

**A4. Detailed Explanation of Calculation of Funding Costs**

**A4.1 Introduction**

This Annex works through the steps of the calculations used to estimate the costs of each option considered in Section 8.2 of the Final Report. It also sets out all the assumptions made as part of these calculations.

**A4.2 Number of Properties Affected**

All of the calculations are based on an estimate of the number of properties that may be affected in each epoch. This information is taken from work by Great Yarmouth Borough Council as part of the project appraisal for the extension of the rock berm, supplemented by predicted numbers of properties from the SMP<sup>1</sup>. As the SMP gives ranges of properties, the maps from the SMP have been used to count numbers of properties that could be affected in each epoch (supported by site visits). The numbers given in Table A4.1 below are therefore an estimate of the number of properties that could be affected.

<b>Table A4.1: Estimated Number of Properties that could be Affected by Coastal Change in Scratby and California</b>				
<b>Epoch</b>	<b>by 2020</b>	<b>2021 to 2025</b>	<b>2026 to 2055</b>	<b>2056 to 2105</b>
<b>Number of properties</b>	27	32	91	101

**A4.3 Costs of Buying the Properties**

Table 8.1 of the Final Report considers five different approaches for purchasing the properties:

- at value if there was no risk of erosion;
- at rebuild value;
- at the value reflecting the risk of erosion;
- through compulsory purchase; and
- through private buyers purchasing at the value reflecting the risk of erosion and public money being used to make up the difference to the value if there was no risk of erosion. This option would only be available to those who purchased their property before 2006 (when the revised SMP was published).

The costs of each approach are estimated by multiplying the number of properties affected in each epoch by the cost payable. The costs assumed to be payable in each epoch are shown in Table A4.2.

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<sup>1</sup> Environment Agency *et al* (2009): **Kelling to Lowestoft Ness Shoreline Management Plan (SMP2)**, Final Report First Review, May 2009.

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Approach	Cost Payable per Property			
	by 2020	2021 to 2025	2026 to 2055	2056 to 2105
At value if there was no risk of erosion <sup>1</sup>	£140,000	£140,000	£140,000	£140,000
At rebuild value <sup>2</sup>	£84,000	£84,000	£84,000	£84,000
At value reflecting the risk of erosion <sup>3</sup>	£51,800	£65,800	£98,000	£137,200
Compulsory purchase (assumed to be the same as the value reflecting the risk of erosion) <sup>4</sup>	£51,800	£65,800	£98,000	£137,200
Through private buyers purchasing at the value reflecting the risk of erosion and public money used to make up the difference to the value if there was no risk of erosion <sup>5</sup>	£51,800 + £88,200 = £140,000	£65,800 + £74,200 = £140,000	£98,000 + £42,000 = £140,000	£137,200 + £2,800 = £140,000
Convert to leasehold <sup>6</sup>	£88,200 (£140,000 - £51,800)	£74,200 (£140,000 - £65,800)	£42,000 (£140,000 - £98,000)	£18,200 <sup>7</sup> (£140,000 - £121,800)
<p>Notes:</p> <p><sup>1</sup> Weighted average of at-risk properties based on property web-sites and valuer opinion</p> <p><sup>2</sup> Taken as 60% of the value if there was no risk of erosion</p> <p><sup>3</sup> Based on depreciation curve used to assess the value of properties as the length of lease decreases (this may over or under-estimate the value of the at-risk properties as it ignores the potential for complete loss of the property, it also ignores any premium associated with the sea view). The reduction in value is 63% with a residual life of 10 years (to 2020, where properties are expected to be lost by 2020), 53% with a residual life of 15 years (to 2025, where properties are expected to be lost between 2021 and 2025), 30% with a residual life of 40 years (to 2055, where properties are expected to be lost between 2026 and 2055) and 2% with a residual life of 90 years (to 2105, where properties are expected to be lost between 2056 and 2105)</p> <p><sup>4</sup> Assumed to be equal to the value reflecting risk of erosion as the price would be set by a valuer and negotiated with the property owner</p> <p><sup>5</sup> Assumed to be equal to the value if there was no risk of erosion due to the combination of private and public funding (contributions from the private funder are equal to the value reflecting the risk of erosion; contributions from the public funder are the difference between the value reflecting the risk of erosion and the value if there was no risk of erosion)</p> <p><sup>6</sup> Based on difference between value reflecting the risk of erosion (assumed to be the leasehold value for the residual life of the properties) and the value if there was no risk of erosion. The leasehold value is based on leasehold valuation tribunals (1994 to 2007) and gives a percentage change in value from a property with an 'infinite' life (assumed to be a lease of 100 years) and the value of a property with a reduced length of lease</p> <p><sup>7</sup> Properties are assumed to become eligible for this option when they have a residual life of 60 years or less</p>				

The total cost of each option to buy the properties is then estimated by multiplying the number of properties assumed to be at-risk in each epoch by the costs payable. The results are shown in Table A4.3. To reflect the uncertainties in the calculations (and the number of assumptions that have had to be made), all costs are given to two significant figures. Taking the

costs of buying properties at the value if there was no risk of erosion in the epoch from 2010 to 2020 as an example gives costs of:

- number of properties assumed to be at-risk (2010 to 2020): 27;
- cost payable per property: £140,000; gives
- total costs: 27 x £140,000 = £3.8 million (£3,780,000).

Approach	Total Cost Payable			
	by 2020	2021 to 2025	2026 to 2055	2056 to 2105
At value if there was no risk of erosion	£3.8 million	£4.5 million	£13 million	£14 million
At rebuild value	£2.3 million	£2.7 million	£7.6 million	£8.5 million
At value reflecting the risk of erosion	£1.4 million	£2.1 million	£8.9 million	£14 million
Compulsory purchase (assumed to be the same as the value reflecting the risk of erosion)	£1.4 million	£2.1 million	£8.9 million	£14 million
Through private buyers purchasing at the value reflecting the risk of erosion and public money used to make up the difference to the value if there was no risk of erosion <sup>1</sup>	£1.4 million + £2.0 million = £3.4 million	£2.1 million + £2.0 million = £4.1 million	£8.9 million + £3.2 million = £12 million	£14 million + £0.2 million = £14 million <sup>2</sup>
Convert to leasehold	£2.4 million	£2.4 million	£3.8 million	£1.8 million
Notes:				
<sup>1</sup> Here it is assumed that 16% of the at-risk properties would not be eligible for the publicly funded element of the costs as they were bought after publication of the SMP (based on turnover of properties in the affected roads from property web-sites)				
<sup>2</sup> The private + public funding option is £45,000 less expensive, if taken to more significant figures. This is because there are 16 non-eligible properties. There is also a small reduction per property based on the residual value (2% reduction in price paid by private investors (equivalent to £2,800 per property) with 84% of the properties eligible for the public funding for the 2% reduction				

#### **A4.4 Costs of Building New Properties**

Options to build new properties include:

- purchase of land: £12,000 per property (based on Exception Sites value); and
- build cost: £133,000 per property (based on estimates from the House of Commons Committee of Public Accounts, which gives average costs of £133,941 of which £62,000 is available in the form of grant).

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The cost of the option is then the number of properties that need to be built multiplied by the land and build cost. It is assumed that the same number of properties would be built as are assumed to be at-risk from coastal change (as given in Table A4.1). For example, the costs of building new properties by 2020 are the number of properties to be built (27, to replace those predicted to be lost) multiplied by the land costs and the build costs:

Cost of building new properties to 2020 = 27 properties x (£12,000 land costs + £133,000 build costs) = £3,915,000

The total costs for this option for all four epochs are given in Table A4.4.

Approach	Total Cost Payable			
	by 2020	2021 to 2025	2026 to 2055	2056 to 2105
Build new properties (to replace at-risk properties when they are lost to erosion) <sup>1</sup>	£3.9 million	£4.6 million	£13 million	£15 million
Build new properties (to replace at-risk properties when they are lost to erosion) for shared ownership <sup>2</sup>	£4.0 million	£4.7 million	£13 million	£15 million
Notes: <sup>1</sup> Assumes houses are built to replace those lost to erosion. If properties are built earlier such that the at-risk properties could be sold or rented to recoup funds, the overall costs of this option could be reduced <sup>2</sup> Includes a cost of £1,400 per property 'swap' to cover legal costs of setting up the swap and any shared ownership agreements (assumed at 1% of the value if there was no risk of erosion for the at-risk property)				

### A4.5 Costs of Maintaining Existing Properties

Three possible options for maintaining existing properties are considered:

- subsidised maintenance available to all properties shown as being at risk from coastal change in the SMP2;
- subsidised maintenance available to all properties with a residual life of less than 25 years (with the number of properties eligible changing over time as more properties are affected by coastal change (lost due to erosion or having residual life reduced by less than 25 years)); and
- subsidised maintenance available to all properties with residual life of less than 10 years.

The costs of subsidised maintenance are assumed to be £2,500 per property per year (based on average repair costs for Local Authorities of £2,518 per property per year and for Registered Social Landlords of £1,752 per property per year).

The costs of each option depend on how many properties are eligible for subsidised maintenance. Table 4.5 sets out how many properties would be eligible under each sub-option. The Table shows the maximum number of properties that could be eligible in each epoch. Where all the properties shown as being at risk in the SMP2 are eligible, it is necessary to include those properties at risk from 2056 to 2105, from 2026 to 2055 and from 2020 to 2025 in the total for the epoch to 2020. Thus, the total number eligible is:

- 101 at risk from 2056 to 2105
- + 91 at risk from 2026 to 2055
- + 32 at risk from 2020 to 2025
- + 27 at risk to 2020
- = 251.

<b>Table A4.5: Number of Properties Eligible for Subsidised Maintenance</b>				
<b>Number of properties that are eligible</b>	<b>Total Number of Properties in Each Epoch</b>			
	<b>by 2020</b>	<b>2021 to 2025</b>	<b>2026 to 2055</b>	<b>2056 to 2105</b>
All properties shown as being at risk in SMP2	251	224	192	101
All properties with residual life of <25 years	59	123	91	101
All properties with residual life of <10 years	27	123	91	101

Over time, where all properties shown as being at risk in the SMP2 are eligible, the properties with shorter life are predicted to be lost to coastal erosion and the number of eligible properties decreases. This is a simple assumption since properties not currently shown in the SMP2 as being at risk, but which are located behind those which are, are not included. The total costs (assuming properties currently outside the at-risk area would be eligible) are therefore likely to be an under-estimate.

Under the sub-options where properties with a 25 year or 10 year (or lower) residual life only are eligible, some properties shown as being eligible in 2020 to 2025 may not actually be at risk until much later (e.g. 2045 to 2055). There is no impact on the total costs from including them in epoch 2020 to 2025 providing the number of years over which the costs are incurred does not exceed 10 (or 25)<sup>2</sup>. For the sub-option providing subsidised maintenance for properties with less than 25 years residual life, the number at risk is estimated as:

- by 2020: 27 properties with residual life of <10 years + 32 properties with residual life of <15 years = 59 properties (properties at risk in epoch 2026 to 2055 are not included in this epoch);

<sup>2</sup> There would be a difference if the costs were discounted as the timing of the costs becomes important.

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- 2020 to 2025: 32 properties with residual life of <5 years + 91 properties with residual life of <35 years (some of these properties may have residual lives of <25 years but since the actual number <25 years and >25 years is not known, they are included here. This avoids this epoch having seemingly very low costs as this could be misleading as some properties assigned to the 2026 to 2055 epoch would be eligible here);
- 2026 to 2055: 91 properties with residual lives of <30 years; and
- 2056 to 2105: 101 properties with residual lives of <50 years.

The total costs for each sub-option and each epoch are given in Table A4.6.

Approach	Total Cost Payable			
	by 2020	2021 to 2025	2026 to 2055	2056 to 2105
All properties shown as being at risk in SMP2	£6.3 million	£2.8 million	£14 million	£13 million
All properties with residual life of <25 years	£1.5 million	£1.5 million	£4.6 million	£6.3 million
All properties with residual life of <10 years	£1.1 million	£1.5 million	£1.1 million	£2.5 million

The total costs where all properties shown as being at risk in the SMP2 are eligible are simply the number of properties eligible multiplied by the annual cost:

- by 2020: 251 properties x £2,500 = £627,500 per year;
- 2020 to 2025: 224 x £2,500 = £560,000 per year;
- 2026 to 2055: 192 x £2,500 = £480,000 per year; and
- 2056 to 2105: 101 x £2,500 = £252,000 per year.

The annual costs are then multiplied by the number of years over which they would be incurred:

- by 2020: £627,500 per year x 10 years = £6,275,000;
- 2020 to 2025: £560,000 per year x 5 years = £2,800,000;
- 2026 to 2055: £480,000 per year x 30 years = £14,400,000; and
- 2056 to 2105: £252,000 per year x 50 years = £12,625,000.

The costs for the other two sub-options are adjusted to ensure that costs are only incurred for 25 years (where properties with residual lives of <25 years are eligible) or for 10 years (where properties with residual lives of <10 years are eligible):

- properties with <25 years are eligible:
  - by 2020:
    - 27 properties x £2,500 x 10 years

- + 32 properties x £2,500 x 10 years
  - = £1,475,000;
- 2020 to 2025:
  - 32 properties x £2,500 x 5 years
  - + 91 properties x £2,500 x 5 years
  - = £1,537,500;
- 2026 to 2055:
  - 91 x £2,500 x 20 years (since 5 years costs have already been included in epoch 2020 to 2025)
  - = £4,550,000
- 2056 to 2105:
  - 101 x £2,500 x 25 years (as properties are only eligible for 25 years)
  - = £6,312,500.
- properties with <10 years are eligible:
  - by 2020:
    - 27 properties x £2,500 x 10 years
    - + 32 properties x £2,500 x 5 years (since epoch 2020 to 2025 only covers 5 years)
    - = £1,075,000;
  - 2020 to 2025:
    - 32 properties x £2,500 x 5 years
    - + 91 properties x £2,500 x 5 years
    - = £1,537,500;
  - 2026 to 2055:
    - 91 x £2,500 x 5 years (since 5 years costs have already been included in epoch 2020 to 2025)
    - = £1,137,500
  - 2056 to 2105:
    - 101 x £2,500 x 10 years (as properties are only eligible for 25 years)
    - = £2,525,500.

#### **A4.6 Opportunities to Recoup Costs**

The options for recouping funds are:

- sell the property at the value reflecting the risk of erosion;
- rent the property:
  - total income; and
  - reduced income due to management and maintenance costs.
- rent the land for caravans.

The total estimated income from each of these options is presented in Table A4.7.

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Approach	Total Potentially Recouped			
	by 2020	2021 to 2025	2026 to 2055	2056 to 2105
Sell property at the value reflecting the risk of erosion	£1.4 million	£2.1 million	£8.9 million	£14 million
Rent property (total income)	£1.4 million	£0.9 million	£16 million	£29 million
Rent property (excluding costs)	£0.9 million	£0.6 million	£10 million	£19 million
Rent land for caravans	£1.0 million	£0.6 million	£11 million	£20 million

Income from selling the properties (once they had been bought) is estimated by multiplying the number of properties by their value, assuming that a lease had been applied to the property to set its residual life. The value at risk of erosion is used to minimise the risk that future adaptation costs would be incurred as it is assumed that anybody buying the properties at the residual value would be doing so with full knowledge of the risk. The potential income, by epoch, is estimated as follows:

- by 2020: 27 properties sold at £51,800 (residual life of 10 years);
- 2020 to 2025: 32 properties sold at £65,800 (residual life of 15 years);
- 2026 to 2055: 91 properties sold at £98,000 (residual life of 45 years); and
- 2055 to 2105: 101 properties sold at £137,200 (residual life of 90 years).

If there was a time delay between purchase and resale of the property, the income generated may be reduced. Similarly, the income estimated by multiplying the number of properties by their residual value would be reduced when legal fees are taken into account.

Income from renting property relies on the houses being purchased as long in advance as possible of loss due to coastal erosion. This maximises the potential rental income. Two assumptions are made on rental income:

- income of £480 per calendar month, or £5,760 per year; or
- income of £480 per calendar month but expenses of around £170 per month on management and maintenance such that annual 'profit' is reduced to £3,760 per year.

Total income is estimated by multiplying the number of properties purchased by the number of years over which rental income would be received. For epoch 1 (to 2020) this is:

- income of £5,760 per year x 27 properties x 9 years (assuming it takes one year for properties to be purchased) = £1.4 million (£1,399,680); or
- income of £3,760 per year x 27 properties x 9 years = £0.9million (£913,680).

For the other epochs, it is assumed that properties are bought in the final year of the previous epoch, so the income becomes:

- 2021 to 2025:
  - income of £5,760 per year x 32 properties x 5 years = £0.9 million (£921,600); or
  - income of £3,760 per year x 32 properties x 5 years = £0.6 million (£601,600).
- 2026 to 2055:
  - income of £5,760 per year x 91 properties x 30 years = £15 million (£15,724,800); or
  - income of £3,760 per year x 91 properties x 30 years = £8.6 million (£8,554,000).
- 2056 to 2105:
  - income of £5,760 per year x 101 properties x 50 years = £29 million (£29,088,000); or
  - income of £3,760 per year x 101 properties x 50 years = £15 million (£15,190,400).

Income from renting land relies on the properties being purchased and then demolished so the land (and associated infrastructure) can be used for caravans. The annual rental income is assumed to be £2,000 per caravan pitch with each demolished property providing two pitches. This gives rental income of £4,000 per year for each property purchased and demolished. The income is calculated by multiplying the number of properties purchased and demolished by two (to give the possible number of caravan pitches) and by £4,000 (the annual rental income). For example, income in epoch 1 (to 2020) would be:

- properties purchased and demolished: 27;
- number of caravan pitches:  $27 \times 2 = 54$ ;
- rental income per year =  $54 \times £2,000 = £108,000$  per year;
- number of years over which income would be received (before land is eroded): 9 years (to allow time for properties to be demolished and the land cleared); giving
- total income of:  $£108,000 \times 9 \text{ years} = £1.0 \text{ million (£972,000)}$ .

#### **A4.7 Borrowing Costs**

Borrowing costs are estimated at 6% over a period of 10 years (120 months). This is a relatively short time period over which to repay some of the amounts that would need to be borrowed, but it is used here to minimise overlap between epochs. The assumption that funds are borrowed over 10 years (rather than 25 or 30, for example) means the costs of borrowing may be under-estimated.

Since most of the recouping of costs does not occur until the final epoch, there is limited opportunity to utilise these funds to offset borrowing needs. As a result, a simple assumption is made that the recouped costs would be used to help payback the borrowed funds, so that full amount would have to be

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borrowed to fund the options. The need for considerable funds up-front also means that any increases in Council Tax would be used to repay the funds borrowed, rather than offsetting the amount that needs to be borrowed. The assumption that recouped costs and Council tax contributions are used to repay the loan rather than to help fund the options means that the costs of borrowing may be over-estimated.

Table A4.8 summarises the costs of borrowing the funds to pay for each option by epoch. The borrowing costs are estimated by assessing the cumulative interest that would accrue over the 10-year period at an interest rate of 6%. Taking the option of buying properties at the value if there was no risk of erosion as an example:

- funds needed to pay for option: £3.8 million (from Table A4.3); and
- interest payable is calculated based on monthly payments being made at the end of each month. Interest payable is calculated using the function CUMIPMT to estimate cumulative interest that is payable<sup>3</sup>. This gives an estimate of £1.3 million (£1,255,890).

Approach	Total Cost Payable			
	by 2020	2021 to 2025	2026 to 2055	2056 to 2105
At value if there was no risk of erosion	£1.3 million	£1.5 million	£4.2 million	£4.7 million
At rebuild value	£0.8 million	£0.9 million	£2.5 million	£2.8 million
At value reflecting the risk of erosion	£0.5 million	£0.7 million	£3.0 million	£4.6 million
Compulsory purchase	£0.5 million	£0.7 million	£3.0 million	£4.6 million
Through private buyers purchasing at the value reflecting the risk of erosion and public money used to make up the difference <sup>1</sup>	£0.7 million	£0.7 million	£1.1 million	£0.08 million
Convert to leasehold	£0.8 million	£0.8 million	£1.3 million	£0.6 million
Build new properties (to replace at-risk properties when they are lost to erosion)	£1.3 million	£1.5 million	£4.4 million	£4.9 million
Build new properties (to replace at-risk properties when they are lost to erosion) for shared ownership	£1.3 million	£1.6 million	£4.4 million	£4.9 million
Subsidised maintenance: all properties shows as being at risk in SMP2	£2.1 million	£0.9 million	£4.8 million	£4.2 million

<sup>3</sup> To estimate the interest charged on a loan of £3.8 million over 10 years, the formula used is:  
= CUMIPMT (6%/12,120,£3.8 million,1,120,0)

Approach	Total Cost Payable			
	by 2020	2021 to 2025	2026 to 2055	2056 to 2105
Subsidised maintenance: all properties with residual life of <25 years <sup>1</sup>	£0.5 million	£0.5 million	£1.5 million	£2.1 million
Subsidised maintenance: all properties with residual life of <10 years <sup>1</sup>	£0.4 million	£0.5 million	£0.4 million	£0.8 million
Notes: <sup>1</sup> Assumes borrowing is only required to cover the publicly funded costs				

#### **A4.8 Total Costs of Each Option**

Section A4.2 to A4.6 set out the estimated costs for each option, while Section A4.7 calculates the borrowing costs. Table A4.9 provides the total costs for each option by summing the cost of the option to the borrowing costs. As before, all costs in Table A4.9 are given to two significant figures to reflect uncertainties and assumptions. The costs are taken from a spreadsheet so may not always add correctly across the tables given in this Annex. Taking the option of buying properties at the value if there was no risk of erosion as an example:

- estimated costs for the option: £3.8 million (£3,780,000);
- estimated borrowing costs: £1.3 million (£1,255,890); giving
- total costs: £5.0 million (£5,035,890).

Approach	Total Cost Payable			
	by 2020	2021 to 2025	2026 to 2055	2056 to 2105
At value if there was no risk of erosion	£5.0 million	£6.0 million	£17 million	£19 million
At rebuild value	£3.0 million	£3.6 million	£10 million	£11 million
At value reflecting the risk of erosion	£1.9 million	£2.8 million	£12 million	£18 million
Compulsory purchase	£1.9 million	£2.8 million	£12 million	£18 million
Through private buyers purchasing at the value reflecting the risk of erosion and public money used to make up the difference <sup>1</sup>	£2.7 million	£2.7 million	£4.3 million	£0.3 million
Convert to leasehold	£3.2 million	£3.2 million	£5.1 million	£2.4 million
Build new properties (to replace at-risk)	£5.2 million	£6.2 million	£18 million	£20 million

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<b>Table A4.9: Total Costs by Option</b>				
<b>Approach</b>	<b>Total Cost Payable</b>			
	<b>by 2020</b>	<b>2021 to 2025</b>	<b>2026 to 2055</b>	<b>2056 to 2105</b>
properties when they are lost to erosion)				
Build new properties (to replace at-risk properties when they are lost to erosion) for shared ownership	£5.3 million	£6.2 million	£18 million	£20 million
Subsidised maintenance: all properties shows as being at risk in SMP2	£8.4 million	£3.7 million	£19 million	£17 million
Subsidised maintenance: all properties with residual life of <25 years <sup>1</sup>	£2.0 million	£2.0 million	£6.1 million	£8.4 million
Subsidised maintenance: all properties with residual life of <10 years <sup>1</sup>	£1.4 million	£2.0 million	£1.5 million	£3.4 million
Notes:				
<sup>1</sup> Assumes borrowing is only required to cover the publicly funded costs				

### A4.9 Costs to Council Taxpayers

If the options were to be funded through an increase in Council tax, all ratepayers in Great Yarmouth Borough would face an increase in their Council tax bills. Using the costs estimated above, it is possible to determine what this increase would be, per household per year, by epoch. It is assumed that there are 46,232 households in Great Yarmouth Borough Council (data provided by GYBC).

To calculate the increase in Council Tax it is assumed that the total cost of the option (funding costs plus borrowing costs) can be spread equally over the time period covered by each epoch:

- 2010 to 2020: 10 years;
- 2021 to 2025: 5 years;
- 2025 to 2055: 30 years;
- 2056 to 2105: 50 years.

Taking the option to buy properties at the value if there was no risk of erosion in the epoch 2010 to 2020, the change in Council Tax is calculated as:

- total cost: £5.0 million;
- cost per year (over 10 years): £0.5 million (£5,035,890);
- cost per household per year: £0.5 million ÷ 46,232 = £11 (£10.89)

Table A4.10 summarises the amount payable per household per year. The estimated changes in Council tax are given to the nearest whole pound to reflect uncertainty (unless the change is less than £1, in which case, the change is given to the nearest 10p).

<b>Table A4.10: Change in Council Tax by Option</b>				
<b>Approach</b>	<b>Change in Council Tax per year</b>			
	<b>by 2020</b>	<b>2021 to 2025</b>	<b>2026 to 2055</b>	<b>2056 to 2105</b>
At value if there was no risk of erosion	+£11	+£26	+£12	+£8
At rebuild value	+£7	+£15	+£7	+£5
At value reflecting the risk of erosion	+£4	+£12	+£9	+£8
Compulsory purchase	+£4	+£12	+£9	+£8
Through private buyers purchasing at the value reflecting the risk of erosion and public money used to make up the difference <sup>1</sup>	+£6	+£11	+£3	+£0.10
Convert to leasehold	+£7	+£14	+£4	+£1
Build new properties (to replace at-risk properties when they are lost to erosion)	+£11	+£27	+£13	+£8
Build new properties (to replace at-risk properties when they are lost to erosion) for shared ownership	+£11	+£27	+£13	+£9
Subsidised maintenance: all properties shows as being at risk in SMP2	+£18	+£16	+£14	+£7
Subsidised maintenance: all properties with residual life of <25 years	+£4	+£9	+£4	+£4
Subsidised maintenance: all properties with residual life of <10 years	+£3	+£9	+£1	+£1
Notes: <sup>1</sup> Assumes a change in Council Tax is only required to cover the publicly funded costs				

If properties that are purchased (or swapped) are used to recoup some of the costs, there is potential to reduce the increase in Council Tax. This is because the sale or rental income could be used to cover the loan repayments. Table A4.11 gives the reduction in the amount that Council Tax

## Annex 4: Detailed Explanation of Calculation of Funding Costs

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would have to rise to cover the costs of the options if some money is recouped by reusing the properties or land.

Approach	Change in Council Tax per year			
	by 2020	2021 to 2025	2026 to 2055	2056 to 2105
Sell property at the value reflecting the risk of erosion	-£3	-£9	-£6	-£6
Rent property (total income)	-£3	-£4	-£11	-£13
Rent property (excluding costs)	-£2	-£3	-£7	-£8
Rent land for caravans	-£2	-£3	-£8	-£9

Reduction in Council Tax is calculated in exactly the same way as the potential increases, as shown below for the rent property option (excluding costs) for 2020 to 2025:

- total income: £0.9 million (£913,680);
- income per year (over 5 years): £0.1 million (£120,320);
- cost per household per year: £0.1 million ÷ 46,232 = £3 (£2.60)

### A4.10 Borrowing Instead from Business Rates

As an alternative to Council Tax, it may be possible to borrow money from business rates. The calculations of percentage of business rates that would have to be borrowed to pay for the options are based on information from the Valuation Office Agency on total number of hereditaments and their rateable value (RV). Rateable value is converted to business rates by multiplying total RV associated with 'tourism' by the uniform business rate multiplier (41p):

- total tourism business rates: Tourism RV of £12 million x 0.41 = £5 million (£5,007,012)

The percentage to be borrowed is then estimated by dividing the total annual cost of each option by the annual business rates. In some cases, it is necessary to borrow 100% of the business rates from tourism for more than one year to cover the costs of the options:

- purchase property at the value if there was no risk of erosion:
  - cost of option (to 2020, including borrowing): £5.0 million (£5,035,890);
  - annual costs (over 10 years): £0.5 million (£503,589); giving
  - annual percentage that needs to be borrowed: £0.5 million ÷ £5 million = 10%.
- purchase property at rebuild value:
  - cost of option (to 2020, including borrowing): £3.0 million (£3,021,534);

- annual costs (over 10 years): £0.3 million (£302,153); giving
  - annual percentage that needs to be borrowed:  $\text{£0.3 million} \div \text{£5 million} = 6\%$ .
- purchase property at residual value (value reflecting risk of erosion):
  - cost of option (to 2020, including borrowing): £1.9 million (£1,863,279);
  - annual costs (over 10 years): £0.2 million (£186,328); giving
  - annual percentage that needs to be borrowed:  $\text{£0.2 million} \div \text{£5 million} = 4\%$ .
- convert to leasehold:
  - cost of option (to 2020, including borrowing): £3.2 million (£3,172,611);
  - annual costs (over 10 years): £0.3 million (£317,261); giving
  - annual percentage that needs to be borrowed:  $\text{£0.3 million} \div \text{£5 million} = 6\%$ .

To avoid borrowing costs, it may be possible to borrow against business rates the year before the costs are incurred. To do this, the total required to pay for the option (excluding borrowing costs) is considered and is divided by the total tourism business rates:

- purchase property at the value if there was no risk of erosion:
  - cost of option (to 2020, excluding borrowing): £3.8 million (£3,780,000);
  - percentage that needs to be borrowed from business rates:  $\text{£3.8 million} \div \text{£5 million} = 75\%$ .
- purchase property at rebuild value:
  - cost of option (to 2020, excluding borrowing): £2.3 million (£2,268,000);
  - percentage that needs to be borrowed from business rates:  $\text{£2.3 million} \div \text{£5 million} = 45\%$ .
- purchase property at residual value (value reflecting risk of erosion):
  - cost of option (to 2020, excluding borrowing): £1.4 million (£1,398,600);
  - percentage that needs to be borrowed from business rates:  $\text{£1.4 million} \div \text{£5 million} = 28\%$ .
- convert to leasehold:
  - cost of option (to 2020, excluding borrowing): £2.4 million (£2,381,400);
  - percentage that needs to be borrowed from business rates:  $\text{£2.4 million} \div \text{£5 million} = 48\%$ .