Appendix H: Economic Appraisal and Sensitivity Testing

Contents by Policy Unit

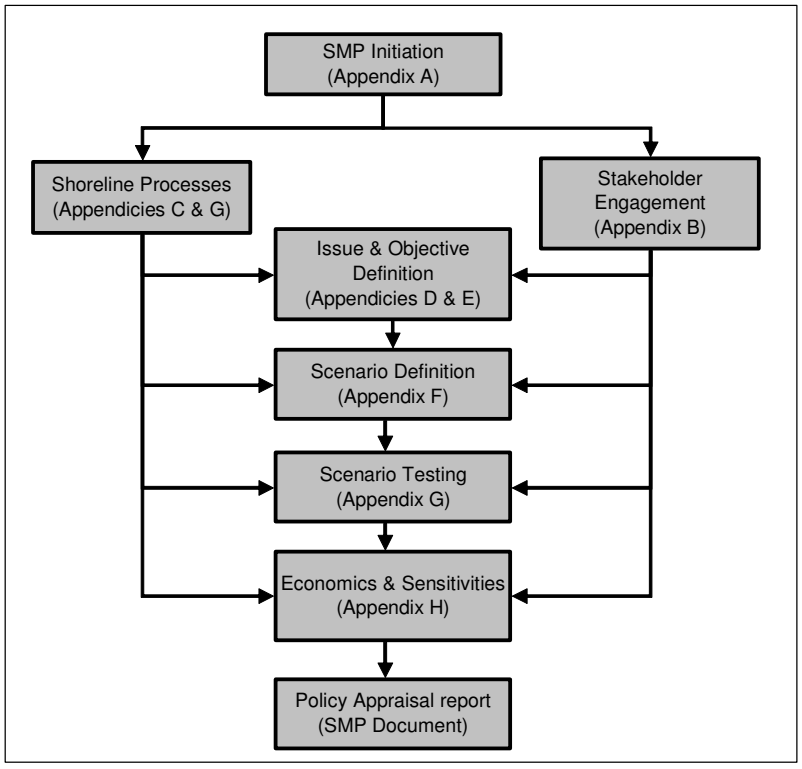
Note the geographic breakdown of the appraisals presented in this Appendix is not necessarily the same as the final Policy Units (PU). Here the breakdown has been based upon coastal process and morphological changes along the shoreline. For ease of reference, the following table identifies the page number on which appraisals relevant to each PU start.

The Supporting Appendices

This appendix and the accompanying documents provide all of the information required to support the Shoreline Management Plan (SMP). This is 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 are:

A: SMP Development	This reports the history of development of the SMP, describing more 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 baseline process report, defence assessment, NAI and WPM assessments and summarises data used in assessments.
D: Thematic 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 Preferred Plan (as presented in the Shoreline Management Plan document).
H: Economic Appraisal and Sensitivity Testing	Presents the economic analysis undertaken in support of the Preferred Plan.
I: Metadatabase and Bibliographic database	All supporting information used to develop the SMP is referenced for future examination and retrieval.

Within each appendix cross-referencing highlights the documents where related appraisals are presented. The broad relationships between the appendices are as below.



H1 Introduction

A review of economic viability has been carried out for the **Preferred Plan** and its associated policies.

It should be noted that this review is not to establish the economic justification for a scheme (as defined by Defra's Flood and Coastal Defence Project Appraisal Guidance Note 3: Economic Appraisal (FCDPAG3)), simply to make a broad assessment of the economic robustness of the preferred policies. The economic review therefore determines whether or not each policy is:

- clearly economically viable,
- clearly not economically viable, or
- of marginal viability (and therefore may be in need of more detailed assessment at a later date, e.g. as part of a strategic plan, although some commentary on this is provided within this report).

It must be recognised that the justification for a particular policy is not necessarily dependant on economic viability, as impacts on other benefits may be considered more important (e.g. holding existing defences to sustain a designated habitat). Any policies where this is the case may not be considered economically efficient under current Treasury guidance.

The following sections detail how the economic assessment has been undertaken. This is followed by a series of economic statements for each policy unit, and spreadsheets providing the numerical analysis performed as part of the SMP.

H2 Use of Existing Information

A number of strategy plans and scheme assessments have been developed for this coast over recent years. These contain detailed information on assets, benefits, and management costs. Where this is directly applicable, such information has been used.

However, the justifications in these previous studies are only applicable if all other aspects are the same, i.e.

- the timeframe: many strategies have looked at economics over only 50 years and use different discount factors to those now required by Treasury
- the area determined to be at risk: the SMP may have a modified assessment of the area that could be affected by erosion or flooding
- the preferred option matches that from the strategy: the SMP may be advocating a change from previous policy or management practice.

Where the above conditions are not realised, some of the raw data from the strategy plans has still been used, where it is readily available, as it is useful in validating or modifying information from the broad-scale SMP assessment.

H3 Generation of New Data

Where there is not existing information that can be used directly to confirm robustness of the SMP policy, new economic data has been derived through application of the Modelling and Decision Support Framework (MDSF) tool (which consists of a customised GIS (ESRI ArcView) and a data management toolkit). This 'Broad-Scale Economic Review', described below, uses nationally available information on property locations and values, and the risk maps developed through the assessment of shoreline interactions and responses (see Appendix C: Baseline Process Understanding).

H3.1 Determining damages and benefits

The benefits are the damages averted or deferred by the Preferred Plan, i.e. the difference in losses between implementing this and No Active Intervention (NAI) scenario. These have been calculated for each epoch.

Although policy appraisal has determined a 'zone' of likely future erosion, for the purposes of estimating possible benefits, only the most landward extent of the likely erosion (for each period: 0-20, 20-50 and 50-100 years) has been used. These lines have been mapped and overlain with the property location/value data to calculate potential economic losses and economic benefits for the NAI scenario and the Preferred Plan scenario.

In areas where there is a flooding risk, no attempt has been made to undertake detailed flood risk modelling; rather areas identified as at flooding risk by the Environment Agency's flood mapping have been used to identify assets potentially at risk. The potential damages in these areas are simply taken as the summed value of all the 'at risk' assets. This is based on the assumption that under a NAI scenario flood defences would fail and all at risk assets would be inundated and become inhabitable. This is taken as an indicative figure for the assets potentially protected by defence structures.

In calculating damages and benefits for the preferred scenario, no account has been taken of the potential for short-term accelerated or delayed losses down-coast compared to NAI, other than the total adjustment in shoreline position at the end of each epoch.

The SMP does not take account of standards of protection as it is only defence management policy that is being determined, whereas standards of protection relate to implementation (i.e. will be determined at strategy level).

H3.1.1 Benefit values

Losses and benefits have been calculated only on the basis of residential and commercial property values. Other assets, such as utilities, highways, and intangibles, such as recreation, impacts upon the local economy or environment, have not been valued or included. Exclusion of these factors will robustly confirm economic viability, as these would provide added value.

Losses and Benefits have been calculated using MDSF. This was populated with data from a national property database. The database is built from the Ordnance Survey Address Point dataset and the Valuation Office Focus database. Address Point identifies the location of all existing properties. The

Focus database then identifies which are non-residential (i.e. commercial/industrial) and provides a rateable value from which an approximate capital value is obtained, by applying a conversion factor. The remaining properties are assumed to be residential and current average residential property prices are obtained from www.upmystreet.co.uk, which provides property price statistics by postcode.

Using the 20, 50 and 100 year erosion contours, MDSF has been used to calculate the Capital Value (CV) and discounted Present Value (PV).

For the flood risk areas, GIS has been used to simply sum the CV for all built assets within the flood area, using the property database.

H3.1.2 Generation of new defence cost information

Future coastal defence management approaches for each Policy Unit have been developed as part of the Preferred Plan. From this, the broad replacement and maintenance requirements for each epoch have been determined.

Where there is no existing information relating to future defence costs for an area, e.g. from a strategy plan or scheme design, costs have been generated using other nationally available information.

(a) Cost Rates

Replacement costs for general defence types have been taken from the recently developed Environment Agency database. This suggests average replacement costs for linear structures (e.g. revetments, seawalls) as £2.7million/km and costs for beach management schemes at £5.1million/km.

Maintenance costs have been taken from the Defra National Appraisal of Defence Needs and Costs (NADNAC) study (2004). This used annual maintenance costs for linear structures and for groyne fields at £10,000/km, and for beach schemes £20,000/km.

Both replacement and maintenance costs for "low cost" defence structures (e.g. timber revetments) have been taken to be the same rate as for timber groynes*.

(b) Cost Calculations

It has been assumed that the timing of full scheme reconstruction required (i.e. design life) is at least once every 100 years for linear defences such as seawalls, every 50 years for beach schemes and every 30 years for groynes. However, these periods may become more frequent for areas where erosion potential is high and where areas are prominent, e.g. Dungeness, and thus subject to increasing high exposure. Maintenance has been assumed to be the same rate every year throughout the life of the scheme. In reality, this will be less in early years and will increase in later years of the scheme's life; however for the broad brush appraisal undertaken for the SMP this will make no difference to the decisions.

Allowance has also been made for the increase in costs due to climate change, based upon factors developed for the NADNAC study. This takes account of the need to make structures higher, deeper, and more resilient to increased exposure. The assumptions were: no cost increase for the 0-20 year

epoch; costs factored up by 1.5 times present day rates for the 20-50 year epoch; and costs factored up by 2.0 times present day rates for the 50-100 year epoch.

Optimism bias in accordance with most recent Defra guideline was finally applied to all costs (at 60%) to reflect uncertainty in broad level analysis at the SMP scale.

H3.2 Comparison of costs and benefits

As this review is not a full economic assessment, a formal benefit-cost assessment using benefit-cost ratios (BCR) has not been conducted; rather, the information available has been used to review the robustness of the preferred plan.

In comparing likely benefits and likely costs for the policies for an individual location over the full 100 year period it is however still useful in some instances to be able to consider these in terms of Present Value (PV).

Present Value is the value of a stream of benefits or costs when discounted back to the present day. For this SMP the discount factors used are the latest provided by Defra for assessment of schemes, i.e. 3.5% for years 0-30, 3.0% for years 31-75, and 2.5% thereafter.

For calculation of PV damages/damages, the approximate timing of property losses has been determined using MDSF and corresponding discount factors applied accordingly. For calculation of PV costs for defence replacement, the average discount factor for each epoch has been used, the actual timing of works being uncertain at present. The year-on-year maintenance PV costs have been calculated using the total of the discount rates for that epoch.

Where appropriate/available the PV costs and benefits have been taken from strategies/schemes and are presented in Section H4. The figures generated for this SMP are presented only as CVs in Section H4, reflecting the 'broad-scale' nature of the assessments undertaken. However, for further information the PV of these figures are presented in Annex H1 (for benefits/damages) and H2 (for costs).

H3.3 Sensitivity assessments

At selected locations, the economic viability of alternative defence policies has been assessed as a sensitivity case, where the alternative is potentially economically viable (see section H5 and Annex H2).

H4 Economic Appraisal Summary Table

The Table below provides a summary of the economic review of the preferred plan for each Policy Unit; it outlines any information used in this review, including benefits and costs, together with a statement on economic robustness.

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
4c01	South Foreland to Dover	None reviewed	***NAI Damages:*** By 2025: none By 2055: none By 2105: £421K (CV) Total NAI Damages: £421K	No defence intervention.	NAI policy is appropriate as no other option would be economically robust. Limited losses of built assets in the long term.
4c02	Dover	None reviewed	***NAI Damages:*** By 2025: up to £8m By 2055: up to £10.4m By 2105: up to £2.2m Total NAI Damages: £20m ***Preferred Plan (Hold the Line) Damages:*** By year 2025: none By year 2055: none By year 2105: none	The maintenance and replacement of existing defences under the hold policy have been costed as: ***Preferred Plan (Hold the Line) Costs:*** By year 2025: £1.9m By year 2055: £42.5m By year 2105: £60.4m (These include Optimism Bias and Climate Change allowance) These figures do not relate to maintaining Dover Harbour, only to the flood and coast defence structures.	The figures presented do not include for losses associated with the Dover Harbour infrastructure and commercial/ industrial usage. It is considered that a fuller economic evaluation of these potential benefits would provide a clear economic justification for hold the line over 100 years.
4c03	Shakespeare Cliffs	None reviewed	***NAI Damages:*** By 2025: none	No defence intervention.	NAI policy is appropriate as no other option would be

[1] The maximum extents of the indicative erosion zones were used in MDSF calculations

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
			By 2055: none By 2105: none		economically robust.
4c04	Samphire Hoe (Key Driver)	None reviewed	***NAI Damages:*** Loss of the ***Preferred Plan (Hold the Line) Damages:*** By year 2025: none By year 2055: none By year 2105: none	The maintenance and replacement of existing defences under the hold policy have been costed as: ***Preferred Plan (Hold the Line) Costs:*** By year 2025: £640k By year 2055: £14.4m By year 2105: £20.5m (These include Optimism Bias and Climate Change allowance)	The figures presented do not include for losses associated with the Channel Tunnel infrastructure, the recreational usage of the Hoe, and threats to the cliff top road in the long term. It is considered that a fuller economic evaluation of these potential benefits would provide a clear economic justification for hold the line over 100 years.
4c05	Abbots Cliff	None reviewed	***NAI Damages:*** By 2025: none By 2055: none By 2105: none	No defence intervention.	NAI policy is appropriate as no other option would be economically robust.
4c06	Folkestone Warren	Railtrack are currently spending approximately £2 million a year (as part of a 10 year programme of works) on toe defences and slope stabilisation/drainage at Folkestone Warren. It is considered likely that so long as the railway line is to be maintained, this level of expenditure (or greater) will be required.	***NAI Damages:*** By 2025: none By 2055: up to £195k (CV) By 2105: up to £620k (CV) Total NAI Damages: £815k This only represents loss of houses (set back from the back-scarp slope). The primary asset here is the railway line which would effectively be lost immediately once defence management ceased. No attempt	Capital costs are supplied by Railtrack at £2 million a year. This would equate to a CV of £200 million over the full 100 years or a PV of approximately £59 million.	The figures presented do not include for losses associated with the railway line, which is the main asset on this section. It is considered that a fuller economic evaluation of these potential benefits would provide a clear economic justification

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
			has been made to value this asset.		for hold the line over 100 years (if that remains appropriate).
4c07	Copt Point	Folkestone to Rye Strategy : No intervention recommended	***NAI Damages:*** By 2025: none By 2055: none By 2105: none	No defence intervention.	NAI policy is appropriate as no other option would be economically robust.
4c08	Folkestone and Sandgate	Hythe to Folkestone Harbour Coast Protection Scheme The recently completed 50-year scheme involved beach improvement with recharge and rock structures. It had a PV cost of: £19.8M (50 year CV cost is £27.4m) and; PV benefits of: £84.3M BCR of 4.2 Approximately half of the scheme frontage falls within this Unit (therefore assume half of costs apply, i.e. £13.7m CV). Folkestone to Rye Strategy : Promoted the above scheme. Also, Coronation Parade 50-year scheme to structurally repair existing structures, construct a short rock revetment and renourish the beach: PV benefits of : £10m PV costs of: £1.1m (CV not stated, but assume £2.2m) BCR of 10	***NAI Damages:*** By 2025: up to £5.4m By 2055: up to £94.8m By 2105: up to £90.1m Total NAI Damages: £190.3m ***Preferred Plan (Hold the Line) Damages:*** By year 2025: none By year 2055: none By year 2105: none	The existing scheme and strategy demonstrate the economic viability of the 50 year approach. Allowing for climate change, the capital cost of works to hold the line in the 50-100 year period are likely to be of the order of £31.8m (2 times £13.7m and £2.2m). It is anticipated that the Folkestone Harbour structures will remain in place with minimal maintenance.	The value of assets at risk provides an economically robust justification for the hold policy.

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
4c09	Sandgate to Hythe	Hythe to Folkestone Harbour Coast Protection Scheme The recently completed 50-year scheme involved beach improvement with recharge and rock structures. It had a PV cost of: £19.8M (50 year CV cost is £27.4m) and; PV benefits of: £84.3M BCR of 4.2 Approximately half of the scheme frontage falls within this Unit (therefore assume half of costs apply, i.e. £13.7m CV). Folkestone to Rye Strategy : Promoted the above scheme. Strategy identified additional possible area wide amenity benefits (for the full Dungeness flood risk area) of £400m, and infrastructure benefits of £25m.	***NAI Damages*** NAI could result in inundation of the Dungeness flood risk area (including Hythe, Romney Marsh and Pett Levels) which has over 16000 properties with a capital value of c. **£2.5 billion.** ***Preferred Plan (Hold the Line) Damages:*** By year 2025: none By year 2055: none By year 2105: none	The existing scheme demonstrates the economic viability of the 50 year approach. Allowing for climate change, the capital cost of works to hold the line in the 50-100 year period are likely to be of the order of £27.4m (2 times £13.7m)	The value of assets at risk provides an economically robust justification for the hold policy.
4c10	Hythe Ranges	Folkestone to Rye Strategy Recommended maintenance and improvement of existing timber and rock structures over 50 years. 50 year PV costs: £630k PV benefits (£k): £1.7m	***NAI Damages*** Potential retreat of the shoreline would not result in the loss of any properties, however NAI could potentially threaten inundation of the Dungeness flood risk area (including Hythe, Romney Marsh and Pett Levels) which has over 16000 properties with a capital value of c. **£2.5 billion.** ***Preferred Plan (Managed Realignment) Damages:*** By year 2025 (hold): none By year 2055 (MR): will depend on the realignment option selected	The cost of providing secondary defences would depend upon the alignment chosen. Estimated capital value to realign to the back of the Ranges is approximately £6.6m. These costs assume the provision of a simple embankment to prevent inundation of the backing low lying land (this is based on a rate of approximately £2m/km, allowing for some issues associated with ordnance). Allowing for climate change, it is considered likely that the cost to provide a full linear defence across the existing 3km frontage in the 20-50 year period could have a capital value of around £20.1m (or £26.8m in 50-	The existing strategy demonstrates the economic viability of maintaining existing structures in the short term; whilst it appears that there may be economic advantages (in defence cost terms) to providing a set-back defence in the medium to long term.

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
			By year 2105 (MR): will depend on the realignment option selected	100 years) to provide a similar standard of protection to the above embankment. Further information on the alternative alignment costs are provided in the Sensitivity Testing section H5.	
4c11	Dymchurch Redoubt to Romney Sands	<u>High Knocke to Dymchurch Redoubt Scheme</u> 100 year scheme designed and currently seeking approval. It has PV costs of: £79.7M PV benefits: £338M BCR is 6.84 This scheme is designed to provide a breach standard of 1 in 200 years. By raising and improving existing defences. <u>Littlestone Sea Defences</u> Recently completed 50 year flood defence scheme, improving existing defences and creating shingle beach. PV costs of: £9.65M PV benefits: £37.2M BCR is 3.86 <u>Folkestone to Rye Strategy :</u> Promoted the above schemes. Also promoted a Romney Sands Beach Management scheme, providing a 100 year standard. This has PV benefits of: £2m	***<u>NAI Damages</u>*** NAI could result in inundation of the Dungeness flood risk area (including Hythe, Romney Marsh and Pett Levels) which has over 16000 properties with a capital value of c. **£2.5 billion.** ***<u>Preferred Plan (Hold the Line) Damages:</u>*** By year 2025: none By year 2055: none By year 2105: none	The existing scheme/strategy appraisals present clear economic justification.	The schemes constructed and recommended for this frontage illustrate the clear justification for continued and improved defence of this frontage. The plan for this policy unit is Economically Robust

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
		PV costs of: £800k Strategy identified additional possible area wide amenity benefits (for the full Dungeness flood risk area) of £400m, and infrastructure benefits of £25m.			
4c12	Romney Sands to Dungeness Power Station	Folkestone to Rye Strategy Strategy recommended the development of an integrated Beach Management Plan for the Suttons (Camber) to Greatstone frontage. The strategy did not define the exact future management approach but estimated the PV cost for a long term solution to be £10-24m, with potential PV benefits of over £20 for properties (excluding the Power Station and environmental benefits). This frontage is identified as the likely (and ongoing) source for beach management material. Strategy identified additional possible area wide amenity benefits (for the full Dungeness flood risk area) of £400m, and infrastructure benefits of £25m.	***NAI Damages:*** No damages are anticipated as this is an accreting shingle frontage, backed by a wide shingle hinterland. ***Preferred Plan (Hold the Line) Damages:*** By year 2025: none By year 2055: none By year 2105: none	This is an accreting frontage, with no defence intervention planned. This area currently acts as the source for shingle recycling on the Dungeness south shore.	The plan for this policy unit is Economically Robust.
4c13	Dungeness Power Station	Folkestone to Rye Strategy The strategy included potential damages to the Power Station as a nominal £100m. The Power Stations require a standard of Protection of 10,000 years whilst operational. 50 year maintenance of a shingle ridge to required standard has a PV of £3m Strategy also recommended the	***NAI Damages(erosion):*** No damages defined (as there are no properties in the risk area), however there is a clear threat to the Power Stations (which have not been valued) under the NAI scenario. ***Preferred Plan (Hold the Line) Damages:*** By year 2025: none	Maintenance of bund, and continued shingle recycling. In the longer term it may be necessary to construct hard defence structures to maintain an appropriate standard of protection to the Power Stations (although the required standard will be lower when the stations are decommissioned). A linear structure across a 2km frontage would cost	The potential flood and erosion threat to the Power Station (which has not been valued in this analysis) ensures intervention is justified. Future study will need to establish the least

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
		development of an integrated Beach Management Plan for the Suttons (Camber) to Greatstone frontage. The strategy did not define the exact future management approach but estimated the PV cost for a long term solution to be £10-24m, with potential PV benefits of over £20m for properties (excluding the Power Station and environmental benefits).	By year 2055: none By year 2105: none	approximately £20m CV.	cost acceptable method of protection for the stations site.
4c14	Lydd Ranges	Folkestone to Rye Strategy The strategy does not identify a preferred 50-year approach for Lydd Ranges, maintaining the hold the line approach in the short term. However, it does recommend the development of an integrated Beach Management Plan for the Suttons (Camber) to Greatstone frontage. The strategy did not define the exact future management approach but estimated the PV cost for a long term solution to be £10-24m, with PV benefits of over £20m for properties (excluding the Power Station, environmental and MoD benefits). Strategy identified additional possible area wide amenity benefits of £400m, and infrastructure benefits of £25m.	***NAI Damages(erosion):*** By 2025: none By 2055: £1.3m By 2105: none NAI could result in inundation of the Dungeness flood risk area (including Hythe, Romney Marsh and Pett Levels) which has over 16000 properties with a capital value of c. **£2.5 billion.** The value of assets within the MoD ranges cannot readily be calculated; however it is likely that ongoing more detailed study will develop some understanding of the overall value of assets potentially at risk. ***Preferred Plan (Managed Realignment) Damages:*** Damages will depend on realignment option. To be decided by detailed study.	The cost of providing secondary defences would depend entirely upon the alignment chosen. Estimated capital values to set back at least mid way through the ranges (beyond influence of wave action) are around £13m or £15m dependant upon position. It is likely that defences to hold an alignment along the Green Wall, (allowing limited realignment at the eastern end) would cost of the order of £47m. Further information of the alternative alignment costs are provided in the Sensitivity Testing section H5.	It has not been possible to assign a value to the MoD assets on the Ranges. Detailed studies are currently considering this issue in relation to the possible realignment options. However, the risk to assets in the wider flood risk area, together with the potential value of MoD and environmental assets on this frontage make some form of intervention clearly viable.
4c15	Jury's Gap to The Suttons	Folkestone to Rye Strategy The strategy does not identify a preferred	***NAI Damages*** NAI could result in inundation of the	Capital cost of construction of a rock revetment with a 100 year design life is	The extent of potential flooding

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
		50-year approach for this frontage, maintaining the existing defences/practices in the short term ahead of the development of a longer term solution. It recommends the development of an integrated Beach Management Plan for the Suttons (Camber) to Greatstone frontage. The strategy did not define the exact future management approach but estimated the PV cost for a long term solution to be £10-24m, with potential PV benefits of over £20 for properties (excluding the amenity, environmental and infrastructure benefits). Strategy identified additional possible area wide amenity benefits (for the full Dungeness flood risk area) of £400m, and infrastructure benefits of £25m. <u>East Suttons to Jury's Gap Scheme</u> A 100 year rock revetment scheme arising from the above recommendation is currently being appraised. The economic appraisal is ongoing; however the draft analysis demonstrates a clear economic justification for the scheme.	Dungeness flood risk area (including Hythe, Romney Marsh and Pett Levels) which has over 16000 properties with a capital value of c. **£2.5 billion.** ***<u>Preferred Plan (Hold the Line) Damages:</u>*** By year 2025: none By year 2055: none By year 2105: none	estimated at £12m.	risks, and the high costs of alternative defence alignments (see sensitivity testing Section H5), makes this a robust option.
4c16	Camber Sands	<u>Folkestone to Rye Strategy</u> Recommended beach/ dune management. The strategy identified potential PV benefits of £422k, and PV cost of £100k.	***<u>NAI Damages (erosion):</u>*** NAI could result in inundation of the Dungeness flood risk area (including Hythe, Romney Marsh and Pett Levels) which has over 16000 properties with a capital value of c. **£2.5 billion.** ***<u>Preferred Plan (Hold the Line) Damages:</u>*** By year 2025: none	Anticipated that the beach/dune management recommendation of the strategy would be continued. No further cost developed.	The flood protection afforded by management of the dunes is considered to be clearly economically viable.

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
			By year 2055: none By year 2105: none		
4c17	River Rother (Mouth of the River Rother to the weirs at Rye)	Folkestone to Rye Strategy For the east bank of the river, the strategy recommended the repair/strengthening and raising as appropriate of the existing defences. At a PV cost of £575k for Scots Float Sluice to the River mouth. Little direct benefits were identified, but maintenance of a navigable channel was paramount. Rother Tidal Walls West Scheme 100 year scheme currently under construction to raise and replace the existing defences to provide a 200 year standard of protection over next 100 years: PV costs are £14.7M. PV benefits are £130.1M. Giving a benefit cost ratio of 8.8. Cliff End to Scots Float Sluice Strategy: Recommended the above scheme.	***NAI Damages:*** NAI could result in inundation of the Dungeness flood risk area (including Hythe, Romney Marsh and Pett Levels) which has over 16000 properties with a capital value of c. **£2.5 billion.** ***Preferred Plan Damages:*** By year 2025: none By year 2055: none By year 2105: none	No further costs have been defined for the SMP.	The Rother West scheme has demonstrated the viability of the 100 year achievement of a 200 year design standard. It is anticipated that the same justification will be readily achieved for improving defences on the east bank in the 50-100 year period, given the extent of potential flooding risks.
4c18	River Rother to Cliff End	Pett Frontage Sea Defence Scheme 50 year scheme currently under construction to raise defence standard to 200 years. Involves beach recharge and recycling, with maintenance of existing groynes and construction of new groynes, maintenance of embankment and secondary defences. PV cost is £14.9m (CV £25.1m)	***NAI Damages (erosion):*** NAI could result in inundation of the Dungeness flood risk area (including Hythe, Romney Marsh and Pett Levels) which has over 16000 properties with a capital value of c. **£2.5 billion.**	In the 50-100 year period it is considered likely that option costs will be double current day levels due to the impacts of climate change. Therefore, to construct a similar scheme to continue holding the line (beyond the current 50-year scheme) could have a Capital Value of £50.2m (2x £25.1m).	The existing scheme demonstrates the economic viability of the 50 year approach; whilst it appears that there may be economic advantages (in defence cost terms) to providing a

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
		PV Benefits of £30.5m BCR of 2.05 <u>Cliff End to Scots Float Sluice Strategy:</u> Recommended the above scheme.	Potential losses from unconstrained retreat of the shoreline (not including flooding), i.e. erosion of assets are: By 2025: up to £472k By 2055: up to £6.4m By 2105: up to £5.5m ***<u>Preferred Plan Damages:</u>*** By 2025: none By 2055: none By 2105: Damages will depend on the realignment option selected. Properties on Pett Level and in Cliff End/Winchelsea Beach have a CV of £75.8m (510 no. properties). Properties immediately backing the Pett Level section have a CV of £2.5m (37 no.).	The cost of providing secondary defences would depend entirely upon the alignment chosen. Estimated capital values of £20.6m and £27.2m were generated for possible inundation of just Pett Levels or whole Cliff End to Rother frontage. These costs assume the natural raised topography is used as part of the defence. This indicates that a retired defence would be economically worthwhile in the long term. Further information of the alternative alignment costs are provided in the Sensitivity Testing section H5.	set-back defence in the 50 to 100 year period. Clearly the viability of realignment will also depend upon the extent of asset losses and the environmental implications.
4c19	Cliff End to Fairlight Cove	<u>Cooden to Cliff End Coastal Defence Strategy:</u> Recommended no intervention.	***<u>NAI Damages:</u>*** By 2025: up to £707k (CV) By 2055: up to £1.18m (CV) By 2105: up to £1.18m (CV) Total	No defence intervention.	NAI policy is appropriate as no other option would be economically robust.
4c20	Fairlight Cove (East)	<u>Cooden to Cliff End Coastal Defence Strategy:</u> Recommended no intervention.	***<u>NAI Damages:</u>*** By 2025: up to £236k (CV) By 2055: up to £1.42m (CV) By 2105: up to £2.6m (CV) Total NAI Damages: £4.2m	The maintenance costs calculated for the rock bund are based on half the generic 'linear defence' rate as it is anticipated that very limited work will actually be required. The actual maintenance costs may even be substantially lower than this (based upon £5k/year).	Whilst the benefits of continued maintenance of the bund are not readily defined, the low overall costs (PV £95k) is considered economically viable for the extended life it

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
			Preferred Plan (Managed Realignment and No Active Intervention) Damages: By 2025: up to £236k (CV) By 2055: up to £1.42m (CV) By 2105: up to £2.6m (CV) Total Damages: £4.2m The preferred plan damages are stated as the same as NAI, as the NAI erosion includes for the presence of the rock bund over the 100 year period. However, it is likely that in reality maintenance of the bund would prolong its operational life and maintain a higher standard of erosion protection.	***Preferred Plan Costs:*** By 2025: up to £80k (CV) By 2055: up to £180k (CV) By 2105: none Total Costs: £260k	would offer the Sea Road properties.
4c21	Fairlight Cove Central (Rockmead Rd)	Cooden to Cliff End Coastal Defence Strategy: Recommended no intervention, pending outcome of ongoing studies.	***NAI Damages:*** By 2025: £4.5m By 2055: £3.3m By 2105: £5.2m Total NAI Damages: £13m ***Preferred Plan (Hold the Line and managed Realignment) Damages:*** By 2025: up to £2.1m, but will depend on the impacts of any intervention. By 2055: none By 2105: £10.8m Total preferred plan damages: £13m	An ongoing Scoping Study for this frontage is considering options to reduce the rate of slope retreat. Detailed costs are not yet known, however preliminary appraisals indicate that it may be economically viable to provide slope stabilisation measures.	This section of the coast is currently being reviewed in detail. Current recommendations suggest that slope stabilisation may be viable.
4c22	Fairlight Cove (West)	Cooden to Cliff End Coastal Defence Strategy:	***NAI Damages:***	No defence works are considered. Properties only at risk in long term.	NAI policy is appropriate as no

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
		Recommended no intervention.	By 2025: none By 2055: none By 2105: up to £5.4m Total NAI Damages: £5.4m	Possible costs to provide toe protection in long term are presented in the Sensitivity Testing section, H5.	other option would be economically robust.
4c23	Fairlight Cove (West) to Hastings	Cooden to Cliff End Coastal Defence Strategy: Recommended no intervention.	***NAI Damages:*** By 2025: none By 2055: none By 2105: none	No intervention proposed.	NAI policy is appropriate as no other option would be economically robust.
4c24	Hastings (includes the harbour)	Cooden to Cliff End Coastal Defence Strategy: 100 year preferred strategy to improve to 50 year standard of protection. Involves beach recharge, improvement of reduced number of groynes, and maintenance of existing walls, etc. PV Costs (for the recommended strategy): £21.8m PV Benefits: £74m BCR is 3.4	***NAI Damages (erosion):*** By 2025: up to £436K By 2055: up to £16.2m By 2105: up to £286m ***Preferred Plan (Hold the Line) Damages:*** By year 2025: none By year 2055: none By year 2105: none	See strategy appraisals.	The strategy appraisal has demonstrated the clear economic robustness of continued protection of Hastings.
4c25	Bulverhythe and Glyne Gap	Cooden to Cliff End Coastal Defence Strategy: 100 year preferred strategy to 'sustain' the current standard of protection. This involves beach recharge/recycling, and construction of a rock revetment and rock groynes. PV Costs (for the recommended strategy): £20.4m PV Benefits: £195.9m	***NAI Damages:*** NAI would result in inundation of the Combe Haven flood area which has over 600 properties with a capital value of over £100 million ***Preferred Plan (hold the line) Damages:*** By year 2025: none By year 2055: none	See strategy/scheme appraisals.	The scheme and strategy appraisals have demonstrated the clear economic robustness of continued protection of Bulverhythe/Glyne Gap.

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
		BCR is 9.6 <u>Bulverhythe Sea Defences:</u> The above strategy recommendation is now being progressed as a scheme, for which the costs have been refined slightly to £19.9m (PV), with an improved bcr of 9.86	By year 2105: none		
4c26	Bexhill to Cooden	<u>Cooden to Cliff End Coastal Defence Strategy:</u> 100 year preferred strategy of 'deferred maintain'. This involves beach recharge/recycling, and ongoing maintenance/improvement of groynes. PV Costs (for the recommended strategy): £7.4m PV Benefits: £63.4m BCR is 8.75	***<u>NAI Damage:</u>*** By 2025: up to £293K By 2055: up to £9.1m By 2105: up to £56m (Only considers properties, not infrastructure, tourism, etc.) ***<u>Preferred Plan (hold the line) Damages:</u>*** By year 2025: none By year 2055: none By year 2105: none	See strategy appraisals.	The strategy appraisal has demonstrated the clear economic robustness of continued protection of Bulverhythe/Glyne Gap.
4c27	Hooe and Pevensey Levels	<u>Redoubt Gardens to Cooden Coastal Defence Strategy:</u> The 50 year strategy presents a preferred approach for the full low lying frontage. It is presented in two parts: Sustain existing standard between Redoubt Gardens and Sovereign Harbour, by maintaining and enhancing groynes and managing beach profile. Improving to a 200 year standard between Sovereign Harbour and Cooden, by capital and ongoing shingle recharge, and groyne	***<u>NAI Damages:</u>*** NAI would result in inundation of the Hooe and Pevensey Levels flood cell which has 18000+ properties with a capital value of c. £3 billion. ***<u>Preferred Plan (hold the line) Damages:</u>*** By year 2025: none By year 2055: none By year 2105: none	See strategy appraisals.	The strategy appraisal has demonstrated the clear economic robustness of continued protection of Bulverhythe/Glyne Gap.

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
		maintenance/replacement PV Costs (for the recommended strategy): £54.5m PV Benefits: £1.05 billion BCR is 19.23 As a sensitivity test on the 50 year strategy, the **100 year costs** and benefits were considered. These are: PV Costs (for the recommended strategy): £65m PV Benefits: £1.06 billion BCR is 16.26	It is possible that in the long term, works to maintain the current shoreline alignment will result in the loss of the beach crest properties, but it is not possible to evaluate these until the nature of the long term approach is defined.		
4c28	Sovereign Harbour	Redoubt Gardens to Cooden Coastal Defence Strategy: The 50 year strategy presents a preferred approach for the full low lying frontage. It is presented in two parts: Sustain existing standard between Redoubt Gardens and Sovereign Harbour, by maintaining and enhancing groynes and managing beach profile. Improving to a 200 year standard between Sovereign Harbour and Cooden, by capital and ongoing shingle recharge, and groyne maintenance/replacement PV Costs (for the recommended strategy): £54.5m PV Benefits: £1.05 billion BCR is 19.23	***NAI Damages:*** NAI would result in inundation of the Hooe and Pevensey Levels flood cell which has 18000+ properties with a capital value of c. £3 billion. ***Preferred Plan (hold the line) Damages:*** By year 2025: none By year 2055: none By year 2105: none	See strategy appraisals.	The strategy appraisal has demonstrated the clear economic robustness of continued protection of Sovereign Harbour frontage.

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
		As a sensitivity test on the 50 year strategy, the **100 year costs** and benefits were considered. These are: PV Costs (for the recommended strategy): £65m PV Benefits: £1.06 billion BCR is 16.26			
4c29	Eastbourne	Redoubt Gardens to Cooden Coastal Defence Strategy: The 50 year strategy presents a preferred approach for the full low lying frontage. It is presented in two parts: Sustain existing standard between Redoubt Gardens and Sovereign Harbour, by maintaining and enhancing groynes and managing beach profile. Improving to a 200 year standard between Sovereign Harbour and Cooden, by capital and ongoing shingle recharge, and groyne maintenance/replacement PV Costs (for the recommended strategy): £54.5m PV Benefits: £1.05 billion BCR is 19.23 As a sensitivity test on the 50 year strategy, the **100 year costs** and benefits were considered. These are: PV Costs (for the recommended strategy): £65m	***NAI Damages:*** NAI on the eastern part of the frontage would result in inundation of the Hooe and Pevensey Levels flood cell which has 18000+ properties with a capital value of c. £3 billion. Cliff erosion on the western section could cause losses of: By 2025: £4K By 2055: £5.9m By 2105: £59m Total losses: £68.9m (Only considers properties, not infrastructure, tourism, etc.) ***Preferred Plan (hold the line) Damages:*** By year 2025: none By year 2055: none By year 2105: none	See strategy appraisals.	The strategy appraisal has demonstrated the clear economic robustness of continued protection of the Eastbourne frontage.

Location		Previous Strategy/Scheme Appraisals	Broad-scale Review (this SMP)		Conclusion
			Damages and Benefits[1] Capital Value (CV)	Assumed Defence Works & Costs Capital Value (CV)	
		PV Benefits: £1.06 billion BCR is 16.26 <u>Cuckmere Haven to Redoubt Gardens Coastal Defence Strategy:</u> The 50 year strategy identifies 'Sustain' existing standard as preferred for the cliffed section of Eastbourne, by shingle recharge and maintaining and replacing groynes and rock revetment. PV Costs: £9.8m PV Benefits: £36.7m BCR is 3.77 As a sensitivity test on the 50 year strategy, the **100 year costs** and benefits were considered. These are: PV Costs: £13.1m PV Benefits: £61.4m BCR is 4.67			
4c30	Beachy Head	<u>Cuckmere Haven to Redoubt Gardens Coastal Defence Strategy:</u> Recommends no intervention.	***<u>NAI Damages:</u>*** By 2025: none By 2055: none By 2105: none	No intervention planned.	NAI policy is appropriate as no other option would be economically robust.

Supplementing these tables are summary pages setting out the economic damages for No Active Intervention and the Preferred Plan, together with a calculation sheet identifying the build up of defence costs; these are included in Annex H1.

H5 Sensitivity Assessment Summary Table

The Table below provides a summary of the economic reviews undertaken for selected locations that required a sensitivity assessment, the table summarises the calculated benefits and costs, together with a statement on economic robustness. No sensitivities involving simply increasing or decreasing the above costs/benefits by a set factor were undertaken, as the values presented are 'broad brush' and not appropriate for development of specific Net Present Values of benefit cost ratios. The scheme/strategy figures used in the above table will already have undergone appropriate sensitivity testing.

Location		Description of Alternative tested	Broad-scale Review (this SMP)		Conclusions
			Alternative Benefits Capital Value (CV)	Alternative Costs Capital Value (CV)	
4c05	Abbots Cliff	Potential provision of rock bund at cliff toe to prevent long term threat of erosion of the rail line.	Long term delay to rail line loss (not evaluated).	Using a rate of £7m/km to reflect access difficulties and optimism bias, the CV for a 1.8km bund would be £12.6m (based upon current conditions.	It is not considered that the railway line will be affected on this frontage within the 100 year NAI, and therefore the additional costs may not be economically viable, although further investigation of the potential benefits of the rail line could change the long term decision.
4c10	Hythe Ranges	Potential provision of hard defences to maintain the current shoreline alignment (rather than the recommended realignment to the back of the Ranges).	Protection of Hythe Ranges assets (not evaluated).	To construct a linear defence over the 3.1km frontage would cost: £20.1m CV in years 20-50; or £26.8m CV in years 50-100 These figures allow for climate change. The provision of a realigned embankment is estimated to cost £10.6m allowing for 100 years climate change. This cost includes some contingency for increased costs associated with unexploded ordnance issues.	These figures indicate that there could be significantly increased costs if the current alignment is held to provide an adequate standard of protection in the long term.
4c11	Dymchurch Redoubt to Romney Sands	To consider the potential for allowing the coast to realign to a set-back position the construction of retired defences was costed, to appraise the	Potential environmental benefits.	Based upon detailed costs calculated for the Suttons to Jury's Gap frontage (see below) a cost of £11m/km was used for the set-back defences through Dymchurch	The provision of retired defences would be very costly, and given the low lying nature of the land it would be unlikely to offer any significant

Location		Description of Alternative tested	Broad-scale Review (this SMP)		Conclusions
			Alternative Benefits Capital Value (CV)	Alternative Costs Capital Value (CV)	
		economic implications.		to Romney Sands. This reflects the low-lying nature of this land and the need to protect any structure against long term wave action. The CV of realigned defences over the full 10.3km frontage is estimated as £113m.	coastal process or environmental gains.
4c14	Lydd Ranges	Potential provision of hard defences to maintain the current shoreline alignment (rather than the recommended realignment to the back of the Ranges).	Protection of Lydd Ranges MoD assets (not evaluated).	Given the nature of the frontage (and its use as a military firing range) it is not considered viable to actually hold the current alignment as this would be achieved through beach management process, but access to the foreshore is highly limited ruling out any high maintenance options. The most likely option to hold near the current shoreline position would be to improve the Green Wall. However given access and ordnance issues, and the need to provide an armoured structure, the cost for the full frontage is estimated at £47m.	If the ongoing evaluation of assets for the Ranges establishes a justification for provision of defence, then future study will need to establish the most appropriate alignment for protection of MoD assets and the backing flood area. Realignment would appear to offer the lowest cost solution, but at the potential loss of MoD assets.
4c15	Jury's Gap to The Suttons	To consider the potential for allowing the coast to realign to a set-back position the construction of retired defences was costed, to appraise the economic implications.	Potential environmental benefits.	Two alternative defence alignments were considered: one following the existing Kent Pen Wall (a new defence length of 3.8km); and another on a straight alignment from the Suttons to the point where the Kent Pen wall meets the Jury's Gap road (about 700m inland), a 2km defence. Given the low lying nature of the land (below spring high water), both of these would be exposed to wave action and need to be armoured. The unit cost of such is estimated to be around £11m/km, which includes an allowance for relocation of the coast road alongside the new	Given that improving defences along the current alignment are estimated at £12m, there would appear to be no justification for realignment.

Location		Description of Alternative tested	Broad-scale Review (this SMP)		Conclusions
			Alternative Benefits Capital Value (CV)	Alternative Costs Capital Value (CV)	
				defence. The CV costs are calculated as: £43m for the 3.8km Kent Pen alignment; £22m for the 2km diagonal alignment	
4c18	River Rother to Cliff End	Potential continued provision of hard defences in the 50-100 year period to hold the line on the Cliff End to Winchelsea Beach frontage.	Continuing to hold the line, rather than realigning, would potentially protect all properties on Pett Level and in Cliff End/Winchelsea Beach, which have a CV of £75.8m (510 no. properties). These are the properties that could potentially be affected by realignment.	In the 50-100 year period it is considered likely that option costs will be double current day levels due to the impacts of climate change. Therefore, to construct a similar scheme to continue holding the line (beyond the current 50-year scheme) could have a Capital Value of £50.2m (2x £25.1m).	Whilst the main appraisal has demonstrated the potential economic benefits of realignment (in costs terms), it is possible that continued 'hold' may be economically viable (this would require more detailed investigation). However, this would remove the potential environmental benefits.
4c19	Cliff End to Fairlight Cove	Potential provision of rock bund at cliff toe to prevent long term threat of erosion to cliff top properties.	Long term delay to property loss, with a 100 year CV of £3.1m. The PV the properties is £831k.	Given that these are simple cliffs, with access at Cliff End a rate of £4.3m/km (including Optimism Bias) for a linear structure is used. A short structure at Cliff End (500m) would have a CV of £2.2m. The PV would depend upon construction timing.	This is not considered economically viable given the low PV of the properties at risk. Delayed construction would reduce the PV cost, but also reduce the benefits, so provide no real overall benefit.
4c22	Fairlight Cove (West)	Potential provision of rock bund at cliff toe to prevent long term threat of erosion to cliff top properties.	Long term delay to property loss, with a 100 year CV of £5.4m. The PV the properties is £235k.	Using a rate of £7m/km to reflect access difficulties and optimism bias, the CV for a 700m bund would be £4.9m (based upon current conditions. The PV would depend upon construction timing.	This is not considered economically viable given the low PV of the properties at risk. Delayed construction would reduce the PV cost, but also reduce the benefits, so provide no real overall benefit.
4c27	Hooe and Pevensey Levels	To consider the potential for allowing the coast to realign to a set-back position the construction of retired defences was costed, to appraise the economic implications.	Potential environmental and coastal process benefits.	Based upon detailed costs calculated for the Suttons to Jury's Gap frontage (see above), two possible alternative alignments have been costed: One is along the rail line, and joining the coast east of Sovereign Harbour. This would involve 2.3km of new defences and 5.8km of armouring the railway embankment. The estimated CV cost of	The provision of retired defences would be very costly. It would potentially create new intertidal areas. However, there would be a very significant loss of built assets, including the railway line, roads, agricultural land and up to 1,800 properties. As such, realignment is not

Location		Description of Alternative tested	Broad-scale Review (this SMP)		Conclusions
			Alternative Benefits Capital Value (CV)	Alternative Costs Capital Value (CV)	
				this is £59.3m. The second follows the line of the A259 (inland of the railway). This would involve similar lengths of defence (as the road links to higher ground towards Bexhill), and has a similar CV cost £59.2m. These costs reflect the low-lying nature of this land and the need to protect any structure against long term wave action.	considered an economically viable option.

Annex H1: Supporting Economic Appraisal Data – Damages/Benefits

H5.1 Summary of No Active Intervention Erosion Losses

H5.1.1 No Active Intervention Residential Losses

Policy Unit		0-20			20-50			50-100			Total (0-100)		
		No.	CV	PV	No.	CV	PV	No.	CV	PV	No.	CV	PV
4c01	Dover to South Foreland							2	£421,802	£29,227	2	£421,802	£29,227
4c02	Dover Harbour	35	£7,381,535	£4,184,400	7	£1,476,307	£527,303	10	£2,109,010	£255,420	52	£10,966,852	£4,967,123
4c03	Shakespeare Cliff												
4c04	Samphire Hoe												
4c05	Abbot's Cliff												
4c06	Folkestone Warren				1	£194,843	£82,674	3	£584,529	£26,180	4	£779,372	£108,854
4c07	Copt Point												
4c08	Folkestone	23	£3,429,139	£2,648,429	620	£92,437,660	£31,702,624	478	£71,266,454	£6,811,400	1121	£167,133,253	£41,162,453
4c09	Hythe to Sandgate	Dungeness Flood Risk Area (no erosion losses calculated)											
4c10	Hythe Ranges												
4c11	Littlestone to Hythe Ranges												
4c12	Ness to Littlestone												
4c13	Dungeness Power Station												
4c14	Lydd Ranges												
4c15	Suttons to Jurys												
4c16	Camber												
4c17	River Rother												
4c18	Cliff End to River Rother												
4c19	Fairlight Cove to Cliff End	3	£707,391		5	£1,178,985	£317,859	5	£1,178,985	£100,303	13	£3,065,361	£831,051
4c20	Fairlight Cove	1	£235,797	£138,250	6	£1,414,782	£448,436	11	£2,593,767	£217,830	18	£4,244,346	£804,516
4c21	Fairlight, Rockmead Road	19	£4,480,143	£3,025,367	14	£3,301,158	£1,018,003	22	£5,187,534	£456,885	55	£12,968,835	£4,500,255
4c22	Fairlight West							23	£5,423,331	£234,369	23	£5,423,331	£234,369
4c23	Hastings to Fairlight												
4c24	Hastings	3	£435,519	£303,216	100	£14,517,300	£3,216,990	1277	£247,410,020	£14,195,132	1380	£262,362,839	£17,715,338
4c25	Glyne Gap and Bulverhythe							63	£13,246,128	£544,340	63	£13,246,128	£544,340
4c26	Cooden and Bexhill	1	£210,256	£115,873	42	£8,830,752	£2,580,421	261	£54,876,816	£3,961,854	304	£63,917,824	£6,658,148
4c27	Hooe & Pevensey Levels	Hooe & Pevensey Flood Risk Area (no erosion losses calculated)											
4c28	Soverign Harbour												
4c29	Eastbourne				12	£2,010,504	£525,155	259	£43,393,378	£4,188,238	271	£45,403,882	£4,713,393
4c30	Beachy Head												

Note: 'No.' refers to number of properties

H5.1.2 No Active Intervention Commercial Losses

Policy Unit		0-20			20-50			50-100			Total (0-100)		
		No.	CV	PV	No.	CV	PV	No.	CV	PV	No.	CV	PV
4c01	Dover to South Foreland												
4c02	Dover Harbour	13	£672,683	£487,206	23	£8,936,284	£2,890,156	2	£135,250	£23,522	38	£9,744,216	£3,400,883
4c03	Dover Beach												
4c03	Shakespeare Cliff												
4c04	Samphire Hoe												
4c05	Abbot's Cliff												
4c06	Folkestone Warren							1	£36,000	£1,611	1	£36,000	£1,611
4c07	Copt Point												
4c08	Folkestone	9	£1,991,602	£1,027,113	117	£2,384,492	£772,775	118	£18,826,304	£1,904,995	244	£23,202,398	£3,776,744
4c09	Hythe to Sandgate	Dungeness Flood Risk Area (no erosion losses calculated)											
4c10	Hythe Ranges												
4c11	Littlestone to Hythe Ranges												
4c12	Ness to Littlestone												
4c13	Dungeness Power Station												
4c14	Lydd Ranges												
4c15	Suttons to Jurys												
4c16	Camber												
4c17	River Rother												
4c18	Cliff End to River Rother												
4c19	Fairlight Cove to Cliff End							1	£4,320	£240	1	£4,320	£240
4c20	Fairlight Cove												
4c21	Fairlight, Rockmead Road												
4c22	Fairlight West												
4c23	Hastings to Fairlight												
4c24	Hastings				14	£1,659,534	£360,716	390	£38,547,817	£2,878,259	404	£40,207,351	£3,238,975
4c25	Glyne Gap and Bulverhythe							7	£805,409	£32,658	7	£805,409	£32,658
4c26	Cooden and Bexhill	1	£82,432	£47,473	3	£258,241	£65,846	13	£829,968	£73,088	17	£1,170,641	£186,407
4c27	Hooe & Pevensey Levels	Hooe & Pevensey Flood Risk Area (no erosion losses calculated)											
4c28	Soverign Harbour												
4c29	Eastbourne	5	£3,963,800	£3,225,055	21	£3,908,682	£1,164,761	61	£15,637,346	£1,132,717	87	£23,509,829	£5,522,534
4c30	Beachy Head												

Note: 'No.' refers to number of properties

H5.1.3 No Active Intervention Combined Residential & Commercial Losses

Policy Unit		0-20			20-50			50-100			Total (0-100)		
		No.	CV	PV	No.	CV	PV	No.	CV	PV	No.	CV	PV
4c01	Dover to South Foreland							2	£421,802	£29,227	2	£421,802	£29,227
4c02	Dover Harbour	48	£8,054,218	£4,671,606	30	£10,412,591	£3,417,459	12	£2,244,260	£278,942	90	£20,711,068	£8,368,006
4c03	Dover Beach												
4c03	Shakespeare Cliff												
4c04	Samphire Hoe												
4c05	Abbot's Cliff												
4c06	Folkestone Warren				1	£194,843	£82,674	4	£620,529	£27,791	5	£815,372	£110,465
4c07	Copt Point												
4c08	Folkestone	32	£5,420,741	£3,675,542	737	£94,822,152	£32,475,399	596	£90,092,758	£8,716,395	1365	£190,335,651	£44,939,197
4c09	Hythe to Sandgate	Dungeness Flood Risk Area (no erosion losses calculated)											
4c10	Hythe Ranges												
4c11	Littlestone to Hythe Ranges												
4c12	Ness to Littlestone												
4c13	Dungeness Power Station												
4c14	Lydd Ranges												
4c15	Suttons to Jurys												
4c16	Camber												
4c17	River Rother												
4c18	Cliff End to River Rother												
4c19	Fairlight Cove to Cliff End	3	£707,391		5	£1,178,985	£317,859	6	£1,183,305	£100,543	14	£3,069,681	£831,291
4c20	Fairlight Cove	1	£235,797	£138,250	6	£1,414,782	£448,436	11	£2,593,767	£217,830	18	£4,244,346	£804,516
4c21	Fairlight, Rockmead Road	19	£4,480,143	£3,025,367	14	£3,301,158	£1,018,003	22	£5,187,534	£456,885	55	£12,968,835	£4,500,255
4c22	Fairlight West							23	£5,423,331	£234,369	23	£5,423,331	£234,369
4c23	Hastings to Fairlight												
4c24	Hastings	3	£435,519	£303,216	114	£16,176,834	£3,577,706	1667	£285,957,837	£17,073,391	1784	£302,570,190	£20,954,313
4c25	Glyne Gap and Bulverhythe							70	£14,051,537	£576,998	70	£14,051,537	£576,998
4c26	Cooden and Bexhill	2	£292,688	£163,346	45	£9,088,993	£2,646,267	274	£55,706,784	£4,034,942	321	£65,088,465	£6,844,555
4c27	Hooe & Pevensey Levels	Hooe & Pevensey Flood Risk Area (no erosion losses calculated)											
4c28	Soverign Harbour												
4c29	Eastbourne	5	£3,963,800	£3,225,055	33	£5,919,186	£1,689,916	320	£59,030,724	£5,320,955	358	£68,913,711	£10,235,927
4c30	Beachy Head												

Note: 'No.' refers to number of properties

H5.2 Summary of Preferred Plan Erosion Losses

H5.2.1 Preferred Plan Residential Losses

Policy Unit		0-20			20-50			50-100			Total (0-100)		
		No.	CV	PV	No.	CV	PV	No.	CV	PV	No.	CV	PV
4c01	Dover to South Foreland							2	£421,802	£29,227	2	£421,802	£29,227
4c02	Dover Harbour												
4c03	Shakespeare Cliff												
4c04	Samphire Hoe												
4c05	Abbot's Cliff												
4c06	Folkestone Warren				1	£194,843	£82,674	3	£584,529	£26,180	4	£779,372	£108,854
4c07	Copt Point												
4c08	Folkestone												
4c09	Hythe to Sandgate	Dungeness Flood Risk Area (no erosion losses calculated)											
4c10	Hythe Ranges												
4c11	Littlestone to Hythe Ranges												
4c12	Ness to Littlestone												
4c13	Dungeness Power Station												
4c14	Lydd Ranges												
4c15	Suttons to Jurys												
4c16	Camber												
4c17	River Rother												
4c18	Cliff End to River Rother												
4c19	Fairlight Cove to Cliff End	3	£707,391		5	£1,178,985	£317,859	5	£1,178,985	£100,303	13	£3,065,361	£831,051
4c20	Fairlight Cove	1	£235,797	£138,250	6	£1,414,782	£448,436	11	£2,593,767	£217,830	18	£4,244,346	£804,516
4c21	Fairlight, Rockmead Road	9	£2,122,173	£1,475,534				46	£10,846,662	£931,928	55	£12,968,835	£2,407,462
4c22	Fairlight West							23	£5,423,331	£234,369	23	£5,423,331	£234,369
4c23	Hastings to Fairlight												
4c24	Hastings												
4c25	Glyne Gap and Bulverhythe												
4c26	Cooden and Bexhill												
4c27	Hooe & Pevensey Levels	Hooe & Pevensey Flood Risk Area (no erosion losses calculated)											
4c28	Soverign Harbour												
4c29	Eastbourne												
4c30	Beachy Head												

Note: 'No.' refers to number of properties

H5.2.2 Preferred Plan Commercial Losses

Policy Unit		0-20			20-50			50-100			Total (0-100)		
		No.	CV	PV	No.	CV	PV	No.	CV	PV	No.	CV	PV
4c01	Dover to South Foreland												
4c02	Dover Harbour												
4c03	Dover Beach												
4c03	Shakespeare Cliff												
4c04	Samphire Hoe												
4c05	Abbot's Cliff												
4c06	Folkestone Warren							1	£36,000	£1,611	1	£36,000	£1,611
4c07	Copt Point												
4c08	Folkestone												
4c09	Hythe to Sandgate	Dungeness Flood Risk Area (no erosion losses calculated)											
4c10	Hythe Ranges												
4c11	Littlestone to Hythe Ranges												
4c12	Ness to Littlestone												
4c13	Dungeness Power Station												
4c14	Lydd Ranges												
4c15	Suttons to Jurys												
4c16	Camber												
4c17	River Rother												
4c18	Cliff End to River Rother												
4c19	Fairlight Cove to Cliff End							1	£4,320	£240	1	£4,320	£240
4c20	Fairlight Cove												
4c21	Fairlight, Rockmead Road												
4c22	Fairlight West												
4c23	Hastings to Fairlight												
4c24	Hastings												
4c25	Glyne Gap and Bulverhythe												
4c26	Cooden and Bexhill												
4c27	Hooe & Pevensey Levels	Hooe & Pevensey Flood Risk Area (no erosion losses calculated)											
4c28	Soverign Harbour												
4c29	Eastbourne												
4c30	Beachy Head												

Note: 'No.' refers to number of properties

H5.2.3 Preferred Plan Combined Residential & Commercial Losses

Policy Unit		0-20			20-50			50-100			Total (0-100)		
		No.	CV	PV	No.	CV	PV	No.	CV	PV	No.	CV	PV
4c01	Dover to South Foreland							2	£421,802	£29,227	2	£421,802	£29,227
4c02	Dover Harbour												
4c03	Dover Beach												
4c03	Shakespeare Cliff												
4c04	Samphire Hoe												
4c05	Abbot's Cliff												
4c06	Folkestone Warren				1	£194,843	£82,674	4	£620,529	£27,791	5	£815,372	£110,465
4c07	Copt Point												
4c08	Folkestone												
4c09	Hythe to Sandgate	Dungeness Flood Risk Area (no erosion losses calculated)											
4c10	Hythe Ranges												
4c11	Littlestone to Hythe Ranges												
4c12	Ness to Littlestone												
4c13	Dungeness Power Station												
4c14	Lydd Ranges												
4c15	Suttons to Jurys												
4c16	Camber												
4c17	River Rother												
4c18	Cliff End to River Rother												
4c19	Fairlight Cove to Cliff End	3	£707,391		5	£1,178,985	£317,859	6	£1,183,305	£100,543	14	£3,069,681	£831,291
4c20	Fairlight Cove	1	£235,797	£138,250	6	£1,414,782	£448,436	11	£2,593,767	£217,830	18	£4,244,346	£804,516
4c21	Fairlight, Rockmead Road	9	£2,122,173	£1,475,534				46	£10,846,662	£931,928	55	£12,968,835	£2,407,462
4c22	Fairlight West							23	£5,423,331	£234,369	23	£5,423,331	£234,369
4c23	Hastings to Fairlight												
4c24	Hastings												
4c25	Glyne Gap and Bulverhythe												
4c26	Cooden and Bexhill												
4c27	Hooe & Pevensey Levels	Hooe & Pevensey Flood Risk Area (no erosion losses calculated)											
4c28	Soverign Harbour												
4c29	Eastbourne												
4c30	Beachy Head												

Note: 'No.' refers to number of properties

H5.3 Summary of No Active Intervention Flooding Losses

Policy Unit(s)	Flood Area	Residential		Commercial		Combined		Agricultural Land (Ha)		
		No.	CV	No.	CV	No.	CV	Grade 2	Grade 3	Grade 4
4c9-4c18	Dungeness & Pett Levels	16,673	£2,715,231,396	1,422	£321,641,665	18,095	£3,036,873,061		4,806	698
4c25	Bulverhythe	517	£84,194,484	96	£18,673,244	613	£102,867,728		20	224
4c27-4c29	Pevensey & Hooe Levels	14,455	£2,354,025,660	1,645	£209,029,975	16,100	£2,563,055,635	13,544	5,713	3,172

Annex H2: Supporting Economic Appraisal Data for SMP Costs

This annex presents the full preferred scenario costs developed for the SMP. As outlined in the assumptions below, these are generated from national generic costs and do not reflect local conditions. These figures should not be considered out of context. The costs presented in section H4 have been taken from available strategy and/or scheme documents where available, as these represent a more accurate and site specific consideration of implementation costs. The figures presented in this Annex have only been used where other, more detailed, cost information is not available. As such the costs presented here differ from those in section H4 for frontages where more detailed costs are available.

Basis for cost assumptions:

- Replacement costs taken from Arup database prepared for the Environment Agency. This sets replacement costs for linear structures (e.g. revetments, seawalls) at £2.7million/km and cost for beach management schemes at £5.1million/km. Groyne field costs are taken as £0.6million/km.
- Maintenance costs taken from NADNAC study prepared for Defra. This sets annual maintenance cost for linear structures and for groyne fields at £10k/km and for beach schemes £20k/km.
- Assumed design life (and thus full scheme reconstruction will be required) as 100 years for linear defences, 50 years for beach schemes and 30 years for groynes.
- Allow for maintenance as a linear cost, although realistically less in early years and increasing in latter years of scheme life.
- Allowance for increase in costs due to climate change: Period 20-50 years - costs factored up by 1.5 x present day rates; Period 50-100 years - costs factored up by 2.0x present day rates.
- Optimism bias (at 60%) to be applied to all costs when examining BCR, to reflect uncertainty in broad level analysis at SMP scale
- For "low cost" defence structures use same rate as groynes
- Rates for typical defences types used:

Defence Type	Cost per km	
	Replacement	Maintenance
BEACH (B)	£5,100,000	£20,000
LINEAR (L)	£2,700,000	£10,000
GROYNE/OTHER (G)	£600,000	£10,000

LOCATION		PERIOD	REPLACEMENT				MAINTENANCE				CV TOTALS			PV COSTS		
			B	L	G	COST	B	L	G	COST	TOTAL COST	TOTAL WITH OPTIMISM BIAS	FINAL TOTAL	REPLCE.	MAINT.	CUMULATIVE TOTAL
4c01	South Foreland to Dover	0 to 20														
		20 to 50														
		50 to 100														
4c02	Dover (including harbour)	0 to 20						5.9		£1,180,000	£1,180,000	£1,888,000			1,341,651	**£1,341,651**
		20 to 50		5.9		£15,930,000		5.9		£1,770,000	£26,550,000	£42,480,000		12,081,523	1,342,391	**£14,765,565**
		50 to 100		5.9		£15,930,000		5.9		£2,950,000	£37,760,000	£60,416,000	£104,784,000	5,365,513	976,243	**£21,107,321**
4c03	Shakespeare Cliff	0 to 20														
		20 to 50														
		50 to 100														
4c04	Samphire Hoe	0 to 20						2.0		£400,000	£400,000	£640,000			454,797	**£454,797**
		20 to 50		2.0		£5,400,000		2.0		£600,000	£9,000,000	£14,400,000		4,095,431	455,048	**£5,005,276**
		50 to 100		2.0		£5,400,000		2.0		£1,000,000	£12,800,000	£20,480,000	£35,520,000	1,818,818	330,930	**£7,155,024**
4c05	Abbots Cliff	0 to 20														
		20 to 50														
		50 to 100														
4c06	Folkestone Warren	0 to 20		3.3		£8,910,000		3.3		£660,000	£9,570,000	£15,312,000		10,130,601	750,415	**£10,881,016**
		20 to 50						3.3		£990,000	£1,485,000	£2,376,000			750,829	**£11,631,845**
		50 to 100		3.3		£8,910,000		3.3		£990,000	£14,850,000	£23,760,000	£41,448,000	3,001,050	327,620	**£14,960,515**
4c07	Copt Point	0 to 20														
		20 to 50														
		50 to 100														
4c08	Folkestone and Sandgate	0 to 20		6.1		£16,470,000		6.1		£1,220,000	£17,690,000	£28,304,000		18,726,263	1,387,131	**£20,113,393**
		20 to 50						6.1		£1,830,000	£2,745,000	£4,392,000			1,387,896	**£21,501,289**
		50 to 100		6.1		£16,335,000		6.1		£3,050,000	£38,770,000	£62,032,000	£94,728,000	5,501,925	1,009,336	**£28,012,550**
4c09	Sandgate to Hythe	0 to 20		3.7		£9,990,000		3.7		£740,000	£10,730,000	£17,168,000		11,358,553	841,374	**£12,199,927**
		20 to 50						3.7		£1,110,000	£1,665,000	£2,664,000			841,839	**£13,041,766**
		50 to 100		3.7		£9,990,000		3.7		£1,850,000	£23,680,000	£37,888,000	£57,720,000	3,364,813	612,220	**£17,018,799**
4c10	Hythe Ranges	0 to 20							3.1	£620,000	£620,000	£992,000			704,935	**£704,935**
		20 to 50		3.3		£6,600,000		3.3		£990,000	£8,085,000	£12,936,000		5,005,527	750,829	**£6,461,292**
		50 to 100						3.3		£1,650,000	£3,300,000	£5,280,000	£19,208,000		546,034	**£7,007,326**
4c11	Dymchurch Redoubt to Romney Sands	0 to 20		5.0		£13,500,000		10.3		£2,060,000	£15,560,000	£24,896,000		15,349,396	2,342,204	**£17,691,600**
		20 to 50						10.3		£3,090,000	£4,635,000	£7,416,000			2,343,497	**£20,035,096**
		50 to 100		10.3		£27,810,000		10.3		£5,150,000	£65,920,000	£105,472,000	£137,784,000	9,366,913	1,704,288	**£31,106,298**
4c12	Romney Sands to Dungeness Power Station	0 to 20					7.8			£3,120,000	£3,120,000	£4,992,000			3,547,416	**£3,547,416**
		20 to 50					7.8			£4,680,000	£7,020,000	£11,232,000			3,549,374	**£7,096,790**
		50 to 100					7.8			£7,800,000	£15,600,000	£24,960,000	£41,184,000		2,581,252	**£9,678,042**
4c13	Dungeness Power Station	0 to 20					1.9			£760,000	£760,000	£1,216,000			864,114	**£864,114**
		20 to 50					1.9			£1,140,000	£1,710,000	£2,736,000			864,591	**£1,728,705**
		50 to 100		2.0		£5,400,000		2.0		£1,000,000	£12,800,000	£20,480,000	£24,432,000	1,818,818	330,930	**£3,878,453**
4c14	Lydd Ranges	0 to 20		8.0		£21,600,000		8.0		£1,600,000	£23,200,000	£37,120,000		24,559,033	1,819,188	**£26,378,221**
		20 to 50						8.0		£2,400,000	£3,600,000	£5,760,000			1,820,192	**£28,198,412**
		50 to 100		8.0		£21,600,000		8.0		£4,000,000	£51,200,000	£81,920,000	£124,800,000	7,275,272	1,323,719	**£36,797,404**
4c15	Jury's Gap to The Suttons	0 to 20	2.1	2.1		£16,380,000					£16,380,000	£26,208,000		18,623,933		**£18,623,933**
		20 to 50						2.1		£630,000	£945,000	£1,512,000			477,800	**£19,101,734**
		50 to 100		2.1		£5,670,000		2.1		£1,050,000	£13,440,000	£21,504,000	£49,224,000	1,909,759	347,476	**£21,358,969**
4c16	Camber Sands	0 to 20					1.0			£400,000	£400,000	£640,000			454,797	**£454,797**
		20 to 50					1.0			£600,000	£900,000	£1,440,000			455,048	**£909,845**
		50 to 100					1.0			£1,000,000	£2,000,000	£3,200,000	£5,280,000		330,930	**£1,240,775**
4c17	River Rother	0 to 20														
		20 to 50														

		50 to 100														
4c18	River Rother to Cliff End	0 to 20	8.0			£40,800,000	8.0	8.0	8.0	£6,400,000	£47,200,000	£75,520,000		46,389,284	7,276,750	**£53,666,035**
		20 to 50	8.0			£40,800,000	8.0	8.0	8.0	£9,600,000	£75,600,000	£120,960,000		30,943,259	7,280,767	**£91,890,061**
		50 to 100	8.0			£40,800,000		8.0		£4,000,000	£89,600,000	£143,360,000	£339,840,000	13,742,181	1,323,719	**£106,955,961**
4c19	Cliff End to Fairlight Cove	0 to 20		0.5		£1,350,000					£1,350,000	£2,160,000		1,534,940		**£1,534,940**
		20 to 50														**£1,534,940**
		50 to 100											£2,160,000			**£1,534,940**
4c20	Fairlight Cove (East)	0 to 20						0.5		£50,000	£50,000	£80,000			56,850	**£56,850**
		20 to 50						0.5		£75,000	£112,500	£180,000			56,881	**£113,731**
		50 to 100											£260,000			**£113,731**
4c21	Fairlight Cove (Rockmead Rd)	0 to 20														
		20 to 50														
		50 to 100														
4c22	Fairlight Cove (West)	0 to 20														
		20 to 50														
		50 to 100														
4c23	Fairlight Cove to Hastings	0 to 20														
		20 to 50														
		50 to 100														
4c24	Hastings (including the harbour)	0 to 20		4.3		£11,610,000		4.3		£860,000	£12,470,000	£19,952,000		13,200,480	977,813	**£14,178,294**
		20 to 50						4.3		£1,290,000	£1,935,000	£3,096,000			978,353	**£15,156,647**
		50 to 100		4.3		£11,610,000		4.3		£2,150,000	£27,520,000	£44,032,000	£67,080,000	3,910,459	711,499	**£19,778,604**
4c25	Bulverhythe and Glyne Gap	0 to 20		2.3		£6,210,000		2.3		£460,000	£6,670,000	£10,672,000		7,060,722	523,016	**£7,583,738**
		20 to 50						2.3		£690,000	£1,035,000	£1,656,000			523,305	**£8,107,044**
		50 to 100		2.3		£6,210,000		2.3		£1,150,000	£14,720,000	£23,552,000	£35,880,000	2,091,641	380,569	**£10,579,254**
4c26	Bexhill to Cooden	0 to 20		6.0		£16,200,000		6.0		£1,200,000	£17,400,000	£27,840,000		18,419,275	1,364,391	**£19,783,665**
		20 to 50						6.0		£1,800,000	£2,700,000	£4,320,000			1,365,144	**£21,148,809**
		50 to 100		6.0		£16,200,000		6.0		£3,000,000	£38,400,000	£61,440,000	£93,600,000	5,456,454	992,789	**£27,598,053**
4c27	Hooe and Pevensey Levels	0 to 20					7.5			£3,000,000	£3,000,000	£4,800,000			3,410,977	**£3,410,977**
		20 to 50	7.5			£38,250,000	7.5			£4,500,000	£64,125,000	£102,600,000		29,009,306	3,412,859	**£35,833,142**
		50 to 100	7.5			£38,250,000	7.5			£7,500,000	£91,500,000	£146,400,000	£253,800,000	12,883,295	2,481,973	**£51,198,410**
4c28	Sovereign Harbour	0 to 20					1.4			£1,400,000	£1,400,000	£2,240,000			1,591,789	**£1,591,789**
		20 to 50	1.4			£7,140,000	1.4			£1,400,000	£12,810,000	£20,496,000		5,415,070	1,061,779	**£8,068,638**
		50 to 100	1.4			£7,140,000	1.4			£1,400,000	£17,080,000	£27,328,000	£50,064,000	2,404,882	463,302	**£10,936,821**
4c29	Eastbourne	0 to 20						6.2		£3,100,000	£3,100,000	£4,960,000			3,524,676	**£3,524,676**
		20 to 50		6.2		£16,740,000		6.2		£3,100,000	£29,760,000	£47,616,000		12,695,837	2,351,081	**£18,571,594**
		50 to 100		6.2		£16,740,000		6.2		£3,100,000	£39,680,000	£63,488,000	£116,064,000	5,638,336	1,025,882	**£25,235,812**
4c30	Beachy Head	0 to 20														
		20 to 50														
		50 to 100														