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

Draft SMP for Public Consultation

Draft SMP

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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 principle 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, and the Selsey Bill to Beachy Head (South Downs) SMP adopted in 1997.

The 386km of coastline covered by this Plan extends from Selsey Bill, in the east, to Hurst Spit, in the west, and includes Portsmouth, Langstone and Chichester Harbours, Southampton Water and the tidal extent of the main rivers; this encompasses sediment cells 5A, 5B and 5C. Figure 1 shows the area covered by the North Solent SMP.

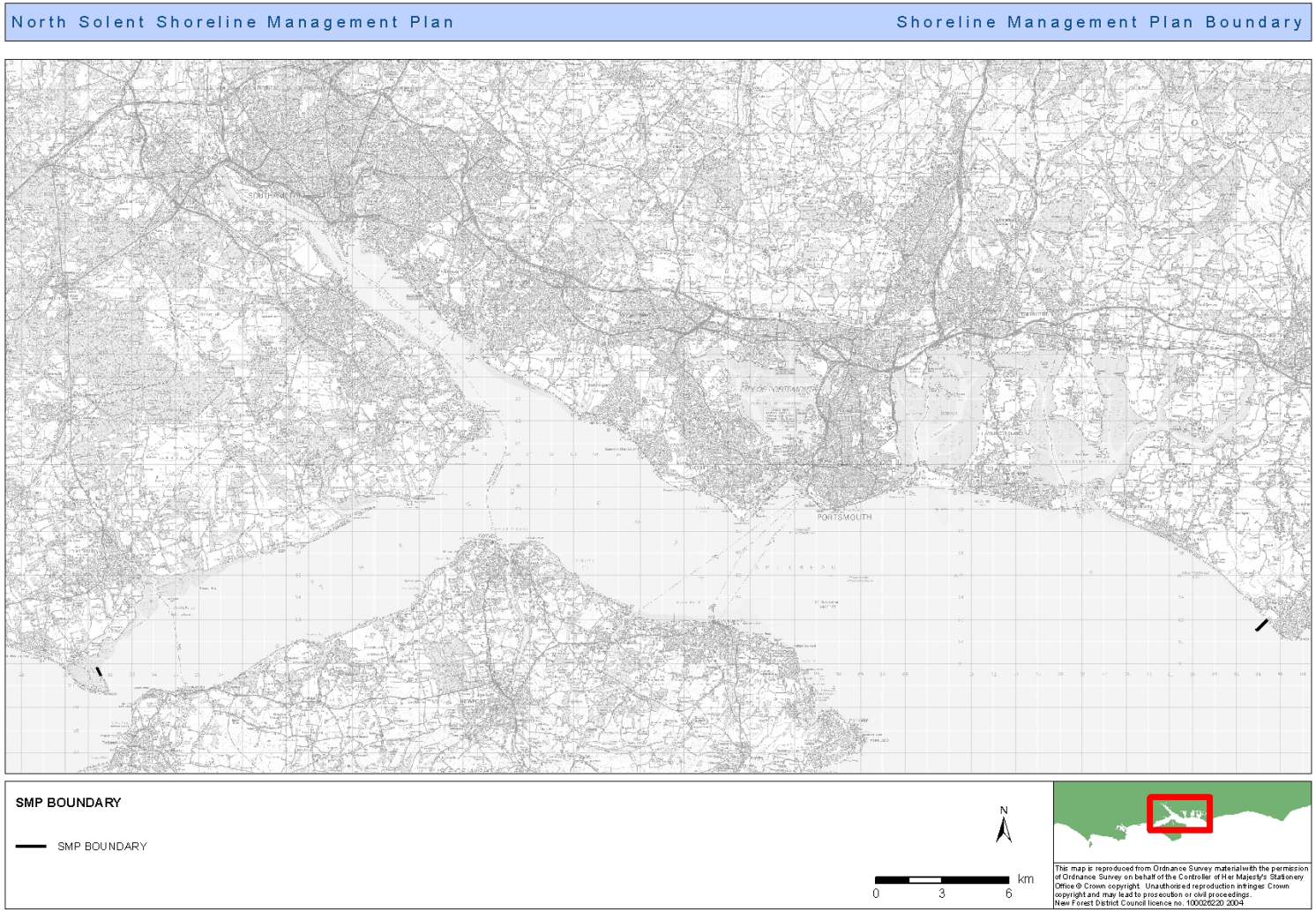


Figure 1. North Solent SMP area

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. There is also a suite of national and local designated sites.

- The majority of the North Solent has high levels of residential, commercial, industrial and 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 (PUSH, 2008)].

- Approximately 76% of the shoreline is defended with structures and/or beach management. 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 unless funding is available and secured, and works are undertaken to manage the coastal flood risk.

- At least 60% of the shoreline is privately owned and/or the defences are maintained by third parties. Private owners have the right to maintain, and/or the option to maintain their defences, and the vast majority of these third party defence works are funded by the landowner. 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).

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 the present day 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 (beginning of Consultation phase is February 1st 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.

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 Regional Spatial Strategies, 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.

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 parts:

Section 1 (this part) 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.

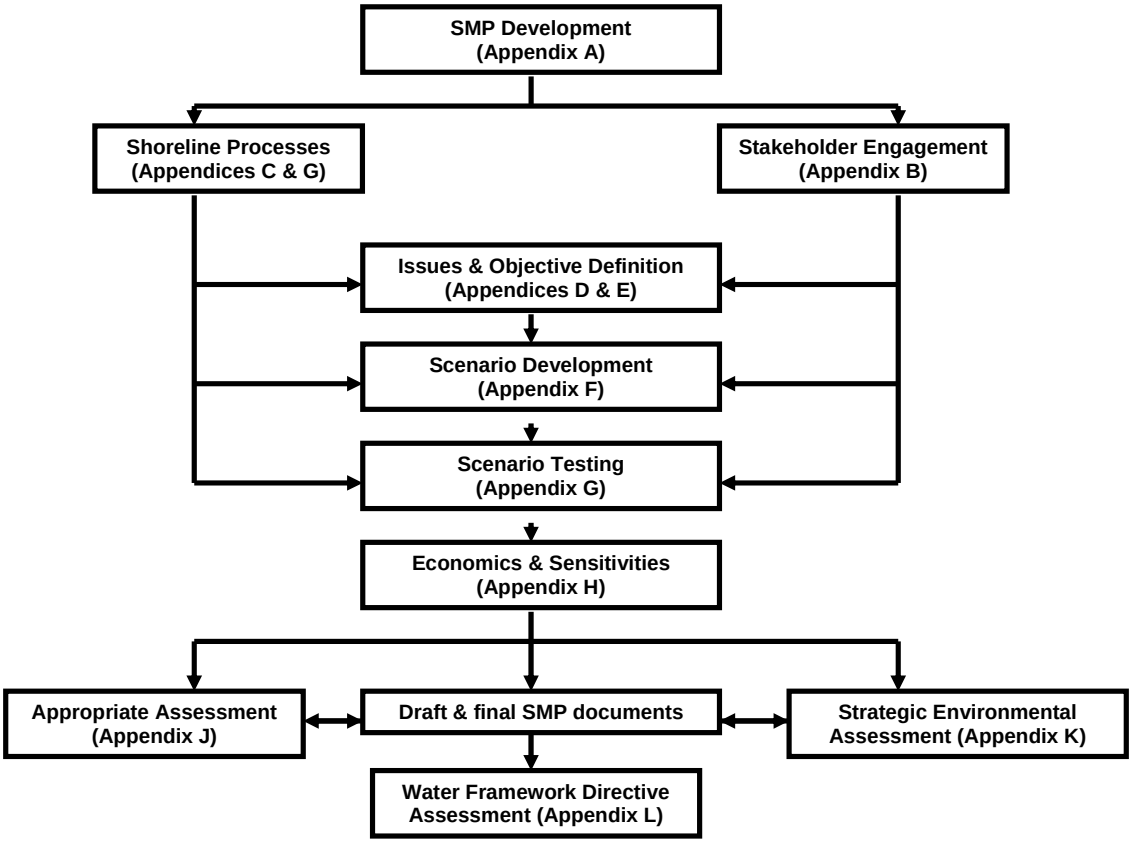
1.2.2 The Supporting Documents

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.

- Environment Agency Indicative Flood Mapping that 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, 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, Portchester to Emsworth CDS, River Itchen, Weston Shore, Netley, River Hamble CDS, Portsea Island CDS and other site-specific detailed investigations

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

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

- 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 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 (Appendix 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 final SMP will need to be formally adopted by the Local Authorities prior to submission to EA for approval. EA will approve the SMP on behalf of Defra. The final SMP will then be available for dissemination.

1.4 Policy Units

The shoreline was sub-divided into a number of frontages, each of which can be considered discrete from adjacent frontages due to geomorphology or coastal processes and/or its pertinent features and issues. Each 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 2 shows the 61 Policy Units within the North Solent SMP area.

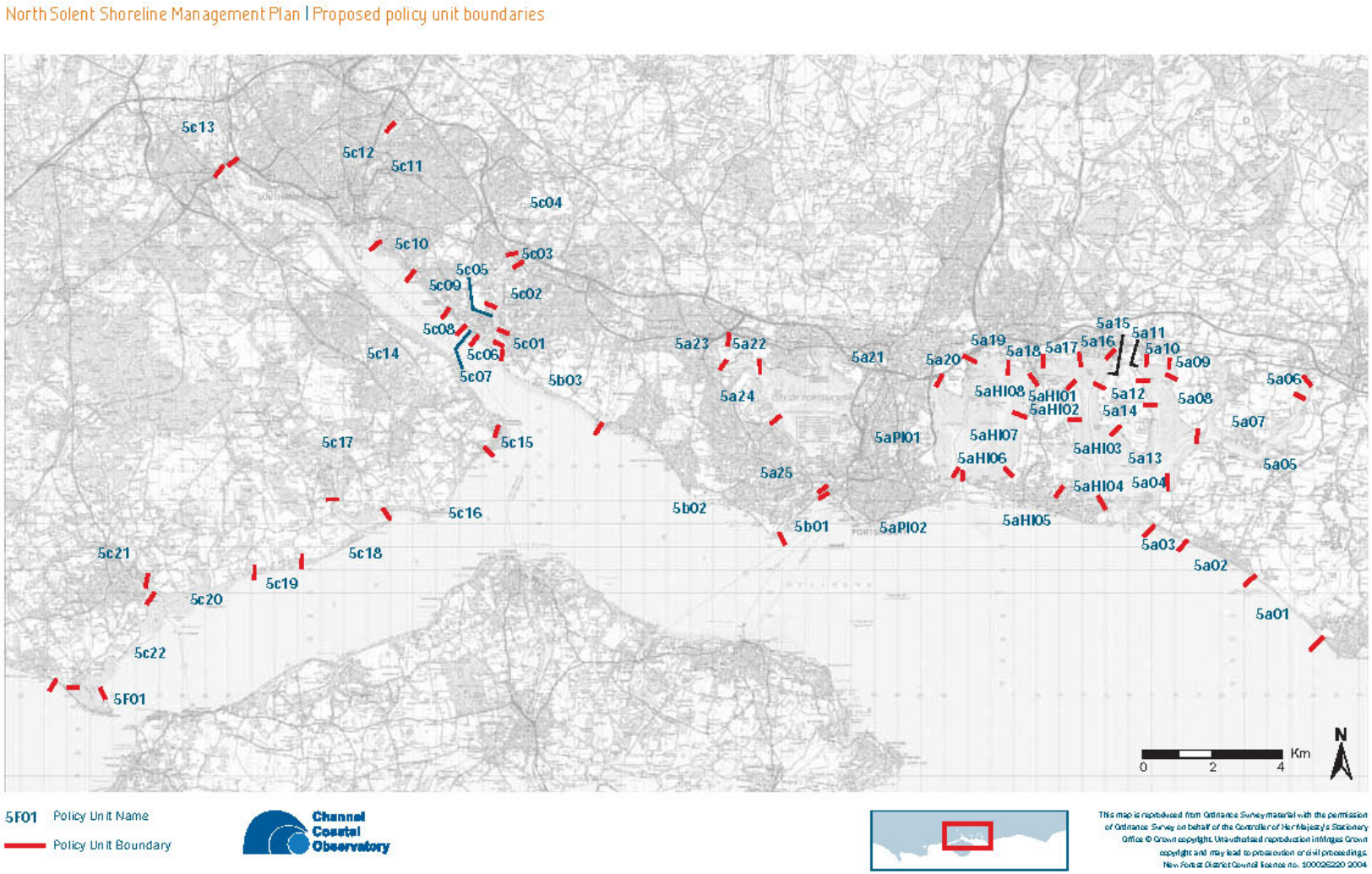


Figure 2. North Solent SMP Policy Units

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.

An SMP policy alone will not prejudice future planning applications for defences; each application will need to be considered individually.

There are four generic Defra policy options to choose from:

- **Hold The Line (HTL)** - maintain the existing defence line
- **Advance The Line (ATL) -** build new defences seaward of the existing defence line
- **Managed Realignment (MR)** - allow the shoreline to change with management to control or limit movement
- **No Active Intervention (NAI)** - a decision not to invest in providing or maintaining defence

For frontages where defences are realigned and then maintained this has been termed Hold the Realigned Line (HTRL).

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, 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.

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.

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 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. The right's of private land owners to maintain their defences have been acknowledged throughout the development of the SMP and apply and remain regardless of the SMP policies proposed at public consultation and in the Final SMP.

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.

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.

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, 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. The full detail of the draft Appropriate Assessment is provided in Appendix J. This draft assessment tests the impact of the proposed SMP policies to confirm whether these policies will have an adverse impact on the European designated sites. Following public consultation, a final Appropriate Assessment will be undertaken on the final preferred SMP policies.

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

3.2.1 Coastal Processes and Coastal Defence

Climate Change

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 response to research and improved predictive climate modelling, and advice from the Intergovernmental Panel on Climate Change (IPCC). 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 1. Regional net sea level rise allowances (FCDPAG, 2006).

Figure 3 shows the latest, exponential Defra predicted sea level rise compared with the old 6mm per annum guide. The new 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.

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.

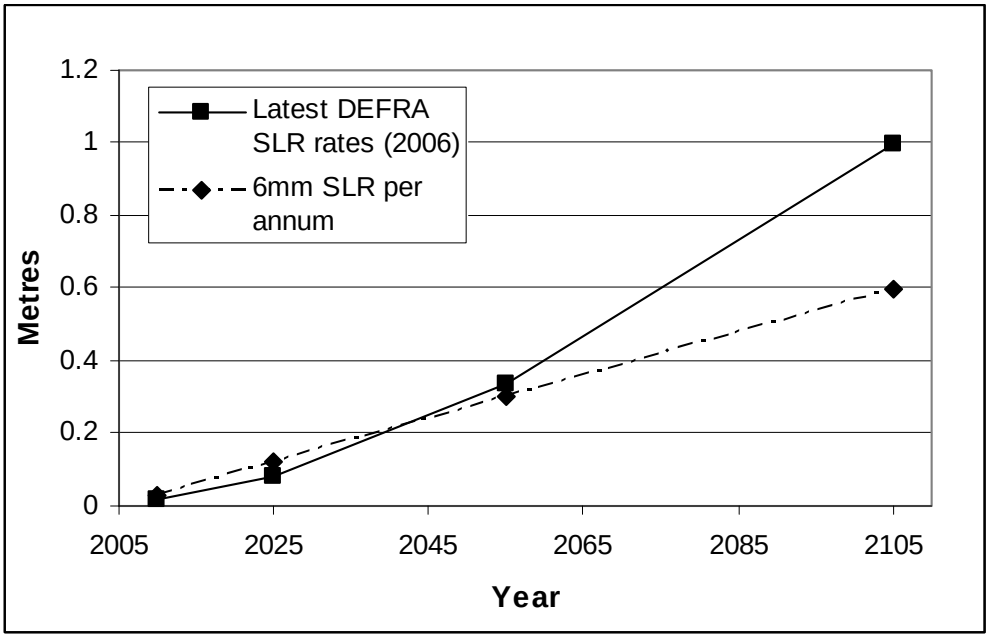


Figure 3. Comparison of current Defra sea level rise allowances with previous guidance of 6mm per annum

Recent climate studies have indicated that there are significant changes occurring within our climate; with bigger storms, 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 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.

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 toll 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, Hayling Island, and Medmerry.

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.

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 Defra High Level Target for Flood and Coastal Defence (Target 4 – Biodiversity) also requires all local councils and other operating authorities to:

- Avoid damage to environmental interest
- Ensure no net loss to habitats covered by Biodiversity Action Plans
- Seek opportunities for environmental enhancement
- Report progress in implementing actions that contribute to SSSI PSA Target and all losses and gains of habitats resulting from flood and coastal erosion risk management operations to the Environment Agency

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) identifies 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); although the exact definition of this is uncertain, it 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. 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.
The South East Plan (2006) 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 NRM6 (coastal zone management) and NRM3 (sustainable flood risk 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.

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 Port of Southampton is owned by Associated British Ports (ABP) and is the UK's second largest container port. 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 PPG15 (Planning and the Historical Environment) and PPG16 (Archaeology and Planning) 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 and land use

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 have not been included in these totals).

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.

	Number of properties in tidal floodplain from a 1 in 200 year event (assuming no defences)			
Total per Council	**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 2. Total number and type of properties per Council, potentially within tidal floodplain, assuming No Defences, for 2007 and 2115

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 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 exiting defence 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 Managed Realignment 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 secondary defences to continue to provide coastal flood risk protection to material assets. The type, location and alignment of secondary defences will be determined through subsequent Coastal Defence Strategies or other detailed studies, but it is likely the following sites would require secondary defences: Medmerry (5A01); Ella Nore (5A05); Fishbourne (5A06); East Chidham (5A07); Nutbourne (5A10); Warblington (5A17); Farlington Marshes (5A20); Hook Lake (5C01); Beaulieu River (5C18); Northney (5AHI02); Verner and Tournerbury (5AHI03); and Stoke and West Northney (5AHI08).

Proposed NAI policies in the long-term are likely to result in an increase 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.

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) 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.

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 (5A05, 5A06, 5A07, 5A09, 5A11 & 5A18) on Hayling Island (5AHI01, 5AHI03, 5AHI07 & 5AHI08) and in the West Solent (5C19 & 5C22). In general, implementation of MR policies may result in the loss of high-grade agricultural land at the majority of proposed sites. However, the amount of loss will depend on the extent of the MR and will be further assessed at the strategy and scheme level in 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); Calshot Spit to Inchmery (5C16); Inchmery to Salternshill (5C17); Sowley to Elmer's Court (5C20); 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 28,900 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.

Implementation of Hold the Line (HTL) policies 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. Any loss will require replacement habitat to be re-created in sustainable locations elsewhere.

No Active Intervention (NAI) policies proposed for frontages currently undefended will 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. 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).

Areas identified for Managed Realignment (MR) will create new intertidal mudflat and saltmarsh habitats as they naturally migrate inland; these sites include: Medmerry (5A01); Ella Nore and Horse Pond (5A05); Fishbourne (5A06); East Chidham and Bosham (5A07); West Chidham (5A08); Nutbourne (5A10); Conigar and Warblington (5A17); Farlington Marshes (5A20); Hook Lake (5C01); Beaulieu River (5C18); Lymington Reedbeds (5C20); Northney (5AHI02); Verner and Tournerbury (5AHI03).

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 proposed 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); Fishbourne (5A06); Warblington (5A17); Farlington Marshes (5A20); Hook Lake (5C01); Beaulieu River (5C18); Lymington Reedbeds (5C20); Northney (5AHI02); Verner and Tournerbury (5AHI03).

Predicting the effects of the draft SMP policies on sand dune and vegetated shingle habitats is difficult at the SMP level and hence these impacts will be further assessed at the strategy and scheme level where more detailed information will be used. 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)). In contrast, where nourishment or natural accretion is in line with sea level rise there will be a beneficial impact (i.e. Browndown (5B02)). At East Head, (5A04) an adaptive management approach will allow the currently unsustainable shoreline position to adjust to a more natural profile, allowing 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 draft 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. 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 proposed 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.

However, the proposed Managed Realignment policies will inevitably 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. Sites potentially affected by the proposed realignments include Medmerry (5A01), Fishbourne (5A06), Nutbourne (5A10), Verner Common and Tournerbury (5AHI03), Farlington Marshes (5A20), Hook Lake (5C01) and Beaulieu (5C18). 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 proposed No Active Intervention 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) and Calshot Castle (5C15); and a Registered Park and garden at Royal Victoria Country Park (5C09).

Where a proposed policy results in the loss of heritage features (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.

NAI policies proposed at 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.

4.2.5 Implications for amenity and recreational use

Recreational facilities may be affected by the policies set out in the SMP. 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.

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 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 should be involved. Natural England published a Maritime Strategy entitled ‘Our Coasts and Seas: making space for people, industry and wildlife’ to help deliver this.

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).

Private land and property owners will need to consider how they will deal with changes to the shoreline that affect 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.

However, the preferred Plan provides a long lead-in time for the changes that may take place at some point in the future, as advised by the Action Plan. This will allow those parties that are affected by the plan to adjust accordingly. 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 preferred 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.

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 4 presents the proposed policies for the full North Solent SMP area for epoch 1, 0-20 years; Figure 5 presents the proposed policies for epoch 2, 20-50 years; and Figure 6 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.

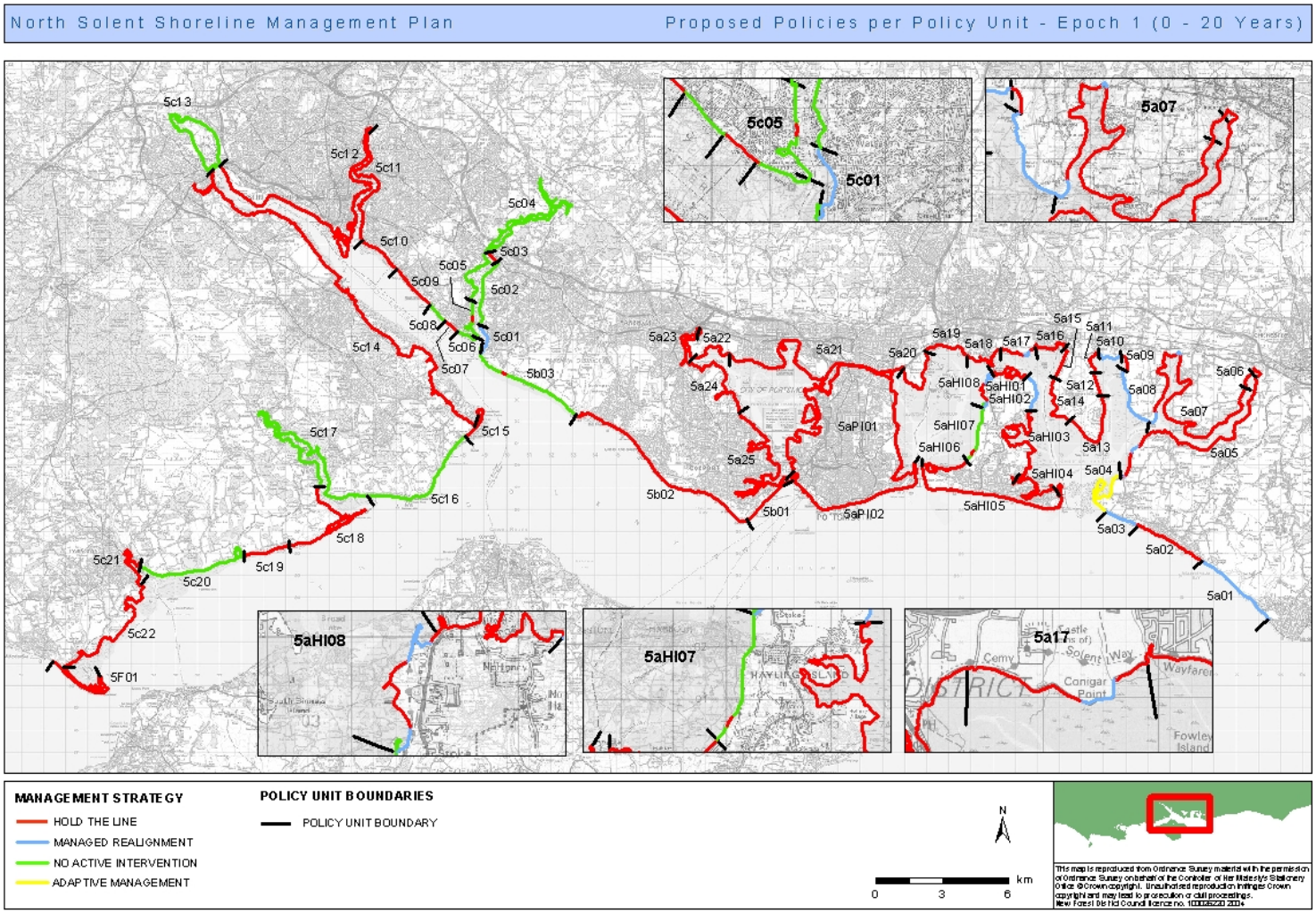


Figure 4. Proposed policies for the North Solent SMP area for epoch 1, 0-20 years

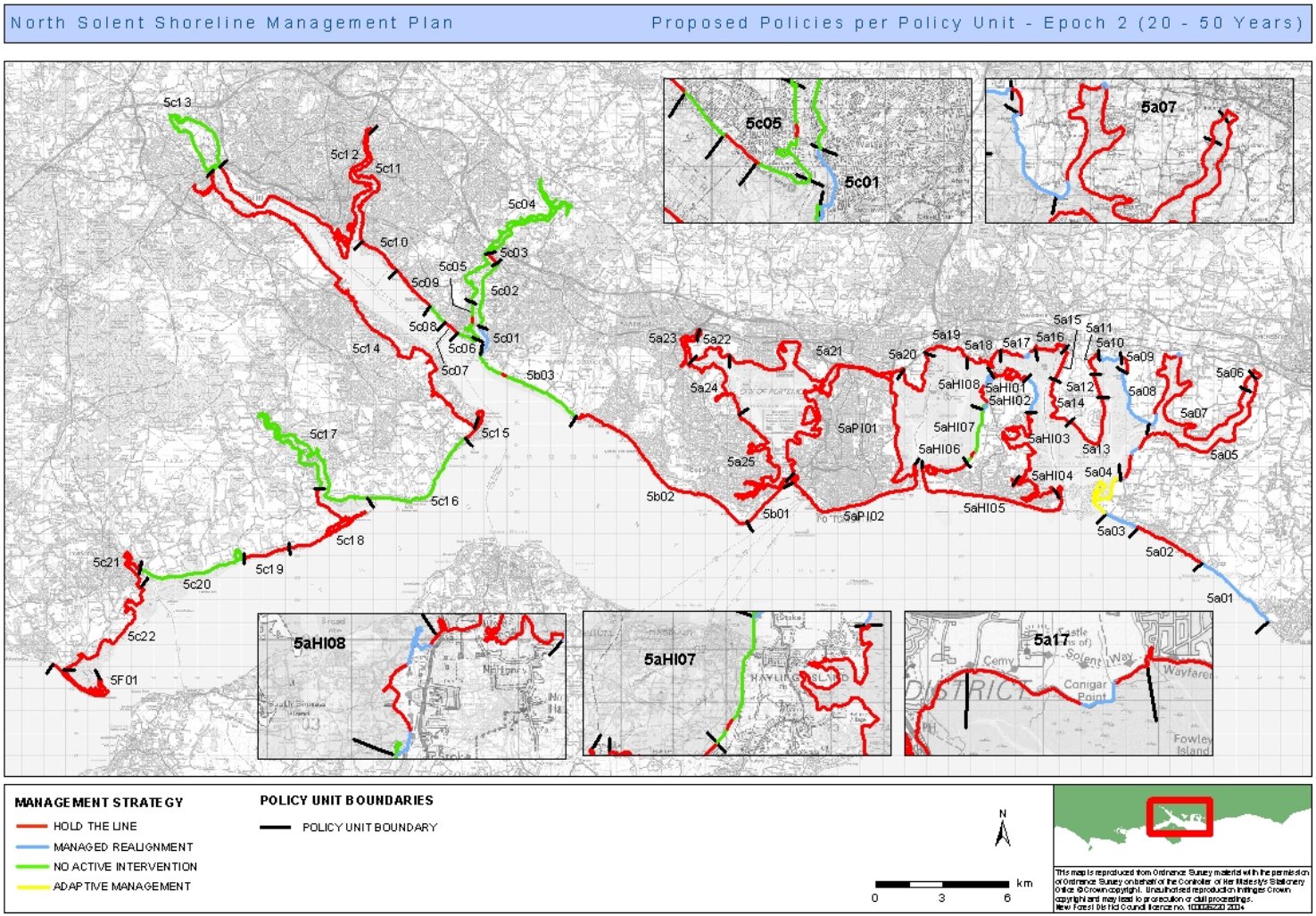


Figure 5. Proposed policies for the North Solent SMP area for epoch 2, 20-50 years

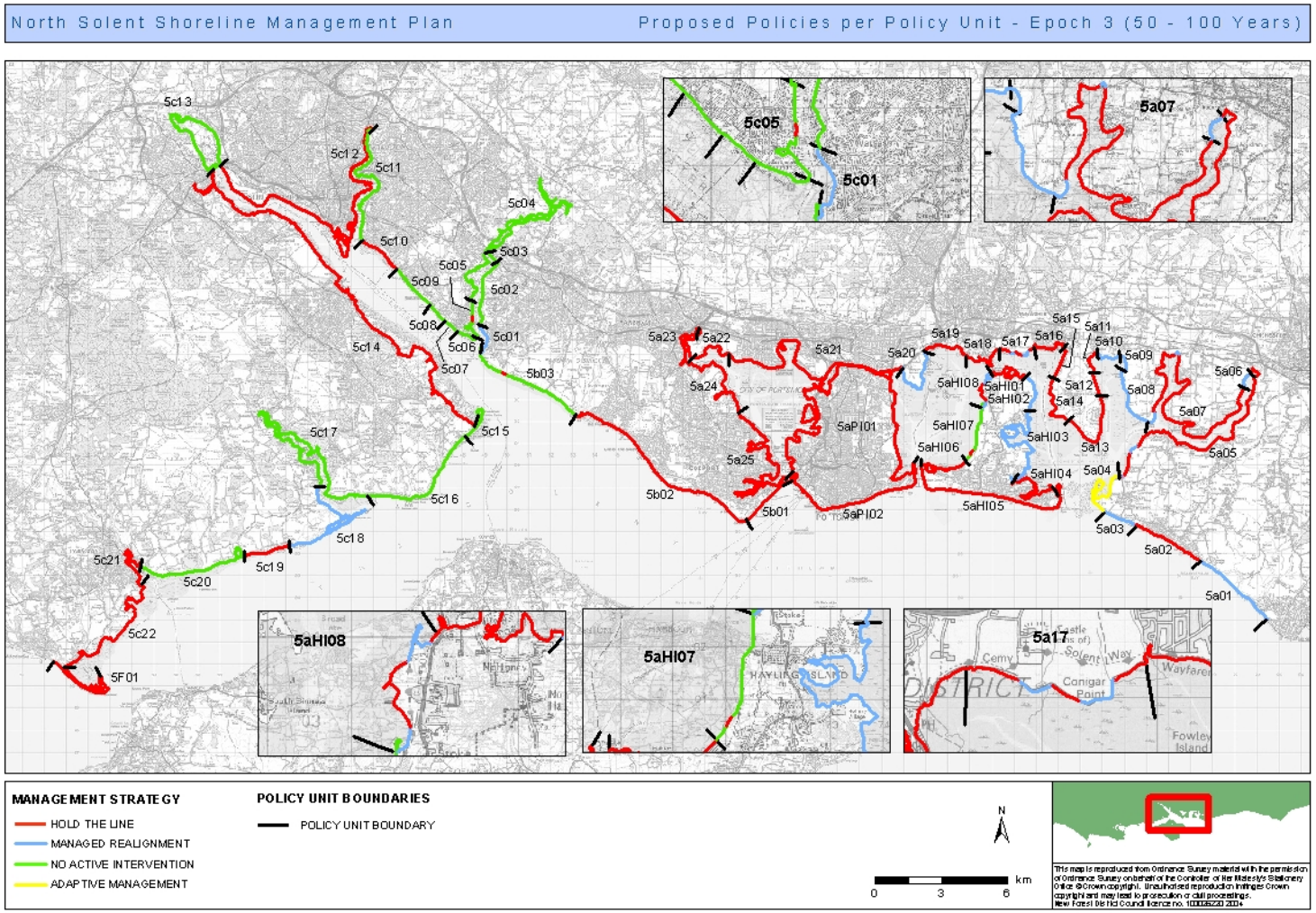


Figure 6. Proposed policies for the North Solent SMP area for epoch 3, 50-100 years