

# **Appendix H**

## **Economic appraisal**

## Appendix H Contents

	Page
H1 Introduction	1
H2 Method	1
H2.1 Data sources	1
H2.2 Assumptions	3
H2.3 Conclusions about viability	4
H3 Analysis	4
H4 References	11

### List of tables

H2.1	Estimated defence costs	3
H2.2	Estimated future defence costs	3
H1	Economic assessment summary for each policy development zone	12
H2	Economic assessment summary for each super-frontage	30
H3	Supporting economic data – summary table for each policy development zone	34
H4	Supporting economic data – summary table for each super-frontage	38
H5	Supporting economic data – defence cost calculations for each policy development zone	39
H6	Supporting economic data – defence cost calculations for each super-frontage	47

# H1 Introduction

The task to confirm the preferred policy is split into two sub-tasks, as detailed below:

- Sensitivity testing. Identifies uncertainty in key variables and potential effects on preferred policy scenarios (see appendix E section 4.3).
- Economic viability assessment. Considers ratio of costs and benefits for preferred policy package.

This appendix reports on the economic viability task.

The aim of this task is to confirm the economic viability of the preferred policy packages (PPs) by assessing the costs of flood and coastal risk management actions in relation to their economic benefits compared to a baseline of no active intervention. This involves a high-level assessment based on the approach prescribed by the Flood and Coastal Defence Project Appraisal Guidance.

These policy packages have been developed for each policy development zone (PDZ). They are suites of policies for the three epochs of the SMP. They were then appraised in terms of how they perform against the defined criteria and principles (see appendices E and G). The CSG and EMF identified their preferred PPs for all PDZs based on the results of this appraisal and these have since been incorporated into the SMP. A number of the policies were then changed following public consultation. Economic viability has played a role throughout this process: it was included in the appraisal process when the draft SMP's policies were fully assessed and reported in the draft SMP, confirming that the draft policies were viable but not by a wide margin. This appendix describes the viability of the final policies.

The exact details of the preferred PPs are provided in the main SMP document, with further details in appendix E.

## H2 Method

### H2.1 Data sources

In line with the SMP guidance, this assessment uses the best available information about costs and benefits. If no information is available, a 'high level assessment' is applied, based on default defence cost data.

There is limited information for PDZ2D and PDZ3A in the existing reports listed below:

- PDZ2D/2E: Brancaster West Marsh Engineers Report Final Draft (Environment Agency 2000)
- PDZ3A: Blakeney Freshes Project Appraisal Report (Halcrow 2002)

For most other PDZs, default defence costs, as detailed in appendix C of the SMP guidance (Defra 2006), have been compared to approximate values of residential properties as provided by the National Properties Dataset (NPD). Where there were no residential property values, these properties were left out of the analysis (which adds to the conservatism of the result). In many situations commercial properties are only given an annual rental value rather than a capital value. The capital value is usually calculated from the rental value by applying the relevant yield factor. A yield of 5.5 per cent has been suggested as acceptable for miscellaneous unvalued properties (Halcrow 2005). This has been applied to obtain estimates for capital value of properties that are only given a rental value by the NPD. This gives the best estimate of the value of commercial properties without going into detail that is not appropriate for SMP-level assessments.

The benefits calculated by the value of defended properties are only realised once the defences have reached the end of their useful life under a scenario of no active intervention. Using the analysis completed as part of the defence assessment task, an average residual life was obtained for each section of defence. The residual life for the defences of each PDZ has been taken as the lowest average residual life of all the defence elements in that PDZ. In certain places residual life has not been assessed, either because defence is provided by natural features (dunes or a shingle ridge), or there are no records in the defence database (quaysides at Wells and Blakeney). In these situations it has been assumed that the year 2020 is an adequate estimate of when the defence function of these features will fail.

The economic viability assessment does not take into account the benefit of defences for agricultural land, or the cost of losing agricultural land to managed realignment. As the policies keep defending most of the better quality agricultural land in the area, at least in the first two epochs, this adds to the conservatism of the results.

In general, the result of the assessment is conservative because it only includes benefits from protecting properties and does not include other benefits (risk to people, infrastructure, business, environment etc). This assumption needs to be taken into account in assessing whether the preferred policies are viable (see section H2.3).

For all calculations, it has been assumed that epoch 1 will begin on 1 January 2009. Epoch 1 is therefore from 2009 to 2025, epoch 2 is from 2026 to 2055 and epoch 3 is from 2056 to 2105. All values have been discounted

back to the present day values using current guidance and an optimism bias of 60 per cent has been applied to all costs to reflect uncertainty (as suggested by the SMP guidance, appendix C).

For PDZs where the preferred policy is no active intervention, and this is also the current management policy, no assessment has been made as there are no flood and coastal risk management costs associated with these options.

## H2.2 Assumptions

Several assumptions have been made about maintaining and replacing defences and exactly when new defences will be built where they are needed as part of managed realignment policies. The assumptions on cost of the defences were based on appendix C of the SMP guidance and are shown in tables H2.1 and H2.2.

**Table H2.1: Estimated defence costs**

Defence type	Replacement cost (£/km)	Maintenance cost (£/km/year)**	Full life reconstruction required (1 per x years)*
Linear structure	2,700,000	10,000	100
Beach management	5,100,000	20,000	50
Groyne fields	600,000	10,000	30

**Table H2.2: Estimated future defence costs**

Defence type	Replacement cost increase for climate change (£1,000/km)**			Maintenance cost increase for climate change (£1,000/km/yr)**		
	Epoch 1	Epoch 2	Epoch 3	Epoch 1	Epoch 2	Epoch 3
Linear structure	2,700	4,050	5,400	10	15	20
Beach management	5,100	7,650	10,200	20	30	40
Groyne fields	600	900	1,200	10	15	20

\*May be more frequent where erosion is higher

\*\* From NADNAC 2004 - takes into account making structure higher, deeper and more resilient to increased exposure

As there is no information available about the age of the defences, assumptions were made where necessary about when they would need replacing. Appendix C (section C2.3) of the SMP guidance states that for linear defences full scheme reconstruction is needed every 100 years and for

groynes every 30 years (table H2.1). So, for linear defences, it is assumed they are replaced in 2055 (the middle of the SMP period) as this gives the best estimate of the present value. Note that for those PDZs with a managed realignment policy for epoch 3 we have assumed that the existing defences are not replaced in 2055 as this would be only a few years before the realignment would take place. This means that the hold the line defence replacement is calculated with epoch 2's low unit costs, while the new defence for the managed realignment option is calculated with the higher unit costs valid for epoch 3. In reality of course, construction costs will develop gradually. The inaccuracy introduced is considered acceptable as part of the broad-scale analysis, but it does emphasise the need for more accurate economic assessment of the conditional options beyond the SMP.

For groynes it has been assumed that they are first replaced in 2024, 15 years into the SMP, and then every 30 years from then on for the same reason as with linear defences.

For specific frontages, assumptions have been made about specific maintenance regimes and defences. These are outlined in the analysis of the individual PDZs. Several of the PDZs have uncertain or conditional policies for the later epochs. For those cases, the economic assessment has been carried out for both options.

## **H2.3 Viability and funding**

For each PDZ with a calculated benefit cost ratio, the report draws a conclusion about the viability of the draft policy: viable, marginally viable or not viable. Generally speaking, the SMP uses the following bands:

- BCR higher than 2: clearly viable
- BCR between 1 and 2: marginally viable
- BCR under 1: not viable

All calculations were done through broad-scale analysis, which is typically conservative. It only takes into account the benefit of defences for properties, not for infrastructure, agricultural land or wider unquantifiable benefits related to tourism, habitat creation etc. Even if a policy is considered to be viable, this does not guarantee that it will be affordable and funded in the future.

## **H3 Analysis**

This section outlines the results of the broad-scale economic assessment. The results are summarised in a set of tables at the back of this appendix. Table H1 gives a summary of the economic assessments carried out for each PDZ where there are defences. For the purposes of this broad-scale assessment, these policies are calculated to have no damage costs. Table

H3 shows the supporting information and table H5 details the calculation of the costs associated with maintaining and replacing defences.

#### **PDZ1A – Old Hunstanton dunes**

The policy for this frontage is to hold the line for epoch 1 with the intention to remove defences to allow the dune system to develop naturally in epochs 2 and 3, while maintaining flood defence to houses and infrastructure. It is uncertain whether and when there will be a need for defences. For the purpose of the analysis, however, it has been assumed that 1.3 kilometres of new defences would be needed at the end of epoch 2 to protect properties at Old Hunstanton and Holme-next-the-Sea from tidal flood risk as the defence function of the dunes reduces.

The broad-scale economic review has given a benefit-cost ratio of 4.4 so it can be concluded that the policy is clearly economically viable.

#### **PDZ1B – Holme dunes**

The policy for this frontage is to maintain the flood defence function of the dunes through minimum intervention. It has been assumed that, where there are no defences now, there will be no need to maintain the dunes in the future. This is an uncertainty and intervention may be needed at some point. However, this cannot be calculated so it has been excluded from the economic viability test. The possible long-term realignment in PDZ1C (Thornham sea bank) is likely to support the dunes.

Where there are 'soft dragon tooth' defences it has been assumed that they are equivalent to groynes for the purpose of calculating the cost of maintaining and replacing them. Also, to account for the benefits of the potential realignment and associated increase in tidal prism in PDZ1C reducing pressure on the dunes, the increase in maintenance and replacement costs due to climate change between epochs 2 and 3 has not been included.

The broad-scale economic review has given a benefit-cost ratio of 20.0 so it can be concluded that the policy is clearly economically viable.

#### **PDZ1C – Thornham sea bank**

The policy for this frontage is to maintain flood defence to the communities of Thornham, Holme-next-the-Sea and Old Hunstanton, including all their houses, historic assets and infrastructure together with potentially increasing the tidal exchange in Thornham harbour channel by realigning Thornham sea bank. So in epochs 1 and 2 the defences will be maintained where they are now, but for epoch 3 there are two possible policy options: either to carry out managed realignment at Thornham sea bank (while continuing to protect Thornham, Holme-next-the-Sea and Old Hunstanton) or to continue to hold the line here.

If realignment takes place in epoch 3 the defences at the western edge of the frontage will be partly removed. New defences will be required to protect Thornham, Holme-next-the-Sea and Old Hunstanton. The broad-scale economic review has given a benefit-cost ratio of 3.5.

If the current defence line is held through all three epochs the broad-scale assessment reveals an overall benefit-cost ratio of 4.2.

The higher benefit-cost ratio for hold the line in this case can be explained by the relatively long length of new defences required to continue to protect properties. It has to be noted that the new defence line will be much less exposed and on higher ground than the existing line. This is not, however, included in the broad-scale assessment, which means that the calculated benefit-cost ratio for managed realignment is a conservative estimate.

Given the overall conservatism of the broad-scale assessment, it can be concluded that that both policy options are clearly economically viable.

#### **PDZ1D - Thornham**

The policy for this frontage is no active intervention from epoch 1 onwards. As there are no costs incurred under this policy option an economic assessment is not needed.

#### **PDZ2A – Thornham to Titchwell**

There are currently no defences along this frontage and there is no intention to build new defences in the future. The policy for this frontage is therefore to continue no active intervention for all epochs so an economic assessment is not needed.

#### **PDZ2B – Titchwell RSPB reserve**

The policy for this frontage is to hold the line at the realigned position for all three epochs. So the costs associated with this option are those needed to maintain the new defence line.

The decision for this policy has already been made by the RSPB, which is expected to bear the cost of maintaining the defences. It is therefore less important for the SMP to ascertain economic viability for this frontage. The broad-scale economic review has revealed that the only property at risk of tidal flooding along this frontage is the Titchwell RSPB reserve visitor centre. The national property database does not give a value for this property so the analysis assumes there are no economic benefits for the preferred policy. However, there are other benefits that this broad-scale review does not consider such as the tourism value of the reserve and the actual benefit value of this land. Based on the RSPB's recent decision to realign and keep maintaining the defences for 50 years, the preferred policy can be assumed to be economically viable.



### **PDZ2C – Titchwell village**

There are currently no defences along this frontage and there is no intention to build new defences in the future. The policy for this frontage is therefore to continue no active intervention for all epochs so an economic assessment is not needed.

### **PDZ2D – Reclaimed grazing marsh at Brancaster**

The policy for this frontage is to hold the line in epoch 1. For epochs 2 and 3, the policy is either hold the line or managed realignment, depending on the results of monitoring and assessments.

If and when realignment takes place, new defences will be needed to protect properties in Brancaster from flooding from the west through this PDZ. There is currently an embankment that runs north to south protecting properties on Broad Lane that would be maintained and extended to account for sea level rise. The broad-scale economic review has given a benefit-cost ratio of 3.9 if realignment takes place at the start of epoch 2. This is clearly economically viable.

The alternative policy of hold the line through all three epochs has a benefit-cost ratio of 0.7 which suggests it is not viable (based on the broad-scale analysis carried out for this SMP).

### **PDZ2E – Royal West Norfolk golf club**

The policy for this frontage is to hold the line for all epochs. The actual scale of future defence maintenance and potential extension is uncertain. It has been assumed that the geotextile bags fronting the dunes east of the clubhouse are equivalent to groynes for the purpose of maintenance and replacement costs and that the current length and type of defences remains sufficient.

As for the Titchwell RSPB reserve, the cost of the defences is borne by a private defence owner (the Royal West Norfolk golf club) so it is less important for the SMP to ascertain economic viability for this frontage. The broad-scale economic review has given a benefit-cost ratio of 0.3 so it would be concluded that the preferred policy is not economically viable. However, this is again a conservative assessment based on NPD property value only, which ignores the wider value of the protected features. A more detailed assessment to confirm economic viability for this frontage is not needed, as the actual intent of management is to allow the golf club to hold the line, which they intend to do.

### **PDZ2F – Brancaster and Brancaster Staithe**

The policy for this frontage is to allow the private defence owners to hold the line for all epochs. This will mean maintaining the existing defences to continue protecting properties in Brancaster and Brancaster Staithe.

The broad-scale economic review has given a benefit-cost ratio of 1.2 so it can be concluded that the policy is marginally economically viable (given the conservatism of the assessment).

### **PDZ2G – Reclaimed areas behind Scolt Head Island**

The policy for this frontage is to maintain flood defence to all communities and their houses and infrastructure, together with potentially increasing tidal exchange by realigning the reclaimed Deepdale, Norton and Overy marshes in the long term, if supported by monitoring and research during epochs 1 and 2. So, in epochs 1 and 2, the defences will be maintained where they are now, but for epoch 3 there are two possible policy options: either to carry out managed realignment at Deepdale, Norton and Overy marshes (while continuing to hold the line for the River Burn valley) or to continue to hold the line for all areas.

If realignment takes place in epoch 3, defences will be partly removed at Deepdale and Norton marshes and at Overy marshes. New defences will be needed to protect Burnham Deepdale, Burnham Norton, the A149, the River Burn valley and the eastern edge of Burnham Overy Staithe. A new defence line will also be needed between Marsh House Farm and Holkham dunes to protect features in the tidal flood zone that extends eastwards to Wells-next-the-Sea. The broad-scale economic review has given an overall benefit-cost ratio of 1.3, which is marginally viable. However, this varies considerably between the individual flood compartments. For Deepdale and Norton marsh alone the benefit-cost ratio is 0.3, for the River Burn valley it is 5.7 and for Overy marshes it is 2.1.

If the current defence line is held through all three epochs the broad-scale assessment reveals an overall benefit-cost ratio of 0.8, with individual benefit-cost ratios of 0.2 for Deepdale and Norton marshes, 5.7 for the River Burn valley and 2.1 for Overy marshes. This would not be viable, although more detailed assessment is needed to confirm the accuracy of the broad-scale assessment.

### **PDZ2H – Burnham Overy Staithe**

The policy for this frontage is to hold the line for all three epochs. This will mean maintaining the existing defences that currently protect properties in Burnham Overy Staithe.

The broad-scale economic review has given a benefit-cost ratio of 0.7, which suggests it is not viable (based on the broad-scale analysis carried out for this SMP).

### **PDZ2I – Holkham dunes**

The policy for this frontage is to maintain the flood defence function of the dunes through minimum intervention. Where there are currently defences at the eastern end of the frontage, it has been assumed that these will be maintained and replaced as with any other defence. The remainder of the

frontage has no defences at present and the actual level of maintenance that will be needed is uncertain. The following maintenance schedule has been assumed to maintain the flood defence function of the dunes. In epoch 1 no maintenance will be needed. In epoch 2 the minimum maintenance level of one kilometre of defence will be needed (linear or groynes) and this will continue into epoch 3.

The broad-scale economic review has given a benefit-cost ratio of 4.8 so it can be concluded that the policy is clearly economically viable.

#### **PDZ2J – Wells flood embankment**

The policy for this frontage is to hold the line for all three epochs. This will mean maintaining the 1.08 kilometre-long embankment that currently protects numerous features in the tidal flood zone that extends westwards to Burnham Overy Staithe.

The broad-scale economic review has given a benefit-cost ratio of 2.4. Given the conservatism of the assessment, it can be concluded that the policy is clearly economically viable.

#### **PDZ2K – Wells quay**

The policy for this frontage is to hold the line for all three epochs. This will mean maintaining the 0.78 kilometres of defences that currently protect properties in Wells-next-the-Sea.

The broad-scale economic review has given a benefit-cost ratio of 3.3 so it can be concluded that the policy is clearly economically viable.

#### **PDZ2L – Wells east bank**

The policy for this frontage is to hold the line for all three epochs. This will mean maintaining the existing defences to continue protecting properties in Wells-next-the-Sea and the A149.

The broad-scale economic review has given a benefit-cost ratio of 5.2, so it can be concluded that the policy is clearly economically viable.

#### **PDZ2M – Stiffkey bay**

There are currently no defences along this frontage and there is no intention to build new defences in the future. The policy for this frontage is therefore to continue no active intervention for all epochs so an economic assessment is not needed.

#### **PDZ3A – Reclaimed areas behind Blakeney Spit**

The policy for this frontage is to maintain flood defence to all houses and infrastructure, together with gradually increasing tidal exchange by realigning the reclaimed areas at Blakeney Freshes in the medium term and, if confirmed during epochs 1 and 2, at Cley marshes in the long term. In epoch 1 the defences will be maintained where they are now. This means there are

two options in epoch 3: either to continue holding the line at Cley west bank or to realign.

In epoch 2, defences at Blakeney Freshes marshes will be partly removed close to Blakeney to improve navigation to the harbour and moorings. This will mean building new defences to protect some properties in Blakeney. If the epoch 3 realignment at Cley marshes is confirmed, defences on the western margin of Cley marshes will be partly removed. This will need a new defence line to protect the A149 and the flood zone behind the Cley to Salthouse shingle ridge to the east.

The broad-scale economic review has given an overall benefit-cost ratio of 1.9 So it can be concluded that, as a whole, a preferred policy that includes realignment is at least marginally economically viable. However, there is a significant difference between the intended sites of realignment and the two river valleys when they are considered separately. The Stiffkey and Glaven (including Cley) valleys and Morston (which remains defended) have individual benefit-cost ratios of 3.1, 10.0 and 0.8 respectively. However, the realignments at Blakeney Freshes and Cley marshes have individual benefit-cost ratios of 0.6 and 0.4 respectively. For the Cley realignment there are considerable non property-related benefits (such as the A149), so this is likely to be economically viable on its own. For Blakeney Freshes, the economic benefits for navigation, which are an important driver, are not included in the assessment.

If the epoch 3 realignment at Cley marshes does not take place, the broad-scale economic review reveals identical benefit cost ratios for all PDZs apart from Cley marshes. This would have a benefit cost ratio of 0.6, which is slightly better than the realignment option, but still suggests it is not viable. The overall benefit cost ratio would be 2.2 which is clearly economically viable.

### **PDZ3C - Blakeney**

The policy for this frontage is to hold the line for all three epochs. This will mean maintaining the whole length of defences that currently protect properties in Blakeney.

The broad-scale economic review has given a benefit-cost ratio of 2.0 so it can be concluded that the policy is clearly economically viable.

### **PDZ3D – Cley to Salthouse**

The policy for this frontage is to maintain the flood defence function of the shingle ridge through minimum intervention. To achieve this, the following maintenance schedule has been assumed. In epoch 1 there will be no need for maintenance as current processes suggest that the flood defence function will not be under threat. In epoch 2, minimum annual maintenance will be needed once every 10 years and there will be no increase in this cost in epoch 3 due to climate change.

The broad-scale economic review has given a benefit-cost ratio of 9.6 so it can be concluded that the policy is clearly economically viable.

### **Analysis of super-frontages**

The main SMP document reports about the economic viability at the level of the super-frontages only.

For super-frontage 1, the total economic benefits of the policy are estimated to exceed the costs, although not by a wide margin: the plan is marginally viable. The overall benefit-cost ratio is 1.9 if there is no realignment at Thornham sea bank and 1.8 if managed realignment takes place. As explained in the analysis of PDZ1C, the calculated benefit-cost ratio for the managed realignment option is particularly conservative.

For super-frontage 2, the total economic benefits of the policy are estimated to be in the same order as the costs if the existing defence lines are held throughout. If the defences are realigned, the benefits are estimated to exceed the costs, although only by a very small margin. The overall benefit-cost ratio is 1.2 with realignments and 0.9 without the realignments. Holding the line has a lower benefit-cost ratio because it would involve continued maintenance (including rebuilding) of long lengths of defences, while the timing of the realignments (largely in epoch 3) coincides with the assumed timescale for rebuilding the existing defences.

For super-frontage 3, the total economic benefits of the policy are estimated to exceed the costs, although not by a wide margin: the plan is marginally viable. This is the case for both policy options at Cley west bank (hold the line or managed realignment in epoch 3). The overall benefit-cost ratio is 1.9 if the realignment at Cley bank takes place, while it is 2.1 if the line is held there. This is because of the assumption that Cley east bank would be upgraded to act as a flood defence, in addition to new defences for Cley.

Further supporting information for the analysis at super-frontage level is in tables H2, H4 and H6.

## **H4 References**

Halcrow 2005. National Property Dataset Update 2005. Halcrow Group Limited. Swindon.

**Table H 1 Economic assessment summary for each policy development zone**

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
		Previous studies	Broad-scale review (this SMP)	Broad-scale economic review			
				Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
PDZ1A	Old Hunstanton dunes	No data currently available	<p><b><u>NAI damages:</u></b> by 2025: up to £19.0 million by 2055: up to £24.0 million by 2105: up to £36.2 million</p> <p><b><u>Maintain flood defence function of dunes through minimum intervention damages:</u></b> by 2025: none by 2055: none by 2105: none</p>	Continue maintaining existing gabion defences and groyne field to maintain protection. Cost: £0.9 million.	Defences to dune system removed and new defences needed to protect properties in Old Hunstanton and Holme from flood risk. Cost: £9.4 million.	Continue maintaining defences built in epoch 2 to protect properties in Old Hunstanton and Holme from flood risk. Cost: £2.3 million.	This PP has a BCR of 4.4 reflecting the fact that the properties in Old Hunstanton and Holme-next-the-Sea remain protected.
				The plan for this policy development zone is <b>clearly economically viable</b> . The PV benefits amount to £15.6 million by 2105 whereas the PV costs amount to £3.5 million.			

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
		Previous studies	Broad-scale review (this SMP)	Broad-scale economic review			
				Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
PDZ1B	Holme dunes	No data currently available	<p><b><u>NAI damages:</u></b> by 2025: up to £19.0 million by 2055: up to £24.0 million by 2105: up to £36.2 million</p> <p><b><u>Maintain flood defence function of dunes through minimum intervention damages:</u></b> by 2025: none by 2055: none by 2105: none</p>	<p>The soft defences currently in place in the dunes will be maintained to provide protection. Cost: £0.5 million.</p>	<p>The soft defences currently in place in the dunes will be maintained to provide protection. Cost: £0.9 million.</p>	<p>The soft defences currently in place in the dunes will be maintained to provide protection. Cost: £1.2 million.</p>	<p>This PP has a BCR of 20.0 reflecting the fact that properties in Old Hunstanton and Holme-next-the-Sea remain protected.</p>

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
PDZ1C (with realignment)	Thornham sea bank	No data currently available	<p><b>NAI damages:</b> by 2025: up to £19.0 million by 2055: up to £24.0 million by 2105: up to £36.2 million</p> <p><b>Maximise tidal exchange damages:</b> by 2025: none by 2055: none by 2105: none</p>	Continue maintaining existing defences to provide protection. Cost: £0.5 million.	Continue maintaining existing defences to provide protection. Cost: £1.2 million.	Thornham sea bank no longer maintained. New defences needed to protect properties. Cost: £17 million.	This PP has a BCR of 3.5 reflecting the fact that properties in Old Hunstanton and Holme-next-the-Sea remain protected.
				The plan for this policy development zone is <b>clearly economically viable</b> . The PV benefits amount to £16.5 million by 2105 whereas the PV costs amount to £4.7 million.			
PDZ1C (without realignment)	Thornham sea bank	No data currently available	<p><b>NAI damages:</b> by 2025: up to £19.0 million by 2055: up to £24.0 million by 2105: up to £36.2 million</p>	Continue maintaining existing defences to provide protection. Cost: £0.5 million.	Continue maintaining existing defences to provide protection. Cost: £11.9 million.	Continue maintaining existing defences to provide protection. Cost: £2.9 million.	This PP has a BCR of 4.2 reflecting the fact that properties in Old Hunstanton and Holme-next-the-Sea remain protected.



Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
			<b>Hold the line damages:</b> by 2025: none by 2055: none by 2105: none	The plan for this policy development zone is <b>clearly economically viable</b> . The PV benefits amount to £16.5 million by 2105 whereas the PV costs amount to £4.0 million.			
PDZ1D	Thornham		<b>NAI – No assessment</b>				
PDZ2A	Thornham to Titchwell		<b>NAI – No assessment</b>				

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
PDZ2B	Titchwell RSPB reserve	No data currently available	<p><b>NAI damages:</b> by 2025: unknown by 2055: unknown by 2105: unknown</p> <p><b>Hold the line at the realigned position damages:</b> by 2025: none by 2055: none by 2105: none</p>	Continue maintaining existing defences and build new defences in current realignment to maintain protection Cost: £0.5 million.	Continue maintaining existing defences and build new defences in realigned position to maintain protection. Defences assumed to be replaced in this epoch. Cost: £14.1 million.	Continue maintaining existing defences and build new defences in realigned position to maintain protection Cost: £3.4 million.	The decision to implement the realignment at the RSPB reserve has already been made so the SMP does not need to calculate economic viability for this frontage.
				The PV benefits amount to £0 as there is no value for the RSPB reserve. The PV costs amount to £4.7 million.			
PDZ2C	Titchwell village		<b>NAI – No assessment</b>				

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
PDZ2D (with realignment)	Reclaimed grazing marsh at Brancaster	Brancaster West Marsh engineers report	<p><b><u>NAI damages:</u></b> by 2025: up to £3.9 million by 2055: up to £4.6 million by 2105: up to £6.2 million</p> <p><b><u>Create new intertidal habitat damages:</u></b> by 2025: none by 2055: none by 2105: none</p>	Continue maintaining existing defences to provide protection Cost: £0.5 million.	Defences partially removed and maintenance stops so no costs.	Defences partially removed and maintenance stops so no costs.	The broad-scale economic review gives a BCR of 3.9 for this PP. The Brancaster West Marsh engineers report suggested a BCR of 0.8 for full realignment. This looked at a shorter timescale so no properties in the tidal flood zone were considered.
				This option is <b>clearly economically viable</b> . The PV benefits amount to £2.9 million by 2105 whereas the PV costs amount to £0.4 million.			

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
PDZ2D (without realignment)	Reclaimed grazing marsh at Brancaster	Brancaster West Marsh engineers report	<p><b><u>NAI damages:</u></b> by 2025: up to £3.9 million by 2055: up to £4.6 million by 2105: up to £6.2 million</p> <p><b><u>Hold the line damages:</u></b> by 2025: none by 2055: none by 2105: none</p>	Continue maintaining existing defences to provide protection Cost: £0.5 million.	Continue maintaining existing defences to provide protection Cost: £12.9 million.	Continue maintaining existing defences to provide protection Cost: £3.0 million.	The broad-scale economic review gives a BCR of 0.7 for this PP. The Brancaster West Marsh engineers report suggested a BCR of 0.8 for full realignment. This looked at a shorter timescale so no properties in the tidal flood zone were considered.
				This option is likely to be <b>not economically viable</b> . The PV benefits amount to £2.9 million by 2105 whereas the PV costs amount to £4.3 million.			

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
PDZ2E	Royal West Norfolk golf club	No data currently available	<p><b>NAI damages:</b> by 2025: up to £1.3 million by 2055: up to £1.3 million by 2105: up to £1.3 million</p> <p><b>Hold the line damages:</b> by 2025: none by 2055: none by 2105: none</p>	Continue maintaining existing defences to provide protection. Cost: £0.5 million.	Continue maintaining existing defences to provide protection. Linear defences replaced in this epoch. Cost: £8.2 million.	Continue maintaining existing defences to provide protection. Cost: £2.6 million.	This PP has a BCR of 0.3 from the broad-scale assessment.
				The PV benefits amount to £0.8 million by 2105 whereas the PV costs amount to £3.0 million.			
PDZ2F	Brancaster to Brancaster Staithe	No data currently available	<p><b>NAI damages:</b> by 2025: up to £12.0 million by 2055: up to £13.7 million by 2105: up to £20.1 million</p>	Continue maintaining existing defences to provide protection. Cost: £1.0 million.	Continue maintaining existing defences to provide protection. Linear defences replaced in	Continue maintaining existing defences to provide protection. Cost: £6.1 million.	This PP has a BCR of 1.2 as properties in Brancaster and Brancaster Staithe remain protected by private defence owners.

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
			<p><b><u>Hold the line damages:</u></b> by 2025: none by 2055: none by 2105: none</p>		<p>this epoch. Cost: £25.4 million.</p>		<p>The plan for this policy development zone is <b>marginally economically viable</b>. The PV benefits amount to £10.4 million by 2105 whereas the PV costs amount to £8.5 million.</p>
PDZ2G (with realignment)	Reclaimed areas behind Scolt Head Island	No data currently available	<p><b><u>NAI damages:</u></b> by 2025: up to £15.2 million by 2055: up to £27.6 million by 2105: up to £33.9 million</p> <p><b><u>Gradual increase in tidal exchange to support navigation damages:</u></b> by 2025: none by 2055: none by 2105: none</p>	<p>Continue maintaining existing defences to provide protection. Cost: £2.0 million.</p>	<p>Continue maintaining existing defences to provide protection. Cost: £6.8 million.</p>	<p>Existing defences no longer maintained at Overy marsh and Deepdale and Norton marshes. New defences built to protect properties, A149 and flood zone at Wells. Continue maintaining</p>	

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
						existing defences to provide protection for River Burn outfall and new defences at Deepdale and Norton marshes. Cost: £32.7 million.	respectively.
				This option is <b>marginally economically viable</b> . The PV benefits amount to £15.2 million by 2105 whereas the PV costs amount to £11.6 million.			
PDZ2G (without realignment)	Reclaimed areas behind Scolt Head Island	No data currently available	<b>NAI damages:</b> by 2025: up to £15.2 million by 2055: up to £27.6 million by 2105: up to £33.9 million	Continue maintaining existing defences to provide protection. Cost: £2.0 million.	Continue maintaining existing defences to provide protection. Cost: £54.2 million.	Continue maintaining existing defences to provide protection. Cost: £13.0 million.	This PP has an overall BCR of 0.8. However this varies considerably between the three compartments.

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
			<p><b><u>Hold the line damages:</u></b>  by 2025: none  by 2055: none  by 2105: none</p>	<p>This option is <b>likely to be not viable</b>. The PV benefits amount to £15.2 million by 2105 whereas the PV costs amount to £18.1 million.</p>			<p>The River Burn valley alone has a BCR of 5.7, while Deepdale and Norton marshes and Overy marshes only have BCRs of 0.2 and 2.1 respectively.</p>
PDZ2H	Burnham Overy Staithe	No data currently available	<p><b><u>NAI damages:</u></b>  by 2025: up to £2.7 million  by 2055: up to £2.7 million  by 2105: up to £4.4 million</p> <p><b><u>Hold the line damages:</u></b>  by 2025: none  by 2055: none  by 2105: none</p>	<p>Continue maintaining existing defences to provide protection.  Cost: £0.3 million.</p>	<p>Continue maintaining existing defences to provide protection.  Linear defences replaced in this epoch.  Cost: £8.6 million.</p>	<p>Continue maintaining existing defences to provide protection.  Cost: £2.1 million.</p>	<p>This PP has a BCR of 0.7.</p>



Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
				The plan for this policy development zone is <b>likely to be not viable</b> . The PV benefits amount to £2.0 million by 2105 whereas the PV costs amount to £2.9 million.			
PDZ21	Holkham dunes	No data currently available	<p><b><u>NAI damages:</u></b> by 2025: up to £15.2 million by 2055: up to £16.9 million by 2105: up to £17.6 million</p> <p><b><u>Maintain flood defence function of dunes through minimum intervention damages:</u></b> by 2025: none by 2055: none by 2105: none</p>	Continue maintaining existing hard defences at eastern end of the frontage to maintain protection. Groynes replaced this epoch. Cost: £0.9 million.	Continue maintaining existing hard defences at eastern end of the frontage to maintain protection. Groynes and linear defences replaced this epoch. Some maintenance of dunes needed. Cost: £3.1 million.	Continue maintaining existing hard defences at eastern end of the frontage to maintain protection. Groynes replaced this epoch. Some maintenance of dunes needed. Cost: £4.0 million.	This PP has a BCR of 4.8. The main costs are incurred through maintaining the defences at the eastern end of the frontage.

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
				The plan for this policy development zone is <b>clearly economically viable</b> . The PV benefits amount to £10.3 million by 2105 whereas the PV costs amount to £2.1 million.			
PDZ2J	Wells flood embankment	No data currently available	<p><b>NAI damages:</b> by 2025: up to £15.2 million by 2055: up to £16.9 million by 2105: up to £17.6 million</p> <p><b>Hold the line damages:</b> by 2025: none by 2055: none by 2105: none</p>	Continue maintaining existing defences to provide protection. Cost: £0.5 million.	Continue maintaining existing defences to provide protection. Defences assumed to be replaced in this epoch. Cost: £12.7 million.	Continue maintaining existing defences to provide protection. Cost: £3.1 million.	This PP has a BCR of 2.4
				The plan for this policy development zone is <b>clearly economically viable</b> . The PV benefits amount to £10.3 million by 2105 whereas the PV costs amount to £4.3 million.			

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
PDZ2K	Wells quay	No data currently available	<p><b>NAI damages:</b> by 2025: up to £8.3 million by 2055: up to £10.3 million by 2105: up to £11.8 million</p> <p><b>Hold the line damages:</b> by 2025: none by 2055: none by 2105: none</p>	Continue maintaining existing defences to provide protection. Cost: £0.2 million.	Continue maintaining existing defences to provide protection. Defences assumed to be replaced in this epoch. Cost: £5.6 million.	Continue maintaining existing defences to provide protection. Cost: £3.6 million.	This PP has a BCR of 3.3
				The plan for this policy development zone is <b>clearly economically viable</b> . The PV benefits amount to £6.2 million by 2105 whereas the PV costs amount to £1.9 million.			
PDZ2L	Wells east bank	No data currently available	<p><b>NAI damages:</b> by 2025: up to £0 by 2055: up to £28.1 million by 2105: up to £31.1 million</p>	Continue maintaining existing defences to provide protection. Cost: £0.2 million.	Continue maintaining existing defences to provide protection. Cost: £6.3 million.	Continue maintaining existing defences to provide protection. Cost: £1.5 million.	This PP has a BCR of 5.2

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments	
				Broad-scale economic review				
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)		
			<p><b><u>Hold the line damages:</u></b>            by 2025: none            by 2055: none            by 2105: none</p>	<p>The plan for this policy development zone is <b>clearly economically viable</b>. The PV benefits amount to £11.0 million by 2105 whereas the PV costs amount to £2.1 million.</p>				
PDZ2M	Stiffkey bay		<b>NAI – No assessment</b>					
PDZ3A (with realignment at Cley)	Reclaimed areas behind Blakeney Spit	Blakeney Freshes project appraisal report	<p><b><u>NAI damages:</u></b>            by 2025: up to £31.1 million            by 2055: up to £38.6 million            by 2105: up to £47.8 million</p> <p><b><u>Gradual increase in intertidal habitat damages:</u></b>            by 2025: none            by 2055: none            by 2105: none</p>	<p>Continue maintaining existing defences to provide protection. Cost: £2.2 million.</p>	<p>Defences no longer maintained at Blakeney Freshes. New defences built to protect properties. Continue to maintain existing defences to sustain protection for rest of PDZ. Cost: £19.8 million.</p>	<p>Defences no longer maintained at Cley marshes. New defences built to protect properties. Continue maintaining existing defences to sustain protection for rest of PDZ. Cost: £28.3 million.</p>	<p>This PP has an overall BCR of 1.9. However, the ratios for individual compartments vary a lot. Blakeney Freshes (BCR 0.6), Cley marshes (BCR 0.4) and Morston (BCR 0.8) are not economically viable when considered alone.</p>	

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
				This option is <b>at least marginally viable</b> . The PV benefits amount to £25.7 million by 2105 whereas the PV costs amount to £13.8 million.			
PDZ3A (without realignment at Cley marshes)	Reclaimed areas behind Blakeney Spit	Blakeney Freshes project appraisal report	<p><b>NAI damages:</b> by 2025: up to £31.1 million by 2055: up to £38.6 million by 2105: up to £47.8 million</p> <p><b>Hold the line damages:</b> by 2025: none by 2055: none by 2105: none</p>	Continue maintaining existing defences to provide protection. Cost: £2.2 million.	Defences no longer maintained at Blakeney Freshes. New defences built to protect properties. Continue maintaining existing defences to sustain protection for rest of PDZ. Cost: £31.5 million.	Continue maintaining existing defences to sustain protection for rest of PDZ. Cost: £7.3 million.	This PP has an overall BCR of 2.2. However, the ratios for the individual compartments vary a lot. Blakeney Freshes (BCR 0.6), Cley marshes (BCR 0.6) and Morston (BCR 0.8) are not economically viable when considered alone.
				This option is <b>clearly economically viable</b> . The PV benefits amount to £25.7 million by 2105 whereas the PV costs amount to £13.8 million.			

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
PDZ3B	Stiffkey to Morston		<b>NAI – No assessment</b>				
PDZ3C	Blakeney	No data currently available	<p><b>NAI damages:</b> by 2025: up to £9.8 million by 2055: up to £11.2 million by 2105: up to £12.6 million</p> <p><b>Hold the line damages:</b> by 2025: none by 2055: none by 2105: none</p>	Continue maintaining existing defences to provide protection. Cost: £0.4 million.	Continue maintaining existing defences to provide protection. Defences assumed to be replaced in this epoch. Cost: £10.2 million.	Continue maintaining existing defences to provide protection. Cost: £2.4 million.	This PP has a BCR of 2.0.
				The plan for this policy development zone is <b>clearly economically viable</b> . The PV benefits amount to £9.6 million by 2105 whereas the PV costs amount to £3.4 million.			

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
		Previous studies	Broad-scale review (this SMP)	Broad-scale economic review			
				Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
PDZ3D	Cley to Salthouse	No data currently available	<p><b><u>NAI damages:</u></b> by 2025: up to £3.6 million by 2055: up to £3.6 million by 2105: up to £5.5 million</p> <p><b><u>Maintain flood defence function of shingle ridge through minimum intervention damages:</u></b> by 2025: none by 2055: none by 2105: none</p>	No maintenance needed to maintain flood defence function of the shingle ridge.	Limited maintenance needed to maintain flood defence function of the shingle ridge. Cost: £0.4 million.	Limited maintenance needed to maintain flood defence function of the shingle ridge. Cost: £0.6 million.	This PP has a BCR of 9.6 with the assumed maintenance schedule
			The plan for this policy development zone is <b>clearly economically viable</b> . The PV benefits amount to £2.6 million by 2105 whereas the PV costs amount to £0.3 million.				

**Table H2 Economic assessment summary for each super-frontage**

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
		Previous studies	Broad-scale review (this SMP)	Broad-scale economic review			
				Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
SF1 (with realignment)	Old Hunstanton to Thornham	No data currently available	<p><b><u>NAI damages:</u></b>                      By 2025: up to £19.0 million                      By 2055: up to £24.0 million                      By 2105: up to £36.2 million</p> <p><b><u>MR policies damages:</u></b>                      By 2025: none                      By 2055: none                      By 2105: none</p>	Cost: £1.8 million	Cost: £11.5 million	Cost: £20.4 million	This suite of policies has a BCR of 1.8.
				The plan for this policy development zone is <b>marginally economically viable</b> . The PV benefits amount to £16.5 million by 2105 whereas the PV costs amount to £9.0 million.			
SF1 (without realignment)	Old Hunstanton to Thornham	No data currently available	<p><b><u>NAI damages:</u></b>                      By 2025: up to £19.0 million                      By 2055: up to £24.0 million                      By 2105: up to £36.2 million</p>	Cost: £1.8 million	Cost: £22.2 million	Cost: £6.3 million	This suite of policies has a BCR of 1.9.
				The plan for this policy development zone is <b>marginally economically viable</b> . The PV benefits amount to £16.5 million by 2105 whereas the PV costs amount to £8.3 million.			



Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
			<u><b>Hold the line damages:</b></u> By 2025: none By 2055: none By 2105: none				
SF2 (with realignments)	Thornham to Stiffkey marshes	No data currently available	<u><b>NAI damages:</b></u> By 2025: up to £78.2 million By 2055: up to £88.3 million By 2105: up to £108.8 million  <u><b>MR policies damages:</b></u> By 2025: none By 2055: none By 2105: none	Cost: £5.8 million	Cost: £91.6 million	Cost: £57.0 million	This suite of policies has a BCR of 1.2.
			The plan for this policy development zone is <b>marginally economically viable</b> . The PV benefits amount to £48.6 million by 2105 whereas the PV costs amount to £44.6 million.				
SF2 (without realignments)	Thornham to Stiffkey marshes	No data currently available	<u><b>NAI damages:</b></u> By 2025: up to £78.2 million By 2055: up to £ 88.3million By 2105: up to	Cost: £5.7 million	Cost: £151.3 million	Cost: £40.2 million	This suite of policies has a BCR of 0.9.
			The plan for this policy development zone is <b>not likely to be economically viable</b> . The PV benefits amount to £48.6 million by 2105 whereas the PV costs amount to £51.8				

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
			£108.8 million  <b><u>Hold the line damages:</u></b> By 2025: none By 2055: none By 2105: none	million.			
SF3 (with realignments)	Stiffkey marshes to Salhouse	No data currently available	<b><u>NAI damages:</u></b> By 2025: up to £40.9 million By 2055: up to £49.8 million By 2105: up to £60.4 million  <b><u>MR policies damages:</u></b> By 2025: none By 2055: none By 2105: none	Cost: £2.6 million	Cost: £30.3 million	Cost: £31.3 million	This suite of policies has a BCR of 1.9.
				The plan for this policy development zone is <b>marginally economically viable</b> . The PV benefits amount to £32.6 million by 2105 whereas the PV costs amount to £17.1 million.			
SF3 (without realignments)	Stiffkey marshes to Salhouse	No data currently available	<b><u>NAI damages:</u></b> By 2025: up to £40.9 million By 2055: up to	Cost: £2.6 million	Cost: £42.0 million	Cost: £10.3 million	This suite of policies has a BCR of 2.1.
				The plan for this policy development zone is <b>clearly economically viable</b> The PV			

Location		Calculation of damages and benefits		Assumed defence works and costs			Comments
				Broad-scale economic review			
		Previous studies	Broad-scale review (this SMP)	Epoch 1 (2009 to 2025)	Epoch 2 (2026 to 2055)	Epoch 3 (2056 to 2105)	
		£49.8 million By 2105: up to £60.4 million  <u><b>Hold the line damages:</b></u> By 2025: none By 2055: none By 2105: none	benefits amount to £32.6 million by 2105 whereas the PV costs amount to £15.3 million.				

**Table H3 Supporting economic data – summary table for each policy development zone**

Policy unit	Epoch	Asset value loss for each epoch (damages) (£)		Cumulative property damage/loss (PV) (£)		Management cost for each epoch (final plan) <sup>1</sup>	Final plan	
		NAI	Final plan	NAI	Final plan		Property damages averted (PV)	Costs (PV) <sup>2</sup> (£)
PDZ1A	1	18,976,915	-	11,947,586	-	853,155	11,947,586	657,136
	2	4,994,063	-	13,857,472	-	9,396,000	1,909,886	2,530,398
	3	12,224,389	-	15,638,096	-	2,255,040	1,780,624	328,473
PDZ1B	1	18,976,915	-	11,947,586	-	518,563	11,947,586	329,357
	2	4,994,063	-	13,857,472	-	909,360	1,909,886	276,236
	3	12,224,389	-	15,638,096	-	1,151,856	1,780,624	174,613
PDZ1C (with realignment)	1	18,976,915	-	12,838,953	-	450,976	12,838,953	347,361
	2	4,994,063	-	14,748,839	-	1,193,760	1,909,886	3,055,818
	3	12,224,389	-	16,529,463	-	17,003,520	1,780,624	2,848,998
PDZ1C (without realignment)	1	18,976,915	-	12,838,953	-	450,976	12,838,953	347,361
	2	4,994,063	-	14,748,839	-	11,937,600	1,909,886	3,214,867
	3	12,224,389	-	16,529,463	-	2,865,024	1,780,624	417,325
PDZ2B	1	0	-	0	-	533,120	0	410,632
	2	0	-	0	-	14,112,000	0	3,800,446
	3	0	-	0	-	3,386,880	0	493,338

<sup>1</sup> Including 60 per cent optimism bias

<sup>2</sup> Including 60 per cent optimism bias

Policy unit	Epoch	Asset value loss for each epoch (damages) (£)		Cumulative property damage/loss (PV) (£)		Management cost for each epoch (final plan) <sup>1</sup>	Final plan	
		NAI	Final plan	NAI	Final plan		Property damages averted (PV)	Costs (PV) <sup>2</sup> (£)
PDZ2D (with realignment)	1	3,856,669	-	2,428,102	-	486,336	2,428,102	374,597
	2	783,643	-	2,727,792	-	658,800	299,690	348,211
	3	1,521,463	-	2,949,411	-	259,200	221,619	37,755
PDZ2D (without realignment)	1	3,856,669	-	2,428,102	-	486,336	2,428,102	374,597
	2	783,643	-	2,727,792	-	12,873,600	299,690	3,466,937
	3	1,521,463	-	2,949,411	-	3,089,664	221,619	450,044
PDZ2E	1	1,319,701	-	830,864	-	538,800	830,864	377,848
	2	0	-	830,864	-	8,172,000	0	2,213,439
	3	0	-	830,864	-	2,587,200	0	379,714
PDZ2F	1	11,974,218	-	8,883,220	-	960,704	8,883,220	739,975
	2	1,743,055	-	9,549,819	-	25,430,400	666,599	6,848,559
	3	6,374,296	-	10,478,309	-	6,103,296	928,490	889,016
PDZ2G (with realignment)	1	15,243,639	-	9,597,170	-	2,048,786	9,597,170	1,578,061
	2	12,306,770	-	14,239,235	-	6,772,608	4,642,065	2,419,664
	3	6,334,658	-	15,161,952	-	32,688,922	922,717	7,552,378
PDZ2G (without realignment)	1	15,243,639	-	9,597,170	-	2,048,786	9,597,170	1,578,061
	2	12,306,770	-	14,239,235	-	54,228,240	4,642,065	14,604,071
	3	6,334,658	-	15,161,952	-	13,014,605	922,717	1,895,728
PDZ2H	1	2,728,831	-	1,718,032	-	324,224	1,718,032	249,731
	2	0	-	1,718,032	-	8,582,400	0	2,311,292
	3	1,653,590	-	1,958,897	-	2,059,776	240,865	300,030

Policy unit	Epoch	Asset value loss for each epoch (damages) (£)		Cumulative property damage/loss (PV) (£)		Management cost for each epoch (final plan) <sup>1</sup>	Final plan	
		NAI	Final plan	NAI	Final plan		Property damages averted (PV)	Costs (PV) <sup>2</sup> (£)
PDZ2I	1	15,243,639	-	9,597,170	-	0	9,597,170	570,866
	2	1,616,096	-	10,215,216	-	3,050,856	618,046	955,122
	3	731,323	-	10,321,742	-	4,043,462	106,526	604,102
PDZ2J	1	15,243,639	-	9,597,170	-	486,064	9,597,170	374,387
	2	1,616,096	-	10,215,216	-	12,866,400	618,046	3,464,999
	3	731,323	-	10,321,742	-	3,087,936	106,526	449,794

Policy unit	Epoch	Asset value loss for each epoch (damages) (£)		Cumulative property damage/loss (PV) (£)		Management cost for each epoch (final plan) <sup>1</sup>	Final plan	
		NAI	Final plan	NAI	Final plan		Property damages averted (PV)	Costs (PV) <sup>2</sup> (£)
PDZ2K	1	8,262,790		5,202,131	-	212,160	5,202,131	163,415
	2	1,991,100		5,963,590	-	5,616,000	761,459	1,512,422
	3	1,580,828		6,193,856	-	1,347,840	230,266	196,329
PDZ2L	1	0	-	0	-	197,120	0	184,365
	2	28,072,476	-	10,566,608	-	6,336,000	10,566,608	1,706,323
	3	3,009,145	-	11,004,925	-	1,520,640	438,317	221,499
PDZ3A (with realignment at Cley marshes)	1	31,122,676	-	21,544,907	-	2,181,389	21,544,907	1,723,270
	2	7,526,192	-	24,360,840	-	19,786,608	2,815,933	5,841,119
	3	9,188,050	-	25,699,186	-	28,267,488	1,338,346	6,198,548
PDZ3A (without realignment at Cley marshes)	1	31,122,676	-	21,544,907	-	2,181,389	21,544,907	1,723,270
	2	7,526,192	-	24,360,840	-	31,495,968	2,815,933	8,847,340
	3	9,188,050	-	25,699,186	-	7,284,384	1,338,346	1,061,055
PDZ3C	1	9,780,215	-	6,157,479	-	384,880	6,157,479	296,451
	2	1,456,548	-	6,714,508	-	10,188,000	557,029	2,743,689
	3	1,316,834	-	6,906,320	-	2,445,120	191,812	356,160
PDZ3D	1	3,611,049	-	2,273,463	-	0	2,273,463	0
	2	0	-	2,273,463	-	358,632	0	153,877
	3	1,932,760	-	2,554,992	-	597,720	281,529	111,170

**Table H4 Supporting economic data – summary table for each super-frontage**

Policy unit	Epoch	Asset value loss for each epoch (damages) (£)		Cumulative property damage/loss (PV) (£)		Management cost for each epoch (final plan) <sup>3</sup>	Final plan	
		NAI	Final plan	NAI	Final plan		Property damages averted (PV)	Costs (PV) <sup>4</sup> (£)
SF1	1	18,976,915		12,838,953		1,822,694	12,838,953	1,333,854
	2	4,994,063		14,748,839		22,242,960	1,909,886	6,021,501
	3	12,224,389		16,529,463		6,271,920	1,780,624	920,411
SF2	1	43,385,848	0	28,659,519	0	5,787,314	28,659,519	5,023,877
	2	44,897,044	0	45,595,940	0	91,597,464	16,936,421	25,580,477
	3	20,473,980	0	48,578,214	0	57,085,152	2,982,274	11,123,956
SF3	1	40,902,891	0	27,702,386	0	2,566,269	27,702,386	2,019,720
	2	8,982,740	0	31,075,348	0	30,333,240	3,372,962	8,738,685
	3	10,504,884	0	32,605,506	0	31,310,328	1,530,158	6,665,878

<sup>3</sup> Including 60 per cent optimism bias

<sup>4</sup> Including 60 per cent optimism bias



**Table H5 Supporting economic data – defence cost calculations for each policy development zone**

Policy unit	Epoch	Replacement				Maintenance				Total cost (£)			PV costs (£)		
		Length (km)			Cost (£) <sup>5</sup>	Length (km)			Cost (£) <sup>5</sup>	Total cost	With optimism bias (60%)	Cumulative total	PV total	With optimism bias (60%)	Cumulative PV total
		B	L	G		B	L	G							
PDZ1A	1	0	0	0	0	0	1.85	1.29	533,222	533,222	853,155	853,155	410,710	657,136	657,136
	2	0	1.31	0	5,825,250	0	1.31	0	587,250	5,872,500	9,396,000	10,249,155	1,581,499	2,530,398	3,187,534
	3	0	0	0	0	0	1.31	0	1,409,400	1,409,400	2,255,040	12,504,195	205,296	328,473	3,516,007
PDZ1B	1	0	0	0.42	252,600	0	0	0.42	71,502	324,102	518,563	518,563	205,848	329,357	329,357
	2	0	0	0.42	378,900	0	0	0.42	189,450	568,350	909,360	1,427,923	172,647	276,236	605,593
	3	0	0	0.42	378,900	0	0	0.42	341,010	719,910	1,151,856	2,579,779	109,133	174,613	780,207
PDZ1C (with managed realignment)	1	0	0	0	0	0	1.658	0	281,860	281,860	450,976	450,976	217,100	347,361	347,361
	2	0	0	0	0	0	1.658	0	746,100	746,100	1,193,760	1,644,736	285,332	456,531	803,892
	3	0	1.64	0	8,856,000	0	1.640	0	1,771,200	10,627,200	17,003,520	18,648,256	2,465,432	3,944,691	4,748,583
PDZ1C (without managed realignment)	1	0	0	0	0	0	1.658	0	16,580	281,860	450,976	450,976	217,100	347,361	347,361
	2	0	1.66	0	6,714,900	0	1.658	0	24,870	746,100	11,937,600	12,388,576	2,009,292	3,214,867	3,562,228
	3	0	0	0	0	0	1.658	0	33,160	1,790,640	2,865,024	15,253,600	260,828	417,325	3,979,553
PDZ2B	1	0	0	0	0	0	1.96	0	333,200	333,200	533,120	533,120	256,645	410,632	410,632
	2	0	1.96	0	7,938,000	0	1.96	0	882,000	8,820,000	14,112,000	14,645,120	2,375,279	3,800,446	4,211,078
	3	0	0	0	0	0	1.96	0	2,116,800	2,116,800	3,386,880	18,032,000	308,337	493,338	4,704,416

Policy unit	Epoch	Replacement				Maintenance				Total cost (£)			PV costs (£)		
		Length (km)			Cost (£) <sup>5</sup>	Length (km)			Cost (£) <sup>5</sup>	Total cost	With optimism bias (60%)	Cumulative total	PV total	With optimism bias (60%)	Cumulative PV total
		B	L	G		B	L	G							
PDZ2D (with realignment)	1	0	0	0	0	0	1.79	0	303,960	303,960	486,336	486,336	234,123	374,597	374,597
	2	0	0.09	0	344,250	0	0.15	0	67,500	411,750	658,800	1,145,136	217,632	348,211	722,808
	3	0	0	0	0	0	0.15	0	162,000	162,000	259,200	1,404,336	23,597	37,755	760,563
PDZ2D (without realignment)	1	0	0	0	0.00	0	1.79	0	303,960	303,960	486,336	486,336	234,123	374,597	374,597
	2	0	1.79	0	7,241,400	0	1.79	0	804,600	804,600	12,873,600	13,359,936	2,166,836	34,66,938	2,400,959
	3	0	0	0	0.00	0	1.79	0	1,931,040	1,931,040	3,089,664	16,449,600	281,278	450,045	2,682,237
PDZ2E	1	0	0	0.2	120,000	0	1.08	0.2	216,750	336,750	538,800	538,800	236,155	377,848	377,848
	2	0	1.08	0.2	4,533,750	0	1.08	0.2	573,750	5,107,500	8,172,000	8,710,800	1,383,399	2,213,439	2,591,287
	3	0	0	0.2	240,000	0	1.08	0.2	1,377,000	1,617,000	2,587,200	11,298,000	237,321	379,714	2,971,000
PDZ2F	1	0	0	0	0	0	3.53	0	600,440	600,440	960,704	960,704	462,484	739,975	739,975
	2	0	3.53	0	14,304,600	0	3.53	0	1,589,400	15,894,000	25,430,400	26,391,104	4,280,350	6,848,559	7,588,534
	3	0	0	0	0	0	3.53	0	3,814,560	3,814,560	6,103,296	32,494,400	555,635	889,016	8,477,550

Policy unit	Epoch	Replacement				Maintenance				Total cost (£)			PV costs (£)		
		Length (km)			Cost (£) <sup>5</sup>	Length (km)			Cost (£) <sup>5</sup>	Total cost	With optimism bias (60%)	Cumulative total	PV total	With optimism bias (60%)	Cumulative PV total
		B	L	G		B	L	G							
PDZ2Gi (with realignment)	1	0	0	0	0	0	5.29	0	52,907	899,419	899,419	1,439,070	1,439,070	692,770	1,108,433
	2	0	0	0	0	0	5.29	0	79,365	2,380,950	2,380,950	3,809,520	5,248,590	910,550	2,565,313
	3	0	1.45	0	7,846,200	0	1.45	0	29,060	1,569,240	9,415,440	15,064,704	20,313,294	2,184,312	6,060,212
PDZ2Gi (without realignment)	1	0	0	0	0	0	5.29	0	52,907	899,419	899,419	1,439,070	1,439,070	692,770	1,108,433
	2	0	5.29	0.00	21,424,500	0	5.29	0	2,380,950	23,805,450	38,088,720	39,527,790	6,411,001	10,257,602	7,103,771
	3	0	0.00	0.00	0.00	0	5.29	0	5,713,200	5,713,200	9,141,120	48,668,910	832,194	1,331,510	7,935,965
PDZ2G (River Burn outfall)	1	0	0	0	0	0	0.88	0	8,800	123,200	123,200	197,120	197,120	115,228	184,365
	2	0	0.88	0	3,564,000	0	0.88	0	13,200	396,000	3,960,000	6,336,000	6,533,120	1,066,452	1,890,688
	3	0	0	0	0	0	0.88	0	17,600	950,400	950,400	1,520,640	8,053,760	138,437	2,112,187

Policy unit	Epoch	Replacement				Maintenance				Total cost (£)			PV costs (£)		
		Length (km)			Cost (£) <sup>5</sup>	Length (km)			Cost (£) <sup>5</sup>	Total cost	With optimism bias (60%)	Cumulative total	PV total	With optimism bias (60%)	Cumulative PV total
		B	L	G		B	L	G							
PDZ2G (Overy marshes, with realignment)	1	0	0	0	0	0	2.02	0	345,508	345,508	552,813	552,813	266,125	425,800	425,800
	2	0	0	0	0	0	2.02	0	910,530	910,530	1,456,848	2,009,661	348,215	557,144	982,944
	3	0	1.67	0	8,991,000	0	1.67	0	1,798,200	10,789,200	17,262,720	19,272,381	2,503,014	4,004,823	4,987,767
PDZ2G (Overy marshes, without realignment))	1	0	0	0	0	0	2.03	0	345,508	345,508	552,813	552,813	266,125	425,800	425,800
	2	0	2.032	0	8,231,220	0	2.03	0	914,580	9,145,800	14,633,280	15,186,093	2,463,019	3,940,830	2,729,144
	3	0	0	0	0	0.	2.03	0	2,194,992	2,194,992	3,511,987	18,698,080	319,726	511,562	3,048,870
PDZ 2H	1	0	0	0	0	0	1.19	0	202,640	202,640	324,224	324,224	156,082	249,731	249,731
	2	0	1.19	0	4,827,600	0	1.19	0	536,400	5,364,000	8,582,400	8,906,624	1,444,557	2,311,292	2,561,023
	3	0	0	0	0	0	1.19	0	1,287,360	1,287,360	2,059,776	10,966,400	187,519	300,030	2,861,053
PDZ2I (dunes)	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	1	450,000	450,000	720,000	720,000	172,094	275,350	275,350
	3	0	0	0	0	0	0	1	810,000	810,000	1,296,000	2,016,000	117,986	188,777	464,128

Policy unit	Epoch	Replacement				Maintenance				Total cost (£)			PV costs (£)		
		Length (km)			Cost (£) <sup>5</sup>	Length (km)			Cost (£) <sup>5</sup>	Total cost	With optimism bias (60%)	Cumulative total	PV total	With optimism bias (60%)	Cumulative PV total
		B	L	G		B	L	G							
PDZ21 (hard defences)	1	0	0	0.7	419,400	0	0.11	0.7	138,210	557,610	892,176	892,176	356,791	570,866	570,866
	2	0	0.11	0.7	1,090,800	0	0.11	0.7	365,985	1,456,785	2,330,856	3,223,032	424,858	679,772	1,250,638
	3	0	0	0.7	838,800	0	0.11	0.7	878,364	1,717,164	2,747,462	5,970,494	259,578	415,325	1,665,963
PDZ 2J	1	0	0	0	0	0	1.79	0	303,790	303,790	486,064	486,064	233,992	374,387	374,387
	2	0	1.787	0	7,237,350	0	1.79	0	804,150	8,041,500	12,866,400	13,352,464	2,165,624	3,464,999	3,839,386
	3	0	0	0	0	0	1.79	0	1,929,960	1,929,960	3,087,936	16,440,400	281,121	449,794	4,289,179

Policy unit	Epoch	Replacement				Maintenance				Total cost (£)			PV costs (£)		
		Length (km)			Cost (£) <sup>5</sup>	Length (km)			Cost (£) <sup>5</sup>	Total cost	With optimism bias (60%)	Cumulative total	PV total	With optimism bias (60%)	Cumulative PV total
		B	L	G		B	L	G							
PDZ2K	1	0	0	0	0	0	0.78	0	132,600	132,600	212,160	212,160	102,134	163,415	163,415
	2	0	0.78	0	3,159,000	0	0.78	0	351,000	3,510,000	5,616,000	5,828,160	945,264	1,512,422	1,675,837
	3	0	0	0	0	0	0.78	0	842,400	842,400	1,347,840	7,176,000	122,705	196,329	1,872,166
PDZ2L	1	0	0	0	0	0	0.88	0	8,800	123,200	123,200	197,120	197,120	115,228	184,365
	2	0	0.88	0	3,564,000.00	0	0.88	0	13,200	396,000	3,960,000	6,336,000	6,533,120	1,066,452	1,890,688
	3	0	0	0	0	0	0.88	0	17,600	950,400	950,400	1,520,640	8,053,760	138,437	2,112,187
PDZ3A (River Stiffkey outfall)	1	0	0	0	0	0	0.32	0	54,910	54,910	87,856	87,856	42,294	67,670	67,670
	2	0	0.32	0	1,308,150	0	0.32	0	145,350	1,453,500	2,325,600	2,413,456	391,436	626,298	693,968
	3	0	0	0	0	0	0.32	0	348,840	348,840	558,144	2,971,600	50,813	81,300	775,269
PDZ3A (Morston)	1	0	0	0	0	0	1.17	0	11,650	163,100	163,100	260,960	260,960	152,546	152,546
	2	0	1.17	0	4,718,250	0	1.17	0	17,475	524,250	5,242,500	8,388,000	8,648,960	1,411,837	1,564,383
	3	0	0.00	0	0	0	1.17	0	23,300	1,258,200	1,258,200	2,013,120	10,662,080	183,271	1,747,655
PDZ3A 3	1	0	0	0	0	0	4.21	0	714,833	714,833	1,143,733	1,143,733	550,595	880,951	880,951
	2	0	0.37	0	1,506,600	0	0.2	0	87,750	1,594,350	2,550,960	3,694,693	657,652	1,052,243	1,933,194
	3	0	0	0	0	0	0.2	0	210,600	210,600	336,960	4,031,653	30,676	49,082	1,982,276

Policy unit	Epoch	Replacement				Maintenance				Total cost (£)			PV costs (£)		
		Length (km)			Cost (£) <sup>5</sup>	Length (km)			Cost (£) <sup>5</sup>	Total cost	With optimism bias (60%)	Cumulative total	PV total	With optimism bias (60%)	Cumulative PV total
		B	L	G		B	L	G							
PDZ3A (River Glaven outfall)	1	0	0	0	0	0	0.22	0	37,315	37,315	59,704	59,704	28,742	45,987	45,987
	2	0	0.22	0	888,975	0	0.22	0	98,775	987,750	1,580,400	1,640,104	266,007	425,611	471,598
	3	0	0	0	0	0	0.22	0	237,060	237,060	379,296	2,019,400	34,531	55,249	526,847
PDZ3A (Cley)	1	0	0	0	0	0	0.51	0	86,020	86,020	137,632	137,632	66,256	106,010	106,010
	2	0	0.51	0	2,047,680	0	0.51	0	227,700	2,275,380	3,640,608	3,778,240	612,794	980,470	1,086,480
	3	0	0	0	0	0	0.51	0	546,480	546,480	874,368	4,652,608	79,601	127,362	1,213,842
PDZ 3A (Cley marshes, with realignment)	1	0	0	0	0	0	1.81	0	307,190	307,190	491,504	491,504	236,611	378,577	378,577
	2	0	0	0	0	0	1.81	0	813,150	813,150	1,301,040	1,792,544	310,974	497,558	876,135
	3	0	2.33	0	12,555,000	0	2.33	0	2,511,000	15,066,000	24,105,600	25,898,144	3,495,200	5,592,320	6,468,456
PDZ 3A (Cley marshes, without realignment)	1	0	0	0	0	0	1.81	0	307,190	307,190	491,504	491,504	236,611	378,577	378,577
	2	0	1.807	0	7,318,350	0	1.807	0	813,150	8,131,500	13,010,400	13,501,904	2,189,862	3,503,779	2,426,473
	3	0	0	0	0	0	1.807	0	1,951,560	1,951,560	3,122,496	16,624,400	284,267	454,827	2,710,740

Policy unit	Epoch	Replacement				Maintenance				Total cost (£)			PV costs (£)		
		Length (km)			Cost (£) <sup>5</sup>	Length (km)			Cost (£) <sup>5</sup>	Total cost	With optimism bias (60%)	Cumulative total	PV total	With optimism bias (60%)	Cumulative PV total
		B	L	G		B	L	G							
PDZ3C	1	0	0	0	0	0	1.42	0	240,550	240,550	384,880	384,880	185,282	296,451	296,451
	2	0	1.42	0	5,730,750	0	1.42	0	636,750	6,367,500	10,188,000	10,572,880	1,714,806	2,743,689	3,040,140
	3	0	0	0	0	0	1.42	0	1,528,200	1,528,200	2,445,120	13,018,000	222,600	356,160	3,396,300
PDZ3D	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	4.98	224,145	224,145	358,632	358,632	96,173	153,877	153,877
	3	0	0	0	0	0	0	4.98	373,575	373,575	597,720	956,352	69,481	111,170	265,047



**Table H6 Supporting economic data – defence cost calculations for each super-frontage**

Policy unit	Epoch	Replacement				Maintenance				Total cost (£)			PV costs (£)		
		Length (km)			Cost (£) <sup>5</sup>	Length (km)			Cost (£) <sup>5</sup>	Total cost	With optimism bias (60%)	Cumulative total	PV total	With optimism bias (60%)	Cumulative PV total
		B	L	G		B	L	G							
SF1 with conditional realignments	1	0	0	0.42	252,600	0	3.508	1.71	886,584	1,139,184	1,822,694	1,822,694	8,336,585	1,333,853	1,333,854
	2	0	1.31	0.42	6,204,150	0	2.968	0.42	1,522,800	7,186,950	11,499,120	13,321,814	2,039,478	3,263,165	4,597,018
	3	0	1.69	0.42	9,504,900	0	3	0.42	3,575,610	13,080,510	20,928,816	34,250,630	2,855,027	4,568,043	9,165,063
SF1 without conditional realignments	1	0	0.00	0	252,600	0	3.508	1.71	621,304	1,139,184	1,822,694	1,822,694	833,658	1,333,854	1,333,854
	2	0	2.97	0	12,919,050	0	2.968	0.42	801,570	7,186,950	22,242,960	24,065,654	3,763,438	6,021,501	7,355,355
	3	0	0.05	0	648,900	0	3.018	0.42	1,837,570	4,243,950	6,790,320	30,855,974	650,423	1,040,677	8,396,033
SF2 with conditional realignments	1	0	0	0.9	539,400	0	27	0.9	3,428,998	5,195,160	7,526,905	8,312,256	4,991,690	5,711,644	6,265,581
	2	0	14.15	0.9	58,096,350	0	21.35	1.9	6,887,055	56,711,115	100,365,714	115,909,770	41,770,150	28,145,466	36,237,119
	3	0	3.12	0.9	17,916,000	0	17.16	1.9	15,663,644	30,374,124	53,607,854	152,192,768	51,761,196	10,129,740	47,843,571
SF2 without conditional realignments	1	0	0	0.9	539,400	0	27	0.9	3,428,998	5,195,160	7,526,905	8,312,256	4,991,690	5,711,644	6,265,581
	2	0	19.7574	0.9	80,835,480	0	20.62	1.9	10,131,705	90,967,185	145,547,496	155,914,985	24,632,946	39,412,712	40,382,775
	3	0	0	0.9	1,078,800	0	20.62	1.9	24,045,012	25,123,812	40,198,099	196,113,084	3,670,814	5,873,301	45,396,157
SF3 with conditional realignments	1	0	0	0	0	0	3.96	0	671,075	671,075	1,073,720	1,073,720	516,891	827,025	827,025
	2	0	2.15	0	8,667,405	0	3.96	4.98	2,000,520	10,667,925	17,068,680	18,142,400	3,000,754	4,801,205	5,628,230
	3	0	2.33	0	12,555,000	0	4.48	4.98	5,196,315	17,751,315	28,402,104	46,544,504	3,901,413	6,242,261	11,870,492

Policy unit	Epoch	Replacement				Maintenance				Total cost (£)			PV costs (£)		
		Length (km)			Cost (£) <sup>5</sup>	Length (km)			Cost (£) <sup>5</sup>	Total cost	With optimism bias (60%)	Cumulative total	PV total	With optimism bias (60%)	Cumulative PV total
		B	L	G		B	L	G							
SF3 without conditional realignments	1	0	0	0	0	0	3.96	0	671,075	671,075	1,073,720	1,073,720	516,891	827,025	827,025
	2	0	6	0	23,518,755	0	6	5	2,757,870	26,276,625	42,042,600	44,608,869	7,340,567	11,744,906	11,370,113
	3	0	0	0	0	0	6	5	6,454,515	6,454,515	10,327,224	54,936,093	955,240	1,528,385	12,617,975