572.82	8.41
5F01	429458.86	91116.09	429950.05	90838.95	8.39
5API01	463004.10	99313.70	468446.31	100097.56	25.84
5API02	468441.64	99132.04	468455.94	99135.61	7.44
5AHI01	472015.37	104023.01	473536.33	103985.64	4.07
5AHI02	473536.92	103984.17	473693.28	102468.35	1.82
5AHI03	472449.55	101354.50	473739.97	102129.13	9.86
5AHI04	472919.66	99213.13	475012.96	98633.71	5.63
5AHI05	475012.96	98633.71	468789.52	99983.27	8.86
5AHI06	468789.52	99983.27	470834.98	100216.14	4.42
5AHI07	470834.98	100216.14	471557.81	102609.07	2.97
5AHI08	471557.81	102609.07	471674.74	102707.67	2.67

Table 5: Start and End co-ordinates for Policy Units

Management areas

The individual Policy Units were defined based on coastal processes, erosion and flood risk, wave climate, assets potentially at risk, land use and also considered landownership. Following the confirmation of the final SMP policies resulting from public consultation, the predicted coastal process interactions and flood and erosion risk implications on neighbouring Policy Units, in the medium and longer-term, could be determined. The Policy Units could then be grouped into distinct ”Management Areas”, to summarise the policy intent and highlight the key interactions and implications that were considered. The Management Areas considered include:

- Selsey Bill to East Head
- Chichester Harbour
- Hayling Island open coast
- Langstone Harbour
- Portsea Island open coast
- Portsmouth Harbour
- Portsmouth Harbour entrance to River Hamble entrance
- Southampton Water
- Western Solent

Detailed assessments on the implications on coastal processes and shoreline response, requirements for management of defences and appraisal of policy options against policy drivers and objectives are available in *Appendix F Initial Policy Scenario Development* and *Appendix G Scenario Testing*. The medium and long-term changes of adjacent and neighbouring frontages will need to be considered in the management of each site, through strategic planning, detailed studies and during Scheme development. Coastal monitoring will continue to inform flood and erosion risk mapping, beach management options, assessments to determine future defence requirements and assessments for post scheme appraisals.

Selsey to East Head
(Policy Units - 4D27a, 5A01, 5A02, 5A03, 5A04)

As recommended in the Pagham to East Head Coastal Defence Strategy, the management intention is to continue to provide long-term protection to residential centres at Selsey, Ham, Earnley, East Wittering and Cakeham through maintenance and improvements to coastal and flood defences but to take an adaptive approach at West Wittering and East Head (see Table 6 for final policy options for the Selsey to East Head Management Area). The area of residual tidal flood risk between West Wittering and Selsey is extensive (see Figure 5). Realigning defences at Medmerry will improve standard of protection to residential areas and will create inter-tidal mudflat and saltmarsh habitats.

The sediment supply and impact of changing coastal processes and sediment transport pathways between the Medmerry realignment entrance towards East Head will need to be monitored and will influence the timing and approach of

adaptive management measures between Cakeham and East Head. Depending on the nature and timing of intervention at East Head, conditions and coastal processes may result in changes in coastline position, flood risk and environmental features within Chichester Harbour.

Policy Unit Ref	Start of Unit	End of Unit	Final Preferred Policies		
			Epoch 1	Epoch 2	Epoch 3
			0-20yrs	20-50yrs	50-100yrs
4D27A	Hillfield Road, Selsey	West Street, Selsey	HTL	HTL	HTL
5A01	Selsey West Beach	Bracklesham (Medmerry)	MR (localised HTL at Medmerry Cliffs)	HTL	HTL
5A02	Bracklesham (Medmerry)	East Wittering	HTL	HTL	HTL
5A03	East Wittering	Cakeham	HTL	HTL	HTL
				(potential for minor MR at Cakeham)	
5A04	Cakeham (including East Head)	Ella Nore Lane	AM	AM	AM

Table 6. Summary of final policy options for frontage units for Selsey and East Head Management Area

Chichester Harbour
(Policy Units – 5A05, 5A06, 5A07, 5A08, 5A09, 5A10, 5A11, 5A12, 5A13, 5A14, 5A15, 5A16, 5A17, 5AHI01, 5AHI02, 5AHI03, 5AHI04)

A significantly high proportion of the flood defences between East Head and Emsworth, and between North Hayling and Selsmore, on Hayling Island, are privately owned and maintained. Landowners have historically considered undertaking any necessary maintenance works as affordable, even where national public funding criteria may indicate that works are not economically viable. Further to consultations and discussions with private landowners and stakeholders, the majority of the proposed objective-led policies of MR have been changed in the final policy options in Chichester Harbour to HTL with no public funding available, to reflect landowner's intentions to continue to maintain their flood and coastal defences, to protect their landholdings, properties and land use assets. See Table 7 for final policy options for the Chichester Harbour Management Area.

The continued provision of the defences owned and maintained by third parties and MOD will afford a level of flood protection to individual properties, coastal communities, agricultural land, environmentally important and designated freshwater and coastal grazing marsh habitats, features and functions (e.g. high tide roost sites for wading birds and waterfowl), transport infrastructure and heritage features. However, continued maintenance of these defences will also result in continued loss of inter-tidal habitats through coastal squeeze. The Regional Habitat Creation Programme will secure and deliver these

compensation habitat requirements for maintenance of defences on behalf of private owners, Local Authorities and the EA.

The MR site at West Chidham is a privately developed habitat creation site, with secondary defences already constructed in advance of realignment requirement. The future management and potential localised realignment of defences and land use at Northney Farm, Warblington and Conigar, as for all potential MR sites in the Solent region, will be determined subject to further detailed assessments as they are components of a Solent-wide network of high tide roost sites that support the designated SPA/Ramsar areas. The localised realignment of defences at Horse Pond and east Chidham will enable inter-tidal habitats to be created although, at Horse Pond coastal grazing marsh habitat and function would need to be established in a more sustainable site elsewhere in advance of realignment works as the site includes designated SPA/Ramsar habitat and features.

Even with these management intentions, the extent of residual tidal flood risk is extensive on Thorney Island, Chidham peninsula, and in the areas around Fishbourne, Apuldram, Birdham and West Wittering, as well as the northern and eastern shores of Hayling Island (see Figure 11); the rates of shoreline erosion are relatively low within the harbour. These residual flood risks, and those associated with non-maintenance or failure of defences have been highlighted during consultations, but site specific implications need to be determined through more detailed studies and continued engagement and working with landowners, MOD and coastal communities. Other impacts and implications associated with failure or non-maintenance of privately owned or MOD defences (i.e. unmanaged realignment) such as changing coastal processes and sediment transport pathways, losses of high grade agricultural land, losses of designated habitats will also need to be appraised.

To ensure a consistent level of detailed assessments of management options for flood and coastal defences, surface water run off, flood storage issues and land use management and to further explore habitat compensation and mitigation opportunities, the Action Plan has identified the requirement for a flood and coastal erosion risk management strategy for Chichester Harbour, between Emsworth and East Head and for Hayling Island.

Policy Unit Ref	Start of Unit	End of Unit	Final Preferred Policies		
			Epoch 1	Epoch 2	Epoch 3
			0-20yrs	20-50yrs	50-100yrs
5A05	Ella Nore Lane	Fishbourne	HTL (NPFA)	HTL (NPFA)	HTL (NPFA) (localised MR Horse Pond)
5A06	Fishbourne		HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
5A07	Fishbourne	west of Cobnor Point	HTL (NPFA) (localised MR East Chidham)	HTL (NPFA)	HTL (NPFA)
5A08	west of Cobnor Point	Chidham Point	MR	HTL (NPFA)	HTL (NPFA)
5A09	Chidham Point	Nutbourne	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
5A10	Nutbourne		HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
5A11	Nutbourne	Prinsted	HTL	HTL	HTL
5A12	Prinsted	Stanbury Point	HTL	HTL	HTL
5A13	Stanbury Point	Marker Point	HTL	HTL	HTL
5A14	Marker Point	Wickor Point	HTL	HTL	HTL
5A15	Wickor Point	Emsworth Yacht Haven	HTL	HTL	HTL
5A16	Emsworth Yacht Haven	Maisemore Gardens	HTL	HTL	HTL
5A17	Maisemore Gardens	Wade Lane	HTL	HTL*	HTL*
			*further detailed studies required which consider whether MR may occur at Conigar & Warblington		
5AHI01	Langstone Bridge	Northney Farm	HTL	HTL	HTL
5AHI02	Northney Farm		HTL (NPFA)	HTL (NPFA)	HTL (NPFA)* (*Further detailed studies required which consider whether MR may occur)
5AHI03	Northney Farm	Mengham	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
5AHI04	Mengham	Chichester Harbour	HTL	HTL	HTL

Table 7. Summary of final policy options for frontage units for Chichester Harbour Management Area

Hayling Island Open Coast (Policy Unit - 5AHI05)

The intention is to manage the open coast of Hayling Island as a single frontage through maintenance and improvements to the defence structures and integrated beach management activities, with beach recycling from areas of accretion (e.g. currently at the western end) and replenishment to areas of beach volume depletion (e.g. Eastoke). The existing Beach Management Plan for Hayling Island frontage details the beach recycling and replenishment requirements. Continued beach management operations will provide a level of flood protection to coastal communities and transport infrastructure, and provide an important amenity beach that contributes to the local and regional economy. See Table 8 for final policy options for the Hayling Island Open Coast Management Area.

In order to manage the flood risk from tidal and surface water run off and to address flood storage issues and concerns, the open coast defences need to be considered with management of defences at Selsmore, Mengham, and the area of the Kench.

Even with these management intentions, the extent of residual tidal flood risk is extensive on Hayling Island's open coast except the central section which is at a higher elevation (see Figure 12), although access to these higher areas is vulnerable due to significant flood risk in the north of the island. The coastal processes, sediment transport volumes and rates are highly dynamic on the open coast of Hayling Island, reflecting the shoreline's exposure to more extreme wave climates than in other areas within the Solent, and complexities associated with mobile sediments in the channels, bars and deltas at both Langstone and Chichester Harbour entrances.

To ensure a consistent level of detailed assessments of management options for flood and coastal defences, surface water run off, flood storage issues and land use management and to further explore habitat compensation and mitigation opportunities, the Action Plan has identified the requirement for a flood and coastal erosion risk management strategy for Hayling Island.

Policy Unit Ref	Start of Unit	End of Unit	Final Preferred Policies		
			Epoch 1	Epoch 2	Epoch 3
			0-20yrs	20-50yrs	50-100yrs
5AHI05	Chichester Harbour entrance (west)	Chichester Harbour entrance (east)	HTL	HTL	HTL

Table 8. Summary of final policy options for frontage units for Hayling Island open coast Management Area

Langstone Harbour (Policy Units - 5AHI06, 5AHI07, 5AHI08, 5A18, 5A19, 5A20, 5A21 (part), 5API01 (part))

For the eastern shore of Portsea Island and northern shore of Langstone Harbour, the erosion and flood risk issues have been addressed through the

approved Portsea Island Defence Strategy and in the emerging Portchester to Emsworth Coastal Defence Strategy. The intention is that maintenance and improvements to these Local Authority, MOD or EA maintained defences will provide and raise the level of flood protection to a significantly large centre of residential, commercial, heritage and industrial development along with associated infrastructure, transport network and open space areas. See Table 9 for final policy options for the Langstone Harbour Management Area. However, continued maintenance of these defences will also result in continued loss of inter-tidal habitats through coastal squeeze. The Regional Habitat Creation Programme will secure and deliver these compensation habitat requirements for maintenance of defences on behalf of private owners, Local Authorities and the EA.

The management intention for the western central frontage of Hayling Island is to allow the shoreline to naturally develop as the erosion rates are relatively low and flood risk limited due to topography, although localised maintenance works would be required to provide protection to Newtown community. Hampshire County Council's Hayling Billy amenity footpath would need to be rerouted or adapted in response to changes in shoreline position and sea level rises.

Due to complexity of issues, levels of uncertainty and insufficient ecological, environmental and economic data, the future management and potential realignment of defences and land use at Farlington Marshes, Southmoor, West Northney and Stoke, as for all potential MR sites in the Solent region, will need to be determined by further detailed studies. These will need to consider the flood storage issues, amenity value and environmental features and function of the sites as they are components of a Solent-wide network of high tide roost sites that support the designated SPA/Ramsar areas. The realignment of defences at Farlington Marshes and Southmoor, and modifications to tidal sluice gate operations (regulated tidal exchange) at West Northney and Stoke could enable inter-tidal habitats to be created although designated habitats such as coastal grazing marsh and their function as roost sites would need to be established in a more sustainable site elsewhere in advance of realignment works as the potential managed realignment sites include designated SPA/Ramsar habitat and features.

Policy Unit Ref	Start of Unit	End of Unit	Final Preferred Policies		
			Epoch 1	Epoch 2	Epoch 3
			0-20yrs	20-50yrs	50-100yrs
5A18	Wade Lane	Southmoor Lane	HTL	HTL*	HTL*
			* further detailed studies are required which consider whether MR may occur at Southmoor		
5A19	Southmoor Lane	Farlington Marshes	HTL	HTL	HTL
5A20	Farlington Marshes		HTL	HTL*	HTL*
			* In addition to a study looking across the context of the wider strategic network of sites, a study is required to confirm the future management of the site. This is likely to be a range of options from HTL to MR. This is likely to result in doing something different, to recognise coastal change. The study will address the economic, environmental and social implications and flood management issues of the site. To be reflected in the implementation plan of strategy and Action plan of the SMP. SMP, Strategy and Sustainability study are to have clear engagement plans. The SMP and Strategy will be advising the Regional Habitat Creation Plan of the likelihood of the need to provide compensatory habitat for the features and amenities of Farlington Marshes, and given the uncertain timescales this needs to be taken account of now.		
5A21	Farlington Marshes	Cador Drive	HTL	HTL	HTL
5API01	Langstone Harbour entrance (harbour)	Portsmouth Harbour entrance	HTL	HTL	HTL
5AHI06	Langstone Harbour entrance	North Shore Road, New Town	HTL	HTL	HTL
5AHI07	North Shore Road, New Town	West Lane (Stoke)	NAI (HTL Newtown)	NAI (HTL Newtown)	NAI (HTL Newtown)
5AHI08	West Lane (Stoke)	Langstone Bridge	HTL*	HTL*	HTL*
			* further detailed studies are required which may consider regulated tidal exchange at Stoke and West Northney		

Table 9. Summary of final policy options for frontage units for Langstone Harbour Management Area

Even with these management intentions, the extent of residual tidal flood risk is extensive on Portsea Island, Farlington area north of the A27, Southmoor, West Northney and the Kench area on Hayling Island (see Figure 12); the rates of

shoreline erosion are relatively low within the harbour. These residual flood risks, and those associated with non-maintenance or failure of defences have been highlighted during consultations, but site specific implications need to be determined through more detailed studies and continued engagement and working with landowners, MOD and coastal communities. Other impacts and implications associated with failure or non-maintenance of privately owned or MOD defences (i.e. unmanaged realignment) such as changing coastal processes and sediment transport pathways, losses of high grade agricultural land, losses of designated habitats will also need to be appraised.

To ensure a consistent level of detailed assessment of management options for flood and coastal defences, surface water run off, flood storage issues and land use management and to further explore habitat compensation and mitigation opportunities, the Action Plan has identified the requirement for a flood and coastal erosion risk management strategy for Hayling Island to complement the approved Coastal Defence Strategy for Portsea Island and the emerging Portchester to Emsworth Coastal Defence Strategy.

Portsea Island Open Coast (Policy Unit - 5API02)

For the open coast shoreline of Portsea Island the erosion and flood risk issues have been addressed through the approved Portsea Island Defence Strategy. The intention is to manage the open coast of Portsea Island as a single frontage through maintenance and improvements to the defence structures and integrated beach recycling activities. See Table 10 for final policy options for the Portsea Island Open Coast Management Area. The maintenance and improvements to these Local Authority or MOD maintained defences will provide and raise the level of flood protection to a significantly large centre of residential, commercial, heritage and industrial development along with associated infrastructure, transport network and open space areas.

Policy Unit Ref	Start of Unit	End of Unit	Final Preferred Policies		
			Epoch 1	Epoch 2	Epoch 3
			0-20yrs	20-50yrs	50-100yrs
5API02	Langstone Harbour entrance (open coast)	Portsmouth Harbour entrance	HTL	HTL	HTL

Table 10. Summary of final policy options for frontage units for Portsea Island open coast Management Area

Beach replenishment between Portsmouth Harbour entrance and Southsea will maintain the amenity beaches; in contrast the amenity beaches between Southsea and Eastney are accreting, with the dominant direction of sediment transport being from west to east. Similar to Hayling Island, the extent of residual tidal flood risk is extensive on Portsea Island's open coast except the central section which is at a higher elevation (see Figure 12), although access to these higher areas is vulnerable due to significant flood risk to north of the island.

Portsmouth Harbour (Policy Unit - 5API02 (part), 5A21 (part), 5A22, 5A23, 5A24, 5A25)

The management intention for the flood defences in Portsmouth Harbour is to continue maintenance and improvements to these Local Authority, MOD or EA maintained defences to provide and raise the level of flood protection to a significantly large centre of residential, commercial, heritage and industrial development along with associated infrastructure, transport network and open space areas. See Table 11 for final policy options for the Portsmouth Harbour Management Area. The future management options for existing MOD maintained defences and sites will need to be appraised. For the western shore of Portsea Island and the northern shore between Portchester and Farlington, the erosion and flood risk issues have been addressed through the approved Portsea Island Defence Strategy and in the emerging Portchester to Emsworth Coastal Defence Strategy.

The management of defences between Portchester and Cams Hall needs to be determined through detailed assessments relating to contaminated land and pollution risk associated with deteriorating flood defences and erosion of former landfill site. However, continued maintenance of these defences will also result in continued loss of inter-tidal habitats through coastal squeeze. The Regional Habitat Creation Programme will secure and deliver these compensation habitat requirements for maintenance of defences on behalf of private owners, Local Authorities and the EA.

Even with these management intentions, the extent of residual tidal flood risk is extensive on Portsea Island, and significant in Portchester and Gosport (see Figure 13); the rates of shoreline erosion are relatively low within the harbour. These residual flood risks, and those associated with non-maintenance or failure of defences have been highlighted during consultations, but site specific implications need to be determined through more detailed studies and continued engagement and working with landowners, MOD and coastal communities.

To ensure a consistent level of detailed assessments of management options for flood and coastal defences, surface water run off, flood storage issues and land use management and to further explore habitat compensation and mitigation opportunities, the Action Plan has identified the requirement for a flood and coastal erosion risk management strategy between Portsmouth Harbour entrance and Portchester to complement the approved Coastal Defence Strategies for Portsea Island and the emerging Portchester to Emsworth Coastal Defence Strategy. A flood and coastal erosion risk management strategy study between Portsmouth Harbour entrance and the entrance to the River Hamble has also been identified in the Action Plan.

Policy Unit Ref	Start of Unit	End of Unit	Final Preferred Policies		
			Epoch 1	Epoch 2	Epoch 3
			0-20yrs	20-50yrs	50-100yrs
5A21	Farlington Marshes	Cador Drive	HTL	HTL	HTL
5A22	Cador Drive	A27	HTL	HTL*	HTL*
			Requirement for more detailed study (for management of site to be determined following contaminated land investigations		
5A23	A27	Fleetlands (MOD boundary)	HTL	HTL	HTL
5A24	Fleetlands (MOD Boundary)	Quay Lane (MOD boundary)	HTL	HTL	HTL
5A25	Quay Lane (MOD boundary)	Portsmouth Harbour entrance	HTL	HTL	HTL
5API02	Langstone Harbour entrance (open coast)	Portsmouth Harbour entrance	HTL	HTL	HTL

Table 11. Summary of final policy options for frontage units for Portsmouth Harbour Management Area

Portsmouth Harbour entrance to River Hamble entrance (Policy Unit - 5B01, 5B02, 5B03)

The management intention for the flood and coastal defences is to manage the open coast between Portsmouth Harbour entrance and the western boundary of the Meon Valley as a single frontage through maintenance and improvements to the defence structures and integrated beach recycling activities. Continued maintenance and improvements to these Local Authority, MOD or EA maintained defences will provide and raise the level of flood protection to the developed centres along with associated infrastructure, transport network and open space areas. The future management options for existing MOD maintained defences and sites will need to be appraised. The existing Lee-on-the-Solent Beach Management Plan details the beach recycling and replenishment requirements. Localised works to maintain and improve flood defences to protect cross-Solent service infrastructure may be required. See Table 12 for final policy options for the Portsmouth Harbour entrance to River Hamble entrance Management Area.

The erosion of the cliffed frontage between Meon Valley and Hook Spit will contribute to the supply of mixed sand and gravel beach sediments to the shore and amenity beaches towards Hook Spit as the dominant drift direction is from south east to north west along this frontage. However, as the shingle barrier of Hook Spit rolls landwards in response to changing near shore wave climate conditions and fluctuations of sediment supply, there may be the requirement for detailed assessments to determine whether an area of contaminated land or a former landfill site is located behind the beach, resulting in a potential pollution risk.

Even with these management intentions, the extent of residual tidal flood risk is significant between Gilkicker and Lee-on-the-Solent (see Figure 13), Titchfield Haven in the Meon Valley and in the area of Hook Spit (see Figure 14). These residual flood risks have been highlighted during consultations, but site specific implications need to be determined through more detailed studies and continued engagement and working with landowners, MOD and coastal communities.

Policy Unit Ref	Start of Unit	End of Unit	Final Preferred Policies		
			Epoch 1	Epoch 2	Epoch 3
			0-20yrs	20-50yrs	50-100yrs
5B01	Portsmouth Harbour entrance	Gilkicker Point	HTL	HTL	HTL
5B02	Gilkicker Point	Meon Road, Titchfield Haven	HTL	HTL	HTL
5B03	Meon Road, Titchfield Haven	Hook Park	NAI (HTL for cross-Solent infra-structure)	NAI HTL for cross-Solent infra-structure)	NAI (HTL for cross-Solent infra-structure)

Table 12. Summary of final policy options for frontage units for Portsmouth Harbour entrance to River Hamble entrance Management Area

To ensure a consistent level of detailed assessments of management options for flood and coastal defences, surface water run off, flood storage issues and land use management and to further explore habitat compensation and mitigation opportunities in the Meon Valley, the Action Plan has identified the requirement for a flood and coastal erosion risk management strategy between Portsmouth Harbour entrance and the mouth of the River Hamble to complement the draft River Itchen, Weston, Netley and River Hamble Defence Strategy. A flood and coastal erosion risk management strategy study between Portsmouth Harbour entrance and Portchester has also been identified in the Action Plan.

Southampton Water (River Hamble, Netley, Weston, River Itchen, Southampton, Test Valley, Southampton Waterside) (Policy Unit - 5C01, 5C02, 5C03, 5C04, 5C05, 5C06, 5C07, 5C08, 5C09, 5C10, 5C11, 5C12, 5C13, 5C14)

For the shoreline between the eastern bank of the River Itchen and the Hook Spit the erosion and flood risk issues have been addressed through the draft River Itchen, Weston, Netley and River Hamble Defence Strategy, which will, following public consultation, determine the final policies and management approaches for this frontage. See Table 13 for final policy options for the Southampton Water Management Area.

The management intention within the River Hamble is to allow the undefended shoreline to continue to evolve naturally within the relatively constrained flood plain and adapt transport networks, land use and footpaths in response to coastal change and sea level rise. Localised works to continue to maintain and improve flood defences along Warsash and Hamble-le-Rice may be required but

would have minimal impact on coastal processes. Hampshire County Council's Bunny Meadows amenity footpath would need to be rerouted or adapted in response to changes in shoreline position and sea level rises. Marine-related industry, for example marinas, boat yards, and Hamble oil terminal will continue to maintain or raise the standard of protection for their defences. The long-term management of flood defences and condition of beach frontages between Netley and the Hamble will be dependent on future land use of currently private and industrial sites.

Continued maintenance of defences fronting Netley Village will afford flood protection to the residential area. If beach recycling and beach management is undertaken between Netley and Weston, amenity beaches may be created, retained and improved, and provide benefits along the length of the frontage as dominant drift direction is from south east to north west along this frontage and reverse the recent trend of beach narrowing and lowering, that has contributed to the deterioration of existing defence structures. Conversely, removal of defences would result in erosion of the low-lying areas of the Royal Victoria Country Park and provide a supply of mixed sand and gravel sediment to the beach. The future management of the defences, line of defence and shoreline at Royal Victoria Country Park will be determined through further detailed studies, which will consider a range of adaptive measures and options for the existing line of defence. Beach management and replenishment may be required at Weston in the long-term to provide flood protection to open space, transport network and residential properties, but would be dependent on sea levels, wave climate conditions and timing and type of works undertaken at Netley.

Maintaining and upgrading flood defences for the developed centres of Southampton City, the port areas, banks of River Itchen and Southampton Waterside will provide significant benefits to the local and regional economy, residential, commercial and industrial areas. However, the extent of residual tidal flood risk is significant for Southampton City and port area, lower Test valley, Marchwood, and Fawley areas (see Figure 14); the rates of shoreline erosion are relatively low within Southampton Water although higher rates are measured along the Netley frontage. These residual flood risks, and those associated with non-maintenance or failure of defences have been highlighted during consultations, but site specific implications need to be determined through more detailed studies and continued engagement and working with landowners, MOD and coastal communities.

Policy Unit Ref	Start of Unit	End of Unit	Final Preferred Policies		
			Epoch 1	Epoch 2	Epoch 3
			0-20yrs	20-50yrs	50-100yrs
5C01	Hook Park	Warsash North	NAI	MR	HTL
5C02	Warsash North	Swanwick Shore Road	NAI	NAI	NAI
5C03	Swanwick Shore Road	Bursledon Bridge	HTL	HTL	NAI
5C04	Bursledon Bridge to Curbridge to Botley to Satchell Marshes		NAI	NAI	NAI
5C05	Satchell Marshes	Hamble Common Point	NAI* (HTL the Quay and Rope Walk)	NAI* (HTL the Quay and Rope Walk)	NAI* (HTL the Quay and Rope Walk)
			*Requirement for more detailed study (on potential impact of shoreline evolution of Hamble Point to determine longer-term management of this frontage and River Hamble)		
5C06	Hamble Common Point	Hamble Oil Terminal	NAI	NAI	NAI
5C07	Hamble Oil Terminal	Ensign Industrial Park	HTL	HTL	NAI
5C08	Ensign Industrial Park	Cliff House	NAI	NAI	NAI
5C09	Cliff House	Netley Castle	HTL	HTL*	NAI (HTL for Netley Village)
			*further detailed studies required for management of site		
5C10	Netley Castle	Weston Point	HTL	HTL	HTL
5C11	Weston Point	Woodmill Lane	HTL	HTL	NAI*
			*Requirement for more detailed study (for management of site that recognises coastal change and investigates property level defence options		
5C12	Woodmill Lane	Redbridge	HTL	HTL	HTL
5C13	Lower Test Valley		NAI	NAI	NAI
5C14	Redbridge	Calshot Spit	HTL	HTL	HTL

Table 13. Summary of final policy options for frontage units for Southampton Water Management Area

To ensure a consistent level of detailed assessments of management options for flood and coastal defences, land use management, river mouth geomporphological evolution, the Action Plan has identified the requirement for flood and coastal erosion risk management strategy studies between River Itchen and Redbridge, and between Test Valley and Calshot to complement the draft River Itchen, Weston, Netley and River Hamble Defence Strategy. A flood and coastal erosion risk management strategy between Portsmouth Harbour

entrance and the mouth of the River Hamble has also been identified in the Action Plan.

Western Solent (Policy Unit - 5C15, 5C16, 5C17, 5C18, 5C19, 5C20, 5C21, 5C22, 5F01)

For Hurst Spit, the defence management intention is continued maintenance through beach recycling and replenishment, as detailed through the existing Beach Management Plan, and maintenance of rock structures as appropriate. Although, the exact alignment of the spit is not fixed and may alter in response to changes in coastal process and wave climate conditions. With continued maintenance, Hurst Spit will continue to provide substantial flood protection benefits to the centres of Keyhaven, Pennington, Lymington and Beaulieu, and Lee-on-the-Solent. The continued management of Hurst Spit also provides considerable environmental and amenity benefits that contribute to the local and regional economy. The continued maintenance and improvements to the seawall between Hurst Spit and Lymington and the flood defences along the banks of the Lymington River will also continue to provide significant flood protection to the centres of residential, commercial, heritage and industrial development in and around Keyhaven, Pennington and Lymington along with associated infrastructure, transport network and open space areas. See Table 14 for final policy options for the Western Solent Management Area.

The proposed harbour breakwaters, in the mouth of the estuary, aim to reduce the wave heights within the inner harbour area and reduce the impacts of storm surges entering the river, thereby minimising flood risk from overtopping of flood defences. Despite these measures and upgrades to flood defences, the residual risk of flooding to Lymington from extreme storm surges coincident with increased fluvial flows and surface water run off events would remain.

Alternative techniques for stabilising saltmarsh margins, making beneficial use of dredged sediments and retaining fine grained sediments could be trialled and implemented, which could provide economic, environmental and societal benefits and extend the flood defence function of the saltmarshes, resulting in lower rates of shoreline erosion.

A significantly high proportion of the flood defences between Lymington and Calshot are privately owned and maintained. Landowners have historically considered undertaking any necessary maintenance works as affordable, even where national public funding criteria indicates that works are not economically viable. Further to consultations and discussions with private landowners and stakeholders, the proposed objective-led policy of MR within the Beaulieu River has been changed in the final policy options to HTL with no public funding available, to reflect landowner’s intentions to continue to maintain their flood and coastal defences to protect their landholdings, properties and land use assets. This has been the defence management approach historically and is currently the case. However, the long-term management of flood defences at Park Shore will be dependent on future maintenance of private defences within the Beaulieu

River mouth given the risk of flooding to the residential properties along this frontage from both the Solent and Beaulieu River.

The majority of the private land and defence owners between Lymington and Calshot intend to continue to maintain their defences, as they have done historically. It is not the intention of the SMP policies to prevent the continued maintenance of private defences. The intention of the policy aims to allow the undefended shoreline frontages to continue to evolve naturally. Erosion of the largely undefended and undeveloped frontages between Lymington and Calshot will provide a beneficial source and supply of sand and gravel to the foreshore and to low-lying beaches and spits downdrift, at Sowley, Beaulieu and Cadland, thereby reducing the vulnerability of beaches and spits to breaching which would result in increased flood risk to low-lying areas.

The continued provision of the defences owned and maintained by third parties will afford a level of flood protection to individual properties, coastal communities, agricultural land, environmentally important and designated freshwater and coastal grazing marsh habitats, features and functions (e.g. high tide roost sites for wading birds and waterfowl), transport infrastructure and heritage features. However, continued maintenance of these defences will also result in continued loss of inter-tidal habitats through coastal squeeze. The Regional Habitat Creation Programme will secure and deliver these compensation habitat requirements for maintenance of defences on behalf of private owners, Local Authorities and the EA.

However, the extent of residual tidal flood risk is significant between Keyhaven and Lymington, Sowley, Beaulieu River mouth, Lepe and Calshot (see Figure 15). The rates of shoreline erosion between Lymington and Calshot are relatively low but will increase in response to the decline in the natural flood defence function of the saltmarshes within Lymington and Beaulieu estuaries. These residual flood risks, and those associated with non-maintenance or failure of defences have been highlighted during consultations, but site specific implications need to be determined through more detailed studies and continued engagement and working with landowners, MOD and coastal communities. Other impacts and implications associated with failure or non-maintenance of privately owned or MOD defences (i.e. unmanaged realignment) such as changing coastal processes and sediment transport pathways, losses of high grade agricultural land, losses of designated habitats will also need to be appraised.

To ensure a consistent level of detailed assessments of management options for flood and coastal defences, land use management, river mouth geomporphological evolution, the Action Plan has identified the requirement for the conclusion of the Western Solent Coastal Defence Strategy. A flood and coastal erosion risk management strategy study between Test Valley and Calshot has also been identified in the Action Plan. Site specific implications need to be determined through continued engagement and working with landowners and coastal communities.

Policy Unit Ref	Start of Unit	End of Unit	Final Preferred Policies		
			Epoch 1	Epoch 2	Epoch 3
			0-20yrs	20-50yrs	50-100yrs
5C15	Calshot Spit		HTL	HTL	NAI
5C16	Calshot Spit	Inchmery	NAI	NAI	NAI
5C17	Inchmery	Salternshill	NAI	NAI	NAI
5C18	Salternshill	Park Shore	HTL (NPFA)	HTL (NPFA)	HTL (NPFA)
5C19	Park Shore	Sowley	HTL	HTL	HTL*
			* further detailed studies required for management of defences		
5C20	Sowley	Elmer's Court	NAI	NAI	NAI
5C21	Elmer's Court	Lymington Yacht Haven	HTL (Regulated Tidal Exchange Lymington Reedbeds)	HTL	HTL
5C22	Lymington Yacht Haven	Saltgrass Lane	HTL	HTL	HTL
5F01	Hurst Spit		HTL	HTL	HTL

Table 14. Summary of final policy options for frontage units for Western Solent Management Area

6 ACTION PLAN

6.1 Introduction

The Action Plan identifies where works are anticipated and where further investigations are necessary to resolve outstanding uncertainties, and aims to provide information on operational activities and monitoring requirements at a broad SMP scale. It summarises the actions that are likely to be required for the implementation of final SMP recommendations, consequences of the plan and ongoing shoreline management before the next review of the SMP in approx. 10 years time.

The focus of the Action Plan, however, is not limited within the SMP review programme as it may identify issues relating to medium or long-term planning which may take a considerable length of time to conclude (e.g. legislative matters or long-term monitoring). Implementing the SMP policies and the actions in the Action Plan will depend on availability of funding, from the national flood and coastal erosion risk management budget, or from other national sources or from local and/or third-party funding.

The Action Plan is a key element for the North Solent SMP because for a number of Policy Units the confirmation and delivery of the final policy recommendations in the medium and long term epochs will be determined through subsequent detailed studies, monitoring and research, necessary to resolve uncertainties. This will improve our understanding and inform the emerging Flood and Coastal Erosion Risk Management Studies and future reviews of SMP policy decisions.

The Action Plan is to be considered a 'live' document and will be updated, monitored and reviewed through regular meetings of the Southern Coastal Group (see http://www.southerncoastalgroup.org.uk). This approach will continue the partnership working and will enable stakeholders and Elected Members to be informed of progress.

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
Urgent Actions									
1	Critical review of the proposed actions within this plan	Ensure the most critical work continues to be funded at the right time and reinforce the actions that are directed toward spatial and emergency planning professionals to ensure that communities fully recognise the risks from the sea (both now and in the future) and implement appropriate risk management measures. Implementation of emergency plans are particularly important if funding constraints potentially increases risk (flood, coastal and erosion) as a result of delayed schemes.	Urgent. Informing coastal management planning, Medium Term Plan, schemes and decisions (timings and inter-dependencies)	Very High	Client Steering Group (As sub-group of Southern Coastal Group)	All CSG members	2010	n/a	n/a
2	Investigate mitigation measures, required arising from flood risk management works, for maintaining function of Solent-wide network of high tide roost sites.	Provision of habitat and function mitigation measures. Monitoring of inter-tidal and coastal grazing marsh areas and high tide roost sites. Outcomes will need to be directly linked to FCERMS and the Regional Habitat Creation Programme.	Urgent. Informing coastal management planning, schemes and decisions	High	Relevant Local Authority to be advised by Natural England	Environment Agency, Local Authorities, Planning Authorities, Natural England & High Level Stewardship Team, Regional Habitat Creation Programme Team	2011	Yes	n/a

Action Ref (not in ranked order)	**Action**	**Reason**	**Scheduling & Dependencies**	**Importance**	**Lead Authority**	**Key Partners**	**Target Start Date**	**MTP entry (yes/no/not applicable)**	**If no MTP entry then alternative funding source**
3	From a flood risk management works perspective, undertake further studies to identify and understand the location, features and function of the Solent-wide network of high tide roost sites (as far as it is identified) and the likely consequences on the ability of the network to continue to function if one or more sites were to be damaged or lost (through managed or unmanaged realignment) linked to flood risk management works.	Confirm future management of sites where opportunities for managed realignment have been identified. Clarify and further promote options to landowners such as High Level Stewardship Scheme. There is also the need for monitoring of inter-tidal and coastal grazing marsh areas and high tide roost sites, to improve understanding of the sites in the network and to inform understanding of the features and function of these habitats and ensure that the intertidal development trends are consistent with assumptions made in the SMP. The study and outcomes will need to be directly linked to FCERMS and outcomes informing the Regional Habitat Creation Programme.	Urgent. Informing coastal management planning, FCERMS, schemes and decisions	High	to be confirmed (New Forest DC?), advised by Natural England	Environment Agency, Local Authorities, Planning Authorities, Natural England & High Level Stewardship Team, Regional Habitat Creation Programme Team	2011	Yes	n/a

Action Ref (not in ranked order)	**Action**	**Reason**	**Scheduling & Dependencies**	**Importance**	**Lead Authority**	**Key Partners**	**Target Start Date**	**MTP entry (yes/no/not applicable)**	**If no MTP entry then alternative funding source**
4	Completion of Itchen to Hamble Coastal Defence Strategy following public consultation. Determine policy and management approach for frontage.	Currently out to public consultation. Completion of CDS. Development of subsequent studies and schemes	Urgent. Informing coastal management planning, schemes and decisions	High	Southampton City Council	Eastleigh Borough Council, Fareham Borough Council, Environment Agency, Hampshire County Council	Dec-05	Yes	n/a
5	Completion of Portchester to Emsworth Coastal Defence Strategy. Determine policy and management approach for frontage.	Completion of CDS. Specifically with regard to Farlington Marshes, determine the best way forward for delivering the assessment of the strategic importance of the freshwater habitat to the Solent Estuary; the recreational value of the site to Portsmouth City, local and national visitors; and flood storage issues. It is expected that specific Schemes will be identified such as Farlington Flood Control, Portchester to Paulsgrove Defences	Urgent. Informing coastal management planning, schemes and decisions	High	Environment Agency	Havant, Portsmouth & Gosport Coastal Partnership, Hampshire Wildlife Trust, Natural England	Jun-05	Yes	n/a

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
Actions									
Monitoring Programme									
6	Continuation of Strategic Regional Shoreline Monitoring Programme. National Programme commences in 2012 and will integrate regional programmes	Inform Planning Process (Coastal Change Management Areas), NCERM, FCERMS, Schemes, Post-project Appraisal and SMP reviews, etc.	Ongoing. Informing coastal management planning, schemes and decisions	High	NFDC/CCO	Southern Coastal Group and others	continuation (funding renewal 2012)	Yes	n/a
Flood and Coastal Erosion Risk Management Strategies									
7	Development of a flood and coastal erosion risk management strategy study for Chichester Harbour, between East Head and Emsworth.	Consider the scope and timing of undertaking such a study. Comply with FCERMS guidance but include such items as more detailed economic, environment and social-economic assessments; identify and consider the tidal, fluvial, storm water and groundwater flooding issues; integrate provision/rerouting of coastal access in defence management; continue to build and improve relationships with landowners; identify sources of funding; clarify	To be informed by studies listed as urgent actions and other studies e.g. that investigate funding sources, identify and assess flood and erosion risk implications and clarify coastal planning issues associated with failure of non-maintenance of defences.	High	Environment Agency	Chichester District Council, Chichester Harbour Conservancy West Sussex County Council, Natural England, Landowners	Jun-10	Yes	n/a

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
		coastal planning issues; take account of the outcomes of the other Solent-wide site-specific studies that have been identified in the Action Plan; and address the potential risks associated with withdrawal of maintenance or failure of privately owned defences and link with the RHCP accordingly. Apply the Govt's sea level rise allowances and guidance arising from UKCP09 or subsequent studies. It is expected that specific Schemes will be identified. Improvements and maintenance of all existing flood defences would cost an estimated £230M over the next 100 years, however, the vast majority of these defences are either owned/maintained by private owners or MOD within this FCERMS study area.						

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
8	Development of a flood and coastal erosion risk management strategy study for Hayling Island.	Consider the scope and timing of undertaking such a study. Comply with FCERMS guidance but include such items as more detailed economic, environment and social-economic assessments; identify and consider the tidal, fluvial, storm water and groundwater flooding issues, continue to build and improve relationships with landowners; integrate provision/rerouting of coastal access in defence management; consideration potential opportunities for Regulated Tidal exchange and sluice gate modifications at Stoke and West Northney; include ebb tidal delta morphology study to improve understanding of the implications of loss of the nearshore banks on Hayling Island shoreline; identify sources of funding; clarify coastal planning issues; address the potential risks associated with withdrawal of maintenance or failure of privately owned defences and link with the RHCP accordingly; and take	To be informed by studies listed as urgent actions and other studies e.g. that investigate funding sources, identify and assess flood and erosion risk implications and clarify coastal planning issues associated with failure of non-maintenance of defences.	High	Environment Agency	Havant, Portsmouth & Gosport Coastal Partnership, Chichester Harbour Conservancy Hampshire County Council, Natural England, Landowners	Dec-10	Yes	n/a

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
		account of the outcomes of the other Solent-wide site-specific studies that have been identified in the Action Plan. Apply the Govt's sea level rise allowances and guidance arising from UKCP09 or subsequent studies. It is expected that specific Schemes will be identified such as Eastoke Beach Management, Eastoke Point. Improvements and maintenance of all existing flood defences would cost an estimated £380M over the next 100 years, however, a significant proportion of the defences are privately owned within the FCERMS study area.							
9	Development of a flood and coastal erosion risk management strategy study for the frontages between Portchester Castle and Portsmouth Harbour entrance (west) and on to River	Comply with FCERMS guidance but include such items as more detailed economic, environment and social-economic assessments; identify and consider the tidal and fluvial risks, storm water and groundwater flooding issues and wave overtopping; integrate provision/rerouting of coastal access in defence management; identify sources of funding; clarify	To be informed by studies listed as urgent actions and other studies e.g. funding sources, identify location for creation of saline lagoon within the Solent Maritime SAC to mitigate loss at Hook Lake, identify and assess flood and erosion risk implications and clarify coastal planning	High	Havant, Portsmouth & Gosport Coastal Partnership	Environment Agency, Fareham Borough Council, Hampshire County Council, Natural England, Landowners	Apr-11	Yes	n/a

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
	Hamble entrance (east).	coastal planning issues; address the potential risks associated with withdrawal of maintenance or failure of privately owned defences and link with the RHCP accordingly; investigate potential options for future position and routing of coastal highways and integrate provision/rerouting of coastal access in defence management; determine opportunities for regulated tidal exchange and environmental enhancement at Titchfield Haven and Meon Valley; and take account of the outcomes of the other Solent-wide site-specific studies that have been identified in the Action Plan. To be developed with consultation with land and defence owners and the commercial and recreational communities. Apply the Govt's sea level rise allowances and guidance arising from UKCP09 or subsequent studies. It is expected that specific Schemes will be identified. Improvements and maintenance of all	issues associated with failure or non-maintenance of defences.						

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
		existing flood defences would cost an estimated £380M over the next 100 years, however, a significant proportion of the defences are owned/maintained by the MOD within the FCERMS study area.							
10	Development of a flood and coastal erosion risk management strategy study for Southampton frontage between Woodmill Lane, River Itchen and Redbridge.	Consider the scope and timing of undertaking such a study. Comply with FCERMS guidance but include such items as more detailed economic, environment and social-economic assessments; detail the maintenance and improvement work required to defences and shoreline structures not classified as flood defences; investigate potential options for future position and routing of coastal highways and integrate provision/rerouting of coastal access in defence management; identify and consider the tidal, fluvial, storm water and groundwater flooding issues and wave overtopping; identify sources of funding; clarify coastal planning issues; address the potential risks	To be informed by studies listed as urgent actions and other studies e.g. that investigate funding sources, identify and assess flood and erosion risk implications and clarify coastal planning issues associated with failure of non-maintenance of defences.	High	Southampton City Council	Environment Agency.	Jul-10	Yes	n/a

Action Ref (not in ranked order)	**Action**	**Reason**	**Scheduling & Dependencies**	**Importance**	**Lead Authority**	**Key Partners**	**Target Start Date**	**MTP entry (yes/no/not applicable)**	**If no MTP entry then alternative funding source**
		associated with withdrawal of maintenance or failure of privately owned defences and link with the RHCP accordingly; and take account of the outcomes of the other Solent-wide site-specific studies that have been identified in the Action Plan. To be developed with consultation with land and defence owners and the commercial and recreational communities. Apply the Govt's sea level rise allowances and guidance arising from UKCP09 or subsequent studies. It is expected that specific Schemes will be identified. Improvements and maintenance of all existing flood defences and harbour wall structures have been estimated through the Southampton City Strategy as £43M over the next 100 years; a proportion of the flood defences are privately owned/maintained or are port or industrial structures which are not classified flood defences but may reduce flood risk.						

Action Ref (not in ranked order)	**Action**	**Reason**	**Scheduling & Dependencies**	**Importance**	**Lead Authority**	**Key Partners**	**Target Start Date**	**MTP entry (yes/no/not applicable)**	**If no MTP entry then alternative funding source**
11	Development of a flood and coastal erosion risk management strategy study for Test Valley and Southampton Waterside frontage between Redbridge and Calshot.	Consider the scope and timing of undertaking such a study. Comply with FCERMS guidance but include such items as more detailed economic, environment and social-economic assessments; detail the maintenance and improvement work required to defences and shoreline structures not classified as flood defences; integrate provision/rerouting of coastal access in defence management; identify and consider the tidal, fluvial, storm water and groundwater flooding issues and wave overtopping; identify sources of funding; clarify coastal planning issues; address the potential risks associated with withdrawal of maintenance or failure of privately owned defences and link with the RHCP accordingly; and take account of the outcomes of the other Solent-wide site-specific studies that have been identified in the Action Plan. To be developed with consultation with land and defence owners and the commercial and	To be informed by other studies. HCP, funding sources and planning issues to be resolved. Identify and assess flood and erosion risk implications of failure or non-maintenance of privately owned defences and to clarify coastal planning issues associated with failure of non-maintenance of defences.	High	Environment Agency	Test Valley BC, New Forest DC, New Forest National Park Authority, Hampshire County Council, Natural England, Landowners	estimate 2012 to be confirmed	?	n/a

Action Ref (not in ranked order)	**Action**	**Reason**	**Scheduling & Dependencies**	**Importance**	**Lead Authority**	**Key Partners**	**Target Start Date**	**MTP entry (yes/no/not applicable)**	**If no MTP entry then alternative funding source**
		recreational communities. Apply the Govt's sea level rise allowances and guidance arising from UKCP09 or subsequent studies. It is expected that specific Schemes will be identified. Improvements and maintenance of all existing flood defences and industrial shoreline structures would cost an estimated £180M over the next 100 years; a significant proportion of the flood defences are privately owned/maintained or are industrial shoreline structures which are not classified flood defences but may reduce flood risk.							

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
12	Confirm the next phase of works for the West Solent Coastal Defence Strategy study	Conclude study to inform future landowner defence management plans. Improvements and maintenance of all existing flood defences would cost an estimated £280M over the next 100 years; the majority of the flood defences are privately owned/maintained within this FCERMS study area.	Can be concluded ahead of unresolved issues as part of reason why being concluded at this stage. Identify and assess flood and erosion risk implications of failure or non-maintenance of privately owned defences and to clarify coastal planning issues associated with failure of non-maintenance of defences.	High	New Forest DC	Environment Agency, New Forest National Park Authority, Hampshire County Council, Natural England, Landowners	2011	Yes	n/a
Schemes arising from approved CDS									
13	Schemes arising from Pagham to East Head Coastal Defence Strategy, such as Selsey and West Wittering Beach Management Development & Construction, and Selsey West Beach Recharge	West Wittering Flood Defences	Currently in PAR production. Construction dependent on PAB approval and funding	Medium	Environment Agency	Chichester District Council, Natural England, Landowners	Construc-tion May 2011	Yes	
14		Selsey West Beach Coast Protection Beach Recharge	planned works	High	Chichester District Council		Nov-10	yes	
15	Schemes arising from	PAR for Flood Cell 1 Southsea	planned works	High	Portsmouth City Council		Jan-11	yes	

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
16	Portsea Island Coastal Defence Strategy e.g.:-	PAR for Flood Cell 4 North Portsea Island	planned works	High	Portsmouth City Council		Jan-11	yes	
Asset Management Plans									
17	Production of System Asset Management Plans to deliver SMP policy for Epoch 1. EA to advise LA and private owners how to feed into process from land drainage and coastal protection perspectives	asset management and maintenance, health and safety	ongoing	High	Environment Agency	Input from Operating Authorities and private owners	No	n/a	
Environmental studies and considerations									
18	Apply the Govt's sea level rise allowances and guidance arising from UKCP09 or subsequent studies.	inform future FCERMS, Scheme delivery and reviews of North Solent, IOW, Hurst to Durlston, Durlston to Rame Head, Beachy Head to Selsey Bill SMPs, etc.	informing coastal management planning, schemes and decisions	High			to be confirmed	No	Requirement incorporated within CDS and other studies
19	Identify location for creation of saline lagoon within the Solent Maritime SAC to mitigate losses.								

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
20	Consider SEA mitigation measures when developing FCERMS, Schemes and other coastal studies								
21	Investigate quantification of additional habitat losses between date of site designation and 2005 to inform the Regional Habitat Creation Programme, as these were not in the Appropriate Assessment's original remit.								
Regional Studies									

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
22	Commission region-wide wave climate risk studies to identify impacts of bimodal wave period conditions on design risk of all structures and beach systems and assess overtopping and breach potential based on uncertainties identified in SMP2 and SCOPAC studies, in partnership with neighbouring SMPs	inform future FCERMS, Scheme delivery and reviews of North Solent, IOW, Hurst to Durlston, Durlston to Rame Head, Beachy Head to Selsey Bill SMPs, etc.	informing coastal management planning, schemes and decisions	High	New Forest DC	Southern Coastal Group	2011/12	Yes	n/a
23	Commission region-wide sediment transport studies to fill gaps and uncertainties identified through coastal processes review and SMP development, in		informing coastal management planning, schemes and decisions	High	New Forest DC	Southern Coastal Group	2012/13	Yes	n/a

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
	partnership with neighbouring SMPs								
24	Improve region-wide historical coastal evolution studies to identify impacts of coastal change based on aerial surveys in partnership with neighbouring SMPs	inform Planning Process (Coastal Change Management Areas), future FCERMS, Scheme delivery, sustainable environmental and amenity benefits and review of North Solent, IOW, Hurst to Durlston, Durlston to Rame Head, Beachy Head to Selsey Bill SMPs, etc.	informing coastal management planning, schemes and decisions	Medium	New Forest DC	Southern Coastal Group	2014/15	Yes	n/a
25	Identify sources and investigate potential opportunities for making beneficial use of dredged material for beach replenishment and saltmarsh stabilisation.	Iform environmental assessments and studies, address public concerns and progress Schemes	informing coastal management planning, schemes and decisions	Medium	to be confirmed. (New Forest DC?)	Southern Coastal Group	2015/16	Yes	n/a

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
26	Undertake a study on the long-term shoreline evolution of Hamble Point and Hamble River mouth to address the economic, environmental and social implications and to inform flood defence management options in the long-term	inform Planning Process (Coastal Change Management Areas), FCERMS, Scheme delivery, sustainable environmental and amenity benefits and SMP reviews, etc.	informing coastal management planning, schemes and decisions	Medium	Environment Agency	Local Authorities & Planning Authorities, Natural England	2015/16	Yes	?
Contaminated Land / Landfill sites / Pollution Risk									
27	Disseminate EA/ CIRIA review of contaminated land sites and apply to the North Solent region.	Review may inform management of sites and line of defence through site specific schemes of FCERMS. (Depending on content and scope of review of CIRIA report with regard to current and former landfill sites, there may be a need to explore funding sources for detailed investigations to determine potential contamination risks, groundwater saline intrusion risks and long-term management and relocation of former and	informing coastal management planning, schemes and decisions	High	Environment Agency for dissemination of CIRIA report	Environment Agency, Local Authorities, Planning Authorities, County Councils. Natural England	to be confirmed	not if County Councils leading. Also not FCDGIA	n/a

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
		current landfill sites in flood and erosion risk zones).							
Beach Management Plans									
28	Investigate need for Beach Management Plans and beach recycling operations	scheme delivery, sustainable management, environmental and amenity benefits	ongoing	High	Southern Coastal Group to coordinate LA requirements		no	n/a	from each individual organisation's internal budgets
29	Produce the plans for Beach Management Plan sites where necessary, following outcomes from Action 28		Dependent on Action 28	High	the relevant Operating Authority		to be confirmed	yes but in future years	n/a
30	Continue to implement current Beach Management Plans at sites such as Hurst Spit, Lee-on-the-Solent, Eastoke, and other sites as identified in Action 28		Dependent on Action 28	High	the relevant Operating Authority		Yes (various Las included BMPs in MTP)	Yes (various Las included BMPs in MTP)	n/a

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Regional Coastal Management									
31	Prepare an Engagement Plan for ongoing consultations and discussions with landowners, MOD, general public	see advisory actions	Informing FCERMS and schemes	High	Environment Agency	All CSG members	2011	No	Southern Coastal Group
32	Update the EA database of final SMP policies, and CSG member records and policy documents.	informing SMP reviews	Ongoing. Informing coastal management planning, schemes and decisions	High	Environment Agency	All CSG members	ongoing	No	from each individual organisation's internal budgets
Advisory Actions									
33	Report to the CSG and EMG as sub-groups of the Southern Coastal Group on the implementation of actions and update Action Plan and database. (NFDC to maintain SMP website)	Continued monitoring, data and information exchange, lessons learnt, etc	ongoing	High	Southern Coastal Group	All CSG members	No	n/a	n/a

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34	Include actions identified in Action Plan in the appropriate MTP submissions by CSG member authorities	Future funding and resource planning	ongoing	High	Southern Coastal Group	All CSG members to include relevant actions on their MTP. EA to audit process	No	n/a	n/a
35	Officers and Elected Members work with the Environment Agency to identify, secure and develop sites for habitat compensation and mitigation that contribute to the Regional Habitat Creation Programme.	Scheme delivery, sustainable environmental and amenity benefits	ongoing	High	Southern Coastal Group	All CSG members	No	n/a	n/a
36	Maintain a stakeholder engagement database and continue consultation with key stakeholders and general public in the period up to SMP3.	see Action 23. Continue to raise awareness of coastal change, sea level rise and implications of climate change, current and predicted flood and erosion risk and issues and future management of defences with Elected Members the public and stakeholders. Inform them of progress of action plan.	ongoing	High	All CSG members to identify and maintain database of stakeholders. Southern Coastal Group to collate stakeholder databases	No	n/a	36	n/a

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37	Consultation with MOD regarding their landholdings and defences	see Action 23. Ongoing and future consultations with the MOD with regard to maintenance and management of their defences. Recommend development of exit strategy if defences are either not to be maintained or if/when there may be a change in ownership of site; and continue to explore opportunities for realignment of defences for environmental enhancement and compensation habitat measures.	ongoing	High	All CSG members	No	n/a	37	n/a
38	Consultations with third parties with regard to privately owned and maintained defences	see Action 23. Ongoing and future consultations with the landowners / associations / groups with regard to maintenance and management of their defences and protection of property. Database of landowner's intentions for future management of defences and take up of HLS / RHCP opportunities.	ongoing	High	All CSG members		No	n/a	n/a
39	Consultations with development and planning colleagues e.g. defining Coastal	see Action 23. Encourage planning authorities, development and emergency response plans to refer to and take account of SMP policies, flood and erosion risk areas when	ongoing	High	All CSG members / Planning Authorities		No	n/a	n/a

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
	Change Management Areas, inform national shoreline management policy and clarifying legal and planning coastal issues such as role, options, liabilities and/or obligations of the Coastal Protection Authority, Planning Authority and private defence owners	identifying Coastal Change Management Areas, and consider preparations for extreme events that exceed design standards. Investigate with planners coastal planning issues e.g. potential liabilities if defences fail or not maintained, contributions to the Regional Habitat Creation Programme for additional habitat losses associated with improvement to or additional defences, etc.							
40	Integration of subsequent FCERMS/other studies with Catchment Flood Management Plans	Identification and delivery of potential habitat creation/mitigation/upstream migration, clarification and improvements to tidal and fluvial flood risk mapping e. River Wallington	ongoing	High	All CSG members	CDS Project team / Environment Agency & Local Authorities & Planning Authorities	No	n/a	n/a
41	Continue to update and improve flood risk maps and inundation modelling to provide improved flood	Inform Planning Process, FCERMS, Schemes, consultation exercises and SMP reviews; define Coastal Change Management Areas. These measures will identify opportunities to support	ongoing	High	Environment Agency	Southern Coastal Group members	No	n/a	n/a

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
	warning service and contingency planning and aid definition of Coastal Change Management Areas.	other approaches for protecting coastal communities.							
42	Review erosion and accretion rates, production of erosion risk areas, accreting areas and areas likely to permanently flood in order to define and update Coastal Change Management Areas (see PPS25 Supplement)	Inform Planning Process, FCERMS, Schemes, consultation exercises and SMP reviews; define Coastal Change Management Areas.	ongoing	High	Operating Authorities	Southern Coastal Group members	No	n/a	n/a
43	Ensure the National Coastal Erosion Risk Mapping is integrated with coastal and marine spatial planning, based on the latest available monitoring data	inform Planning Process (Coastal Change Management Areas), FCERMS, Schemes, consultation exercises and SMP reviews	ongoing	High	Environment Agency	Southern Coastal Group members	No	n/a	n/a

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	and is readily available to coastal authorities, SMP reviews, CDS and other studies								
44	Maintain a database of land and defence ownership details, defence type, condition and residual life, defence management intentions and reflect any changes arising from continued discussions with land and defence owners. Seek ownership and maintenance details for all defences when undertaking defence asset inspections in order to determine future work requirements and funding	inform FCERMS, Scheme delivery and SMP reviews, etc.	ongoing	High	Environment Agency & Local Authorities & Planning Authorities	Southern Coastal Group members	No	n/a	n/a

Action Ref (not in ranked order)	Action	Reason	Scheduling & Dependencies	Importance	Lead Authority	Key Partners	Target Start Date	MTP entry (yes/no/not applicable)	If no MTP entry then alternative funding source
	sources for maintenance and improvement works. Recommend the asset inspection and defence detail data included within EA operational mapping of defence assets.								
45	Disseminate Rapid Coastal Zone Assessment Survey (RCZSA) datasets for coastal and marine spatial planning and assessments and SMP3 review	inform Planning Process (Coastal Change Management Areas), FCERMS, Scheme delivery, sustainable environmental and amenity benefits and SMP reviews, etc.	ongoing	Medium	New Forest National Park Authority & English Heritage		2011	No	n/a
46	Continue and improve integration with tourism sector to develop sustainable management approaches for coastal communities	inform FCERMS, Schemes, consultation exercises and SMP reviews	ongoing	Medium	All CSG members / Planning Authorities		No	n/a	n/a

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47	Promote and encourage those at risk from flooding to sign up to Floodline Warnings Direct and prepare contingency measures and a Flood Plan	flood resilience and adaptive flood risk management	ongoing	Medium	Environment Agency & Local Authorities & Planning Authorities		No	n/a	n/a
48	Investigate accretion/erosion rates for intertidal habitat mapping and determining potential mitigation and compensation habitat creation when undertaking AAs at FCERMS and Scheme levels	Refine broad scale analysis in AA methodology which used a 3mm/yr accretion rate across Solent region (SDCP also developed 0mm and 6mm per yr scenarios). FCERMS / Scheme to identify the appropriate SDCP scenario for assessment.	ongoing	Medium	Environment Agency & Local Authorities & Planning Authorities		No	n/a	