

# Assessment of the Effects of Coastal Erosion on Infrastructure



## Task 1 Report Annex 1

for  
**North Norfolk District Council**

***RPA***

August 2008



*Assessment of the Effects of Coastal Erosion  
on Infrastructure*

Task 1 Report: Annex 1

prepared for

**North Norfolk District Council**

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| <b>RPA REPORT – ASSURED QUALITY</b> |   |
|-------------------------------------|---|
| Project: Ref/Title                  | J610/NNDC   |
| Approach:                           | In accordance with the Brief and Contract                                       |
| Report Status:                      | Task 1 Final Report   |
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| Report approved for issue by:       | John Ash, Technical Director  |
| Date:                               | 27 August 2008  |



## TABLE OF CONTENTS

|   | <u>Page</u> |
|---|-------------|
| <b>1. Introduction</b>                                | <b>1</b>    |
| 1.1 Overall Description of the Project                | 1           |
| 1.2 Objective of Task 1                               | 1           |
| 1.3 Overview of Task 1                                | 1           |
| 1.4 Organisation of the Task Report                   | 2           |
| <br>  |             |
| <b>2. Approach</b>                                    | <b>3</b>    |
| 2.1 Overview  | 3           |
| 2.2 Assets at Risk During the First Epoch             | 3           |
| 2.3 Proximity to Similar Assets                       | 3           |
| 2.4 Options for Short, Medium and Long-term Solutions | 4           |
| 2.5 Key Issues Associated with Options                | 4           |
| 2.6 Indicative Costs for the Options                  | 4           |
| <br>  |             |
| <b>3. Findings</b>                                    | <b>7</b>    |
| 3.1 Assets at Risk during the First Epoch             | 7           |
| 3.2 Proximity to Similar Assets                       | 9           |
| 3.3 Options for Short, Medium and Long-term Solutions | 10          |
| 3.4 Key Issues Associated with Options                | 12          |
| 3.5 Indicative Costs for the Options                  | 14          |
| <br>  |             |
| <b>4. Summary</b>                                     | <b>19</b>   |

### **Annex 1: Main Task Table**



## **1. INTRODUCTION**

### **1.1 Overall Description of the Project**

The coastline in North Norfolk is around 45 miles in length, a large proportion of which is designated as Area of Outstanding Natural Beauty (AONB) and Heritage Coast. The population is around 100,000 living in 200 distinct communities<sup>1</sup>.

The final version of the Kelling to Lowestoft Shoreline Management Plan (SMP) (Halcrow, 2006)<sup>2</sup> was produced in 2006 and largely reflects the shift in Government policy to being more in keeping with natural processes. As a result, there are numerous recommendations of no active intervention and retreat. The potential for significant social and community issues has made it difficult for North Norfolk District Council (NNDC) to accept the results. Instead, NNDC has identified a number of conditions for acceptance within the overall aim of developing a positive vision and addressing the consequences of coastal change.

The overall aim of this study is to derive data and support a strategy for the long-term management of the North Norfolk coast. It is intended to cover areas where knowledge is absent or limited, or to help develop other policy tools.

This aim is to be achieved through four specific study areas that are required to provide the necessary evidence to support bids for resources and to indicate the most feasible options to assist in implementation of processes to adapt to coastal change. This report presents the approach and findings of Task 1, which is an assessment of the effects of coastal change on infrastructure in the short-term (i.e. to 2025).

### **1.2 Objective of Task 1**

The overall objective of Task 1 is to identify those assets that need to respond to change such as beach accesses, roads, footpaths, promenades, car parking areas and toilets and provide indicative costs for managing the response.

### **1.3 Overview of Task 1**

Task 1 involves an investigation of the impact of sea level rise and coastal retreat on infrastructure. These impacts have arisen (and continue to arise) because many of the assets associated with activities to make a living from the sea or visiting the sea have been squeezed into a narrowing coastal zone. This Task identifies those assets that are at risk in the short-term (i.e. to 2025), and the local and regional importance of those assets.

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<sup>1</sup> NNDC (2003): **Economic Development Strategy to 2007**.

<sup>2</sup> Halcrow (2006): **Kelling to Lowestoft Ness Shoreline Management Plan**, Final Report, November 2006.

## **1.4 Organisation of the Task Report**

This Task 1 Report is organised as follows:

- Section 2 sets out the approach followed;
- the key findings are discussed in Section 3;
- Section 4 provides a summary of Task 1; and
- the associated tables and additional information are provided in an Annex.

## **2. APPROACH**

### **2.1 Overview**

The approach to Task 1 has followed five stages, which have identified:

- assets at risk during the first epoch (to 2025);
- proximity to similar assets;
- options for short, medium and long-term solutions;
- key issues associated with options; and
- indicative costs for the options.

The work undertaken for each of these stages is described in more detail below. It focused on the SMP policy units from 3b01: Kelling Hard to Sheringham to 3b12: Ostend to Eccles.

### **2.2 Assets at Risk During the First Epoch**

The first stage identified the assets that will be at risk during the first epoch (to 2025). This drew on information from the Policy Statements for each policy unit in the SMP (which identify key assets that would be affected, including reference to beach access, car parks and coastal paths), supported by Ordnance Survey maps, evidence of footpaths from Google Earth and the combined knowledge of our Project Team and the Project Steering Group of the area. In addition, site visits were made to Overstrand, Trimingham, Mundesley and Happisburgh.

Each asset in each policy unit has been identified in the main Task Table (in the Annex) with information as to whether it is at risk or not (within the first epoch). This approach provides a fully transparent record of the study.

### **2.3 Proximity to Similar Assets**

There are issues associated with a number of the types of assets at risk that will affect the options that can be considered. These include research findings that have shown that people generally do not walk far from beach accesses. Research in Norfolk, for example, found that people typically walk only around 150m from a car park and that distances from entrances to beaches, car parks, roads, pubs, hotels, caravan sites and public conveniences influenced the number of visitors. Furthermore, it was found that the number of visitors to any section of beach could be predicted from the distance to the nearest entrance and estimated number of visitors using that entrance<sup>3</sup>. This means that loss of car parks and beach accesses could have significant impacts on visitor numbers, even where other car parks and beach accesses exist. This will be particularly true where alternative car parking is available inland, but at some distance from the coast.

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<sup>3</sup> Tratalos JA *et al* (2005): **Interactions between Tourism, Breeding Birds and Climate Change across a Regional Scale**, Tyndall Centre Research Report No. 36, November 2005.

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Therefore, information has been collected on proximity to other assets, and recorded in the main Task Table, which was used to inform the identification of options (including the potential locations of solutions).

## **2.4 Options for Short, Medium and Long-term Solutions**

Using the information obtained during the first two stages, the third stage identified a list of possible solutions. These included short-term solutions (e.g. those that would last for around 10-20 years), medium-term solutions (e.g. those that would last 20-50 years) and long-term solutions (e.g. those that would last for >50 years, or are 'sustainable'). A comprehensive list of possible solutions is included in the main Task Table to provide a complete record for each asset.

## **2.5 Key Issues Associated with Options**

Identification of the options should be a free process, allowing a wide range of potential options to be identified. However, many of the possible solutions may be restricted or limited by particular issues. It is important that these are noted to ensure that the approach is fully transparent. Again, the main Task Table identifies those issues that will be important considerations during the development of indicative costs.

## **2.6 Indicative Costs for the Options**

A menu of costs for different actions and requirements has been developed, based on RPA (2006)<sup>4</sup> and information from NNDC. All costs data collated for this study have been adjusted to 2007 prices, using the Retail Price Index (Office of National Statistics, 2008) to account for inflation.

The costs have been broken down into different types of cost, with these recorded separately in the main Task Table. The specific cost categories to be included are:

- planning and design costs;
- costs incurred on engagement and to obtain agreement(s);
- capital costs;
- maintenance costs; and
- legal costs.

For clarity, each type of cost has its own column in the main Task Table, with space for a description of each cost item, number of items required, and timing. A total cost column has also been provided, although in most cases the total cost is presented as a range to allow for uncertainty associated with some of the issues and actions needed. The costs presented provide an indication of the level of costs that may be incurred.

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<sup>4</sup> RPA (2006): **Options to Improve Coastal Access: Study to Investigate Costs**, report prepared by Risk & Policy Analysts for the Countryside Agency.

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Although they are based on the best available information, different approaches to implementing the options in practice and local conditions may result in different costs than those presented here.

RPA (2006) provides costs for creating new rights of way; where applicable, these have been used for providing new car parks as well. These costs are shown in Table 2.1.

| <b>Cost Category</b>  | <b>Low</b> | <b>Medium</b> | <b>High</b> |
|---|------------|---------------|-------------|
| Staff and administrative costs - planning, design, engagement and obtaining agreement | £3,100     |               | £5,200      |
| Capital Costs:  |            |               |             |
| Land purchase per m   |            | £15.00        |             |
| Land purchase per ha  |            | £10,000       |             |
| Hard standing per m <sup>2</sup>  |            | £14.00        |             |
| Road construction per m (3.2 m wide)  |            | £65.00        |             |
| Perimeter fencing per m   |            | £1.31         |             |
| Road signs (each)   |            | £150.00       |             |
| Rural directional signs (each)  |            | £65.00        |             |
| Information board (each)  |            | £1,450        |             |
| Clearance for footpath per m  |            | £0.17         |             |
| Maintenance:  |            |               |             |
| General per m   |            | £0.29         |             |
| Road sections per m   |            | £0.07         |             |
| Legal costs - general   | £3,300     |               | £5,000      |
| Legal costs – public inquiry  |            | £5,200        |             |

Whatever option is chosen, there will be associated staff time and administrative costs, including Countryside/Project officer time, RoW staff and/or management time. Data on staff/administrative costs have been taken from RPA (2006) which was undertaken for Natural England to estimate the costs of improving coastal access. These costs data were based on the relevant literature and consultation with National Trail Officers and Local Highways Authorities. Whilst a range of costs was obtained for staff and administrative costs, RPA (2006) used a single cost under guidance from the associated project steering group; for the purposes of this study a range of costs for staff time has been retained to allow for uncertainty.

Where compulsory measures are used, it is likely that a public inquiry will be held. RAC (2006)<sup>5</sup> suggests that the costs to the local highways authority of a public inquiry can easily run into thousands of pounds for legal support, officer time, publicity, administrative and accommodation costs. RPA (2006) uses a cost of £5,200 (£2007) to reflect the generally low cost of public inquiries for creating footpaths/access, whilst noting that some cases may cause significant difficulties and therefore costs. This figure is used for this study.

<sup>5</sup> RAC (2006): **Creation of New Public Rights of Way: A Code of Practice for Local Highway Authorities and Landholders Involved in Negotiating Compensation**, report prepared by Reading Agricultural Consultants for the Countryside Agency, available from [www.iprow.co.uk](http://www.iprow.co.uk).

RPA (2006) uses a value of £15 (£2007) per m of cliff top/coastal land, based on consultation with National Trail officers and local highways authority officers. This figure has been confirmed as appropriate by the NNDC for the purposes of this study. A figure of £10,000 per ha has been used based on discussions with a local estate agent. For the purposes of this study, the costs of constructing new access are assumed to relate to clearance of vegetation (where tracks do not already exist) and signposts.

Any specific issues that are considered outside the range from the menu of costs are recorded explicitly, with justifications given alongside the cost estimate. This approach provides a common, consistent basis to costing of all options; but also allows over-riding issues to be included and avoids the potential problem of trying to fit the cost to the solution (rather than the solution to the cost).

In order to apply the costs to the options it is necessary to measure the area of car parks, length of footpaths or distance that the coast will be eroded. This has been measured using MAGIC maps ([www.magic.gov.uk](http://www.magic.gov.uk)); it should be noted that some measurement errors may have occurred due to the scale of the maps used and the accuracy of the measurement tool.

### 3. FINDINGS

#### 3.1 Assets at Risk during the First Epoch

Table 3.1 (overleaf) summarises the impact on assets up to 2025; greater detail (including locations) is provided in the main Task Table in the Annex. It can be seen that the main impacts occur in seven of the twelve policy units:

- 3b01: Kelling Hard to Sheringham;
- 3b03: Sheringham to Cromer;
- 3b05: Cromer to Overstrand;
- 3b06: Overstrand;
- 3b07: Overstrand to Mundesley;
- 3b11: Bacton, Walcott and Ostend; and
- 3b12: Ostend to Eccles.

The most affected assets are:

- car parks;
- beach access points; and
- the Norfolk coast path National Trail/Paston Way long distance path.

Council managed car parks within North Norfolk include capacity for almost 6,400 cars and 32 coaches<sup>6</sup>. However, congestion at certain times and in certain locations is a significant issue and may be worsened following coastal change without mitigating work to provide additional car park capacity. Those car parks likely to be affected by 2025 provide around 7% of the current capacity.

The beaches are key assets in terms of attracting visitors to the area and, in all but one policy unit, the beaches will not be affected by 2025. However, some access points will be affected. Access is not just important for bathing as the beaches provide important recreational opportunities for walking, dog walking, sea fishing, surfing, etc. In some cases, the beach access points are also important for sea access for fishing as a commercial activity (e.g. Overstrand, Mundesley). Activities associated with the sea represent a significant income to the economy of North Norfolk, with direct tourism spend estimated at in excess of £357 million (EETB, 2003)<sup>7</sup>.

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<sup>6</sup> Scott Wilson (2005): **Tourism Sector Study**, Background Reports, Final report for NNDC.

<sup>7</sup> EETB (2003): **Economic Impact of Tourism**, Summary Report for NNDC, East of England Tourist Board.

| <b>Table 3.1: Impact on Assets to 2025</b>      |                                |   |   |  |                        |                  |                           |
|---|--------------------------------|---|---|--|------------------------|------------------|---------------------------|
| <b>Policy Unit</b>                              | <b>Type of Asset</b>           |   |   |  |                        |                  |                           |
|   | <b>Beach</b>                   | <b>Beach Access</b>                           | <b>Car Park</b>                               | <b>National Trail/Long distance path</b> | <b>Other Footpaths</b> | <b>Promenade</b> | <b>Playing field</b>      |
| <b>3b01</b><br>Kelling<br>Hard to<br>Sheringham | No impact                      |   | SMP states maintained but already diminishing | Sections will be lost                    | No impact              |                  |                           |
| <b>3b02</b><br>Sheringham                       | No impact                      |   |   |  |                        |                  |                           |
| <b>3b03</b><br>Sheringham to Cromer             | No impact                      |   |   | Sections will be lost                    | Sections will be lost  | No impact        |                           |
| <b>3b04</b><br>Cromer                           | No impact                      |   |   |  |                        |                  |                           |
| <b>3b05</b><br>Cromer to Overstrand             | No impact                      |   |   | Sections will be lost                    | No impact              |                  | End of playing field lost |
| <b>3b06</b><br>Overstrand                       | No impact                      | One access point will be lost; one maintained | Some loss                                     | Sections will be lost                    | No impact              |                  |                           |
| <b>3b07</b><br>Overstrand to Mundesley          | No impact                      | One access point lost                         | One small car park lost                       | No impact                                |                        |                  |                           |
| <b>3b08</b><br>Mundesley                        | No impact                      |   |   |  |                        |                  |                           |
| <b>3b09</b><br>Mundesley to Bacton Gas Terminal | No impact                      |   |   |  |                        |                  |                           |
| <b>3b10</b><br>Bacton Gas Terminal              | No impact                      |   |   |  |                        |                  |                           |
| <b>3b11</b><br>Bacton, Walcott and Ostend       | No impact                      | One access point may be damaged               | No impact                                     |  |                        |                  |                           |
| <b>3b12</b><br>Ostend to Eccles                 | Little or no beach will remain | May be maintained                             | Will be lost                                  | No impact                                | Sections will be lost  | No impact        |                           |

The Norfolk Coast Path and part of the Peddars Way form part of a 93 mile National Trail. Walkers on this National Trail brought more than £2 million to Norfolk in visitor spend between April and September 2006 (Quæstor Research and Marketing Strategists, 2006)<sup>8</sup>. More than 69,000 walks were taken along the route during this period and of these, 87% were short walks (lasting up to one day) and 13% were long

<sup>8</sup> Quæstor Research and Marketing Strategists (2006): **Peddars Way and Norfolk Coast Path: User Survey 2006**, available from [www.nationaltrail.co.uk](http://www.nationaltrail.co.uk).

distance walks over a number of days. The money these visitors spent also supported 104 jobs in the area. The survey found that more than one-third of visitors (36%) had travelled more than 100 miles to use the path, while 35% were local (defined as those living less than 30 miles away).

It should be noted that this identification of assets at risk differs from the SMP in the following ways:

- 3b01 – Kelling Hard to Sheringham – the SMP states that the car park at Weybourne is maintained. However, discussions with NNDC indicate that this asset is already diminishing and therefore a replacement car park may be required by 2025;
- 3b06 – Overstrand – the SMP maps suggest that the beach access at the top of Clifton Road will be lost, however this is not identified in the text of the SMP. For the purposes of this study, and in discussion with NNDC, it is assumed that the access point will be lost;
- 3b07 – Overstrand to Mundesley – the SMP maps suggest that the beach access and car park at Vale Road/Little Marl Point in Mundesley will be lost, however this is not identified in the text of the SMP. For the purposes of this study, and in discussion with NNDC, it is assumed that these assets will be lost; and
- 3b09 – Mundesley to Bacton Gas Terminal – the SMP states that the Paston Way footpath at this location would need to be relocated. However, it currently runs along the beach, which will be maintained. For the purposes of this study, and in discussion with NNDC, it is assumed that the path does not require relocation.

### 3.2 Proximity to Similar Assets

Table 3.2 identifies the proximity of similar assets to those affected. As indicated in Section 2, visitor numbers on beaches are expected to significantly decline 150m from a car park; in the four areas where car parks are affected, the nearest alternatives are at least 1.7 km away.

| Policy Unit                            | Type of Asset |              |                           |  |  |               |
|--|---------------|--------------|---------------------------|--|--|---------------|
|  | Beach         | Beach Access | Car Park                  | National Trail/Long distance path              | Other Footpaths                            | Playing field |
| <b>3b01</b> Kelling Hard to Sheringham | No impact     |              | > 4.5 km in any direction | No obvious alternative currently available     | No impact                                  |               |
| <b>3b03</b> Sheringham to Cromer       | No impact     |              |                           | Alternative path may be available, but not RoW | No obvious alternative currently available | No impact     |

| Policy Unit                               | Type of Asset |                            |                          |  |                    |  |
|---|---------------|----------------------------|--------------------------|--|--------------------|--|
|   | Beach         | Beach Access               | Car Park                 | National Trail/Long distance path                                      | Other Footpaths    | Playing field  |
| <b>3b05</b><br>Cromer to Overstrand       | No impact     |                            |                          | Some alternative paths may be available, but no continuous alternative | No impact          | Majority remaining – other grounds exist within Cromer |
| <b>3b06</b><br>Overstrand                 | No impact     | 1.5 km by road             | >4.3 km in direction     | Some alternative paths and roads may be available                      | No impact          |  |
| <b>3b07</b><br>Overstrand to Mundesley    | No impact     | 2.1 km by road             | >1.7 km in any direction | No impact  |                    |  |
| <b>3b11</b><br>Bacton, Walcott and Ostend | No impact     | 600m by foot; 900m by road | No impact                |  |                    |  |
| <b>3b12</b><br>Ostend to Eccles           | >3.1 km       | >3.1 km by road            | >3.1 km in any direction | No impact  | Inland tracks only | No impact  |

Similarly, the nearest alternative beach access points, which tend to be associated with car parks, are at least 1 km away. The exception to this is at Ostend, where an alternative access point at Walcott Gap can be reached by foot in 600m and by road in 900m.

Where footpaths are affected, including the National Trail, other paths nearby may provide alternative routes. However, these may not be rights of way, or they may not be up to National Trail standards (so would need to be upgraded).

The only asset which appears to have suitable alternatives is the affected playing field on the east side of Cromer. In this case the majority of the playing field will remain by 2025 and there are other playing fields within Cromer which provide alternatives. On this basis, it is considered that the current provisions are sufficient and an alternative option is not required for this asset.

### **3.3 Options for Short, Medium and Long-term Solutions**

#### **3.3.1 Car Parks**

Where the car parks are affected, the main option that has been considered is to relocate the car park to an area which will not be affected by 2105. This is a long

term option, depending on the location chosen, which can be implemented in the short term or when necessary.

### 3.3.2 Beach Access

Where beach access is affected, the main option that has been considered is to maintain the access, through rebuilding access routes in some form; this would be applicable over the short to long term. The access affected at Overstrand and Mundesley is vehicular access, whilst at Ostend and Happisburgh it is pedestrian access. At Happisburgh, access to the beach is currently provided via a metal walkway and tower. This is one option that might be appropriate elsewhere, but would provide pedestrian access only.

### 3.3.3 National Trails and Other Footpaths

To replace the sections of National Trail/long distance path and other footpaths that are lost, consideration has been given to new routes which will be accessible in the short, medium and long terms. Creating statutory Rights of Way has been identified as an option where footpaths may be lost, whether existing paths are rights of way or not. This is because it provides the necessary mechanism for creating and maintaining the coastal path. Rolling path agreements are also a key option.

Table 3.3 sets out the options identified for each stretch of footpath required.

| <b>Footpath</b>   | <b>Options</b>  |
|---|---|
| 3b01 – Kelling Hard to Sheringham – Norfolk Coast Path              | <ol style="list-style-type: none"> <li><b>1. Short-term:</b> Link up remaining areas of path/track between Kelling Hard and Weybourne car park, then rolling path from Weybourne car park to Sheringham</li> <li><b>2. Medium-term:</b> Use existing tracks where possible from Kelling Hard, with new path alignment to Weybourne car park, then rolling path from Weybourne car park to Sheringham</li> <li><b>3. Long-term:</b> Use existing tracks where possible from Kelling Hard, with new path alignment to Rocket House, then rolling path from Weybourne car park to Sheringham</li> <li><b>4. Long-term:</b> Use existing tracks where possible from Kelling Hard, with new path alignment from museum to Beach Lane, then rolling path from Weybourne car park to Sheringham</li> <li><b>5. Long-term:</b> Use existing tracks where possible from Kelling Hard to museum, use existing roads to Weybourne, then rolling path from Weybourne car park to Sheringham</li> <li><b>6. Rolling path creation</b> along whole stretch</li> </ol> |
| 3b03 – Sheringham to Cromer – Norfolk Coast Path                    | <ol style="list-style-type: none"> <li><b>1. Medium-term:</b> Link National Trail with existing path from Nelson Road using a new route along end of properties on Conway Road</li> <li><b>2. Rolling path creation</b></li> </ol>  |
| 3b03 – Sheringham to Cromer – Footpath from Sheringham to Wood Hill | <ol style="list-style-type: none"> <li><b>1. Rolling path creation</b></li> </ol>   |
| 3b03 – Sheringham to Cromer – Footpath from Wood Hill to Cromer     | <ol style="list-style-type: none"> <li><b>1. Rolling path creation</b></li> </ol>   |

| <b>Table 3.3: Options for Affected National Trail Sections and Footpaths</b> |   |
|--|---|
| <b>Footpath</b>  | <b>Options</b>  |
| 3b05 – Cromer to Overstrand – Paston Way                                     | <ol style="list-style-type: none"> <li><b>1. Medium-term:</b> Use existing tracks in Warren Woods and around playing field down to Overstrand Road and then into Overstrand</li> <li><b>2. Long-term:</b> Use existing tracks in Warren Woods, create new route to Overstrand Road and then into Overstrand</li> <li><b>3. Rolling path creation</b></li> </ol> |
| 3b06 – Overstrand – Paston Way   | <ol style="list-style-type: none"> <li><b>1. Long-term:</b> Direct path across golf course and along local roads to Overstrand</li> </ol>   |
| 3b12 – Ostend to Eccles – Footpath from Ostend to Happisburgh                | <ol style="list-style-type: none"> <li><b>1. Rolling path creation</b></li> </ol>   |
| 3b12 – Ostend to Eccles – Footpath from Happisburgh to Halholm               | <ol style="list-style-type: none"> <li><b>1. Rolling path creation</b></li> </ol>   |

### **3.4 Key Issues Associated with Options**

#### **3.4.1 Car Parks**

The key issues associated with relocating car parks are:

- locating and purchasing a similar area of land;
- providing fencing;
- providing new signs; and
- determining whether it would be necessary to provide hard standing.

In Happisburgh, the toilet facilities will also be lost along with the car park; therefore an additional cost will be incurred to replace this car park. At Overstrand, the toilet facilities may not be lost within the first epoch. However, if the car park is relocated it may be desirable to relocate the toilets as well.

The location of the new car parks will be critical to ensuring that the maximum potential benefits are realised by all stakeholders. In other words, as discussed above, it is recognised that people typically only walk around 150m from a car park to local facilities. Care will be needed to locate the new car parks as close to existing facilities and beach access points as possible, whilst ensuring the long-term sustainability of the replacement car park. Consideration should also be given to facilitating access to the beach and existing facilities, for example with clear signing and an easily accessible route to and from the car park.

#### **3.4.2 Beach Access**

The four beach access points affected are tarmaced or concrete roads (at Overstrand and Mundesley), a ramp over existing sea defences (at Ostend) and a metal walkway and steps (at Happisburgh).

These access points can be rebuilt if damaged or eroded; however the key issue is how often/how many times this will be necessary. With access roads running parallel to the cliff these may be eroded or become unstable a number of times. Therefore they

may not be able to be rebuilt straight away. In other words, there may be periods where access is limited at Overstrand, Mundesley and Ostend. In this situation, it may be possible to provide temporary beach access structures, such as wooden ramps across debris. This would provide continued pedestrian access but would still limit vehicular access at Overstrand and Mundesley.

Metal walkways and steps, such as those at Happisburgh, provide the opportunity for continued pedestrian access, which can be extended as necessary and moved back in its entirety when required. However, opinions expressed on the Coastal Concern Action Group website<sup>9</sup> suggest that this walkway and steps are seen as an interim measure rather than a long term option for access. Furthermore, the loss of the beach access at Happisburgh was identified as a key contributor to blight at the Bacton workshop. While the 'tower' has maintained beach access to some extent, it is not readily accessible by all (e.g. elderly, those with pushchairs, etc.), therefore, is not necessarily a like-for-like solution. However, it is acknowledged that other forms of access such as a ramp would be difficult to maintain without other coast protection works.

It is possible to estimate the number of times that a metal walkway needs to be moved back, based on the estimated rate of erosion at areas where beach access is affected. This provides an indication of the costs involved in maintaining beach access.

### **3.4.3 National Trails and Other Footpaths**

Public paths can be created under the Highways legislation by:

- Public Path Creation Orders made by the local authority; and
- Public Path Creation Agreement between the landowner and local authority.

The principal legislation used in the creation of public rights of way is the Highways Act 1990, sections 25 and 26, which deal with the creation of rights of way by Agreement and Order respectively. In addition, for paths located on land which is subject to erosion or submersion by dunes and changing tides, the local authority or other relevant body may be able to enter into a rolling path agreement with the landowner. The rolling path agreements secure the right for a path to be moved inland should erosion occur, allowing for a path to remain above the high water mark, following the line of the coast.

Separate arrangements must be made with each landowner along a stretch of path to be created or rolled back. As there is a cost per arrangement, the number of landowners involved has a significant influence on the overall costs. The number of landowners has been estimated from Ordnance Survey maps according to property and field boundaries. Of course, two fields next to each other may be owned by one or two land owners and this results in an element of uncertainty in the indicative costs. Low and high estimates have been made for the number of landowners where appropriate. In cases where the land is publicly owned the costs are generally

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<sup>9</sup> <http://www.happisburgh.org.uk/forum/viewtopic.php?t=68>

minimised – however, for this study it has been assumed that all land involved is under private ownership.

Staff, administrative and legal costs are assumed to be lower where public path Creation Agreements are made, and higher where Orders are required. It is also assumed that all Public Path Orders are contested (otherwise an agreement would be made) and will therefore lead to a public inquiry.

### 3.5 Indicative Costs for the Options

#### 3.5.1 Car parks

The costs of providing alternative car parks are set out in Table 3.4. These range from £9,500 for a small car park in Mundesley without hard standing or toilet facilities to around £200,000 for a replacement in Happisburgh or Overstrand where toilet facilities are provided. All costs are given to a maximum of two significant figures to reflect uncertainty.

| Policy Unit |                            | Low             | Mid      | High            | Comments  |
|-------------|----------------------------|-----------------|----------|-----------------|---|
| 3b01        | Kelling Hard to Sheringham | £53,000         | £58,000  | £62,000         | Majority of the cost is accounted for by providing hard standing (at £42,000)   |
| 3b06        | Overstrand                 | £15,000         | -        | £200,000        | High costs allow for new toilet facilities to be built at the new car park – this may not be necessary by 2025 but may be desirable if car park is relocated. |
| 3b07        | Overstrand to Mundesley    | £9,500          | £14,000  | £19,000         | Small area required – variation in cost relates to whether land can be purchased by agreement or compulsory order.  |
| 3b12        | Ostend to Eccles           | £200,000        | £200,000 | £200,000        | Majority of costs is accounted for providing new toilet facilities (at £180,000)  |
|             | <b>Total</b>               | <b>£270,000</b> |          | <b>£490,000</b> |   |

The total costs for providing alternative car parks affected by 2025 range from £270,000 to £490,000. The key component within these costs is the need to provide toilet facilities or hard standing. These are actual costs which have not been discounted.

### 3.5.2 Beach Access

Addressing the loss of beach access is problematic as the implementation and associated costs of solutions depend on the rate at which the coast is eroded. The replacement costs of access roads and a timber ramp at three locations is shown in Table 3.5. As before, all costs are given to a maximum of two significant figures. These range from £25,000 at Overstrand to £100,000 at Ostend – these are the costs per replacement. It is difficult to estimate how many times these will need to be replaced as it is likely that there will be times when the access is unstable before being lost completely.

| Policy Unit  |                            | Low     | Mid             | High    | Comments                               |
|--------------|----------------------------|---------|-----------------|---------|--|
| 3b06         | Overstrand                 | £25,000 | £29,000         | £34,000 | Cost per reconstruction of access road |
| 3b07         | Overstrand to Mundesley    | £45,000 | £50,000         | £55,000 | Cost per reconstruction of access road |
| 3b11         | Bacton, Walcott and Ostend | -       | £100,000        | -       | Cost per reconstruction of timber ramp |
| <b>Total</b> |                            |         | <b>£180,000</b> |         |  |

The metal walkway and steps at Happisburgh provides an alternative type of access which can be adapted more easily to different rates of erosion (but at the expense of access for all). The current length of the walkway is approximately 15 metres, and NNDC indicate that this can be extended by 50% before the tower and walkway need to be moved closer to the coast. Based on this information it is possible to estimate the costs of constructing and maintaining the metal access at three locations (including Happisburgh where construction costs are not included) over the short, medium and long term. These costs (to a maximum of two significant figures) are shown in Table 3.6 and are based on the original costs of constructing the tower at Happisburgh (£40,000), estimated costs of extending the walkway by 50% (estimated to be £15,000) and the cost of moving the tower (estimated to be £40,000).

| Policy Unit  |                         | Short-term      | Mid-term        | Long-term       | Comments  |
|--------------|-------------------------|-----------------|-----------------|-----------------|---|
| 3b06         | Overstrand              | £95,000         | £220,000        | £340,000        | Constructed, extended and moved once in the short term; 4 times in the mid-term; and 7 times in the long-term |
| 3b07         | Overstrand to Mundesley | £95,000         | £180,000        | £260,000        | Constructed, extended and moved once in the short term; 3 times in the mid-term; and 5 times in the long-term |
| 3b12         | Ostend to Eccles        | £180,000        | £300,000        | £380,000        | Extended and moved 4 times in the short term; 7 times in the mid-term; and 9 times in the long-term           |
| <b>Total</b> |                         | <b>£280,000</b> | <b>£690,000</b> | <b>£970,000</b> |   |

This suggests that the costs for constructing and maintaining metal walkways and steps in these three locations range from £280,000 in the short term to £970,000 in the long term. Table 3.7 applies the same replacement frequencies to the mid cost estimates for rebuilding the access roads and ramp (as set out in Table 3.5) to provide comparable costs. The total cost to maintain access to the beaches at all four locations may range from £440,000 in the short term to £1.5 million in the long term. However, these costs are highly uncertain as they depend on the rate of erosion, they do not include the costs of providing temporary access if access roads/ramps are made unstable, and they may not provide continuous access accessible to all. As such, it is likely that these costs underestimate the true costs of maintaining access. It should be noted that the total costs in Table 3.7 cover four access points, while the costs in Table 3.6 cover three access points.

| <b>Policy Unit</b> |                            | <b>Short-term</b> | <b>Mid-term</b> | <b>Long-term</b>  | <b>Comments</b>   |
|--------------------|----------------------------|-------------------|-----------------|-------------------|---|
| 3b06               | Overstrand                 | £58,000           | £120,000        | £200,000          | Access road constructed twice in the short term (@ £29,000 per reconstruction); 4 times in the mid-term; and 7 times in the long-term |
| 3b07               | Overstrand to Mundesley    | £100,000          | £150,000        | £250,000          | Access road constructed twice in the short term (@ £50,000 per reconstruction); 3 times in the mid-term; and 5 times in the long-term |
| 3b11               | Bacton, Walcott and Ostend | £100,000          | £400,000        | £700,000          | Timber ramp constructed once in the short term (@ £100,000 per reconstruction); 4 times in the mid-term; and 7 times in the long-term |
| 3b12               | Ostend to Eccles           | £180,000          | £300,000        | £380,000          | Metal walkway, extended and moved 4 times in the short term; 7 times in the mid-term; and 9 times in the long-term                    |
| <b>Total</b>       |                            | <b>£440,000</b>   | <b>£970,000</b> | <b>£1,500,000</b> |   |

### **3.5.3 National Trails and Other Footpaths**

Alternative routes for the National Trail/long distance path and affected footpaths range in costs depending on the length of new path to be created (and the associated cost of compensation) and the number of landowners affected (and the associated costs of individual agreement/orders). However, in general, the shorter the route, the less landowners that are likely to be affected, since the majority of land affected is agricultural land rather than individual gardens.

Costs range from around £10,000 for short sections with Agreements to more than £250,000 for long sections where Orders are contested through inquiries. Rolling paths may offer more efficient solutions than implementing short, medium and long term solutions. A summary of the costs by policy unit is provided in Table 3.8, with costs given to a maximum of two significant figures.

| <b>Table 3.8: Costs of Short, Medium and Long Term Options for the National Trails and Footpaths</b> |  |                      |                      |                      |                             |
|--|--|----------------------|----------------------|----------------------|-----------------------------|
| <b>Policy Unit</b>   |  | <b>Short-term</b>    | <b>Mid-term</b>      | <b>Long-term</b>     | <b>Rolling Path</b>         |
| 3b01   | Kelling Hard to Sheringham – Norfolk Coast Path              | £140,000 to £280,000 | £140,000 to £270,000 | £130,000 to £260,000 | £120,000 to £230,000        |
| 3b03   | Sheringham to Cromer – Norfolk Coast Path                    | -                    | £9,400 to £18,000    | -                    | £9,900 to £19,000           |
| 3b03   | Sheringham to Cromer – Footpath from Sheringham to Wood Hill | -                    | -                    | -                    | £66,000 to £110,000         |
| 3b03   | Sheringham to Cromer – Footpath from Wood Hill to Cromer     | -                    | -                    | -                    | £53,000 to £97,000          |
| 3b05   | Cromer to Overstrand – Paston Way                            | -                    | £11,000 to £20,000   | £12,000 to £21,000   | £37,000 to £64,000          |
| 3b06   | Overstrand – Paston Way                                      | -                    | -                    | £11,000 to £20,000   | -                           |
| 3b12   | Ostend to Eccles – Footpath from Ostend to Happisburgh       | -                    | -                    | -                    | £31,000 to £40,000          |
| 3b12   | Ostend to Eccles – Footpath from Happisburgh to Halholm      | -                    | -                    | -                    | £21,000 to £45,000          |
|  | <b>Total</b>   |                      |                      |                      | <b>£340,000 to £610,000</b> |

The additional maintenance costs for individual sections of path range from savings of £209 per year (due to a shorter path length and/or longer on-road sections) to costs of £55 per year (due to longer routes). The net additional maintenance costs are negligible when considered across the whole length of affected coastline.



## 4. SUMMARY

This Report summarises the approach and findings of Task 1, which identifies those assets affected by coastal change between Kelling Hard and Eccles on the North Norfolk coast and the associated costs of providing replacement assets.

The main impacts occur in seven of the twelve policy units:

- 3b01: Kelling Hard to Sheringham;
- 3b03: Sheringham to Cromer;
- 3b05: Cromer to Overstrand;
- 3b06: Overstrand;
- 3b07: Overstrand to Mundesley;
- 3b11: Bacton, Walcott and Ostend; and
- 3b12: Ostend to Eccles.

The most affected assets are:

- car parks;
- beach access points; and
- the Norfolk coast path National Trail/Paston Way long distance path.

There are few, if any, existing alternatives for those assets which are affected. Therefore the costs of creating alternatives have been assessed as follows:

- the total costs for four replacement car parks range from £270,000 to £490,000 and provide long-term solutions. The key cost component is replacement toilet facilities (at £180,000) which will certainly be needed in Happisburgh, but may or may not be needed in Overstrand;
- beach access is more difficult to cost as it depends on the rate of erosion but may cost £180,000 per reconstruction for the combined access points at Overstrand, Mundesley and Ostend. Alternatively the use of metal towers and walkways (as at Happisburgh) may cost £970,000 in the long-term if they are provided and maintained at Overstrand, Mundesley and Happisburgh. Whilst there is some uncertainty, maintaining access at four points on the North Norfolk coast is likely to cost in excess of £1.5 million in the long term; and
- the costs of alternative footpath routes depend on the length of the route; the number of landowners affected; and the use of agreements versus orders. Whilst some short, medium and long term solutions are identified, rolling path agreements appear to provide the most cost effective solutions in the long term. These costs may range from £340,000 to £610,000.

Other costs, such as additional maintenance costs for footpaths, are negligible in comparison.

Table 3.9 provides a summary of the mid-level cost estimates by policy unit and asset, over the short to long term. These indicate a combined cost of £2.6 million to replace

and maintain all the assets in the long-term. It should be noted that where a single cost is provided, this option may be implemented in the short-term but provides a long-term solution; it is essentially a one-off cost. Where short, medium and long term costs are provided, these are cumulative and should not be added together. Furthermore, Table 3.9 uses the mid-level costs estimates, the costs for individual assets may be lower or higher as indicated in the relevant sections.

| Policy Unit        |                            |  | Short-term        | Medium-term       | Long-term         | Total Long-term Unit Cost |
|--------------------|----------------------------|--|-------------------|-------------------|-------------------|---------------------------|
| 3b01               | Kelling Hard to Sheringham | Car park                               | £58,000           |                   |                   | £230,000                  |
|                    |                            | Norfolk Coast Path                     | £180,000          |                   |                   |                           |
| 3b03               | Sheringham to Cromer       | Norfolk Coast Path and other footpaths | £180,000          |                   |                   | £180,000                  |
| 3b05               | Cromer to Overstrand       | Paston Way                             | £51,000           |                   |                   | £51,000                   |
| 3b06               | Overstrand                 | Car park                               | £200,000          |                   |                   | £420,000                  |
|                    |                            | Beach access                           | £58,000           | £120,000          | £200,000          |                           |
|                    |                            | Paston Way                             | £16,000           |                   |                   |                           |
| 3b07               | Overstrand to Mundesley    | Car park                               | £14,000           |                   |                   | £260,000                  |
|                    |                            | Beach access                           | £100,000          | £150,000          | £250,000          |                           |
| 3b11               | Bacton, Walcott and Ostend | Beach access                           | £100,000          | £400,000          | £700,000          | £700,000                  |
| 3b12               | Ostend to Eccles           | Car park                               | £290,000          |                   |                   | £740,000                  |
|                    |                            | Beach access                           | £180,000          | £300,000          | £380,000          |                           |
|                    |                            | Footpaths                              | £69,000           |                   |                   |                           |
| <b>Total Costs</b> |                            |  | <b>£1,500,000</b> | <b>£2,000,000</b> | <b>£2,600,000</b> | <b>£2,600,000</b>         |

The main Task Table in the Annex provides full details of the assets at risk, their locations, possible alternative solutions and costs of providing those solutions.

**ANNEX 1:**  
**MAIN TASK TABLE**



| Main Task Table: Effects of Coastal Change on Infrastructure |                  |                      |  |   |           |   |   |  |  |   |   |  |  |   |  |
|--|------------------|----------------------|--|---|-----------|---|---|--|--|---|---|--|--|---|--|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset                | Impact to 2025   | Nearest Similar Asset (remaining after first epoch)   | Options   |   | Issues with Option  | Indicative Costs   |  |   | Details of Costs and Assumptions  |  |  |   |  |
|  |                  |                      |  |   |           |   |   | Low  | Mid                                    | High  | Planning and Design   | Engagement/Agreement   | Capital  | Maintenance   | Legal  |
| Kelling Hard to Sheringham                                   | 3b01             | Beach                | Maintained – no impact, asset not considered further   | -   | -         | -   | -   | -  | -                                      | -   | -   | -  | -  | -   | -  |
| Kelling Hard to Sheringham                                   | 3b01             | Beach accesses       | Maintained – no impact, asset not considered further   | -   | -         | -   | -   | -  | -                                      | -   | -   | -  | -  | -   | -  |
| Kelling Hard to Sheringham                                   | 3b01             | Car park (Weybourne) | SMP states that car park is maintained. However, asset is already diminishing and replacement car park may be required by end of period. | 4.7 km to Salthouse coastal car park but not certain whether this will be maintained to 2025; 5.5 km to centre of Sheringham; 8.6 km to West Runton coastal car park; 6.3 km to Sheringham Park inland car park | Long term | Replacement car park nearer middle of village | Option will require purchase of a similar area of land to current car park, hard standing, fencing and new signs to direct people to car park, and from car park to beach | £3,100<br>£3,000<br>£42,000<br>£288<br>£300<br>£1,450<br>£3,300<br>=<br><b>£53,438</b><br><b>One-off costs</b> | <b>£57,938</b><br><b>One-off costs</b> | £5,200<br>£3,000<br>£42,000<br>£288<br>£300<br>£1,450<br>£10,200<br>=<br><b>£62,438</b><br><b>One-off costs</b> | Low estimate: £3,100 per owner x 1 owner = <b>£3,100</b><br><br>High estimate: £5,200 per owner x 1 owner = <b>£5,200</b> | Land purchase: 0.3 ha @ £10,000 per ha = <b>£3,000</b><br><br>3,000 m <sup>2</sup> hard standing @ £14 m <sup>2</sup> = <b>£42,000</b><br><br>220m of perimeter fencing @ £1.31 per m = <b>£288</b><br><br>2 road signs @ £150 each = <b>£300</b><br><br>1 information board @ <b>£1,450</b> | Maintenance costs as at present – not additional | Low estimate: <b>£3,300</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = <b>£10,200</b> | Area of current car park is approximately 0.3ha, perimeter is 220m.<br><br>Assume land acquired from 1 owner |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |                |                          |  |         |  |   |                                |                                |                                |  |  |   |   |  |
|--|------------------|----------------|--------------------------|--|---------|--|---|--------------------------------|--------------------------------|--------------------------------|--|--|---|---|--|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset          | Impact to 2025           | Nearest Similar Asset (remaining after first epoch)  | Options |  | Issues with Option  | Indicative Costs               |                                |                                | Details of Costs and Assumptions   |  |   |   |  |
|  |                  |                |                          |  |         |  |   | Low                            | Mid                            | High                           | Planning and Design  | Engagement/Agreement   | Capital   | Maintenance   | Legal  |
| Kelling Hard to Sheringham                                   | 3b01             | National Trail | Would require relocation | Some tracks behind current line of footpath, but not continuous. No obvious alternative currently available. Regionally important footpath – no immediate alternatives | Short   | 1. Link up remaining areas of path/track   | New access agreements are likely to be required: through Muckelburgh Collection land and between sewage works and car park; with rolling path agreement from Weybourne car park to Sheringham | £27,900                        |                                | £67,600                        | Low estimate: £3,100 per owner x 9 owners = <b>£27,900</b><br><br>High estimate: £5,200 per owner x 13 owners = <b>£67,600</b> | Land purchase: 5,540 m @ £15 per m = <b>£83,100</b><br><br>Clearance of new tracks: 800m @ £0.17 per m = <b>£140</b><br><br>Signposts: 5 rural directional signs @ £65 = <b>£325</b> | This route adds an additional 340m on to existing maintenance; of which 210m is on the road.<br><br>Maintenance: 130m @ £0.29 per m = £38 + 210m @ £0.07 = £15 = <b>£53 additional annual maintenance costs</b> | Low estimate: £3,300 per owner x 9 owners = <b>£29,700</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 13 owners = <b>£132,600</b> | 450m new RoW – 3 owners; 940m existing track to become RoW - 1 or 2 owners; 350m new RoW – 1 owner; 210m on road; 3,800m rolling path – 4 or 7 owners<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry |
|  |                  |                |                          |  |         |  |   | £83,100                        | =                              | £83,100                        |  |  |   |   |  |
|  |                  |                |                          |  | Medium  | 2. New path alignment from car park, using existing tracks where available to the Quag | New access agreements are likely to be required: through Muckelburgh Collection land and between sewage works and car park; with rolling path agreement from Weybourne car park to Sheringham | £27,900                        |                                | £62,400                        | Low estimate: £3,100 per owner x 9 owners = <b>£27,900</b><br><br>High estimate: £5,200 per owner x 12 owners = <b>£62,400</b> | Land purchase: 5,440 m @ £15 per m = <b>£81,600</b><br><br>Clearance of new tracks: 920m @ £0.17 per m = <b>£156</b><br><br>Signposts: 5 rural directional signs @ £65 = <b>£325</b> | This route adds an additional 240m on to existing maintenance; of which 210m is on the road.<br><br>Maintenance: 30m @ £0.29 per m = £9 + 210m @ £0.07 = £15 = <b>£24 additional annual maintenance costs</b>   | Low estimate: £3,300 per owner x 9 owners = <b>£29,700</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 12 owners = <b>£122,400</b> | 540m new RoW – 3 owners; 720m existing tracks to become RoW – 1 owner; 380m new RoW – 1 owner; 210m on road; 3,800m rolling path – 4 or 7 owners<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry      |
| £140   | =                | £140           |                          |  |         |  |   |                                |                                |                                |  |  |   |   |  |
|  |                  |                |                          |  |         |  |   | £325                           |                                | £325                           |  |  |   |   |  |
|  |                  |                |                          |  |         |  |   | £29,700                        |                                | £132,600                       |  |  |   |   |  |
|  |                  |                |                          |  |         |  |   | =                              | =                              | =                              |  |  |   |   |  |
|  |                  |                |                          |  |         |  |   | <b>£141,165</b>                | <b>£212,465</b>                | <b>£283,765</b>                |  |  |   |   |  |
|  |                  |                |                          |  |         |  |   | <b>One-off costs</b>           | <b>One-off costs</b>           | <b>One-off costs</b>           |  |  |   |   |  |
|  |                  |                |                          |  |         |  |   | +                              | +                              | +                              |  |  |   |   |  |
|  |                  |                |                          |  |         |  |   | <b>£53</b>                     | <b>£53</b>                     | <b>£53</b>                     |  |  |   |   |  |
|  |                  |                |                          |  |         |  |   | <b>Additional annual costs</b> | <b>Additional annual costs</b> | <b>Additional annual costs</b> |  |  |   |   |  |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |       |                |   |         |   |  |   |   |  |  |   |   |   |  |
|--|------------------|-------|----------------|---|---------|---|--|---|---|--|--|---|---|---|--|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset | Impact to 2025 | Nearest Similar Asset (remaining after first epoch) | Options |   | Issues with Option   | Indicative Costs  |   |  | Details of Costs and Assumptions   |   |   |   |  |
|  |                  |       |                |   |         |   |  | Low   | Mid   | High   | Planning and Design  | Engagement/Agreement  | Capital   | Maintenance   | Legal  |
|  |                  |       |                |   | Long    | 3. New path alignment from Rocket House, using existing tracks where available to the Quag (may be able to use remaining parts of medium term option) | New access agreements are likely to be required: through Muckelburgh Collection land and across land west of the Rocket House; with rolling path agreement from Weybourne car park to Sheringham       | £24,800<br>£83,100<br>£65<br>£325<br>£26,400<br>=<br><b>£134,690</b><br>+<br><b>£53</b><br><b>Additional annual costs</b> | =<br><b>£193,790</b><br>+<br><b>£53</b><br><b>Additional annual costs</b> | £57,200<br>£83,100<br>£65<br>£325<br>£112,200<br>=<br><b>£252,890</b><br>+<br><b>£53</b><br><b>Additional annual costs</b> | Low estimate: £3,100 per owner x 8 owners = <b>£24,800</b><br><br>High estimate: £5,200 per owner x 11 owners = <b>£57,200</b> | Land purchase: 5,540 m @ £15 per m = <b>£83,100</b><br><br>Clearance of new tracks: 380m @ £0.17 per m = <b>£65</b><br><br>Signposts: 5 rural directional signs @ £65 = <b>£325</b> | This route adds an additional 340m on to existing maintenance; of which 210m is on the road.<br><br>Maintenance: 130m @ £0.29 per m = £38 + 210m @ £0.07 = £15 = <b>£53 additional annual maintenance costs</b> | Low estimate: £3,300 per owner x 8 owners = <b>£26,400</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 11 owners = <b>£112,200</b> | 1,360m existing track to become RoW – 3 owners; 380m new RoW – 1 owner; 210m on road; 3,800m rolling path – 4 or 7 owners<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry |
|  |                  |       |                |   | Long    | 4. New path alignment from Beach Lane to museum, then along existing tracks to Kelling Hard   | New access agreements are likely to be required: through Muckleburgh Collection land to west and across land west of the Beach Lane; with rolling path agreement from Weybourne car park to Sheringham | £24,800<br>£87,000<br>£68<br>£325<br>£26,400<br>=<br><b>£138,593</b><br>+<br><b>£50</b><br><b>Additional annual costs</b> | =<br><b>£197,693</b><br>+<br><b>£50</b><br><b>Additional annual costs</b> | £57,200<br>£87,000<br>£68<br>£325<br>£112,200<br>=<br><b>£256,793</b><br>+<br><b>£50</b><br><b>Additional annual costs</b> | Low estimate: £3,100 per owner x 8 owners = <b>£24,800</b><br><br>High estimate: £5,200 per owner x 11 owners = <b>£57,200</b> | Land purchase: 5,800 m @ £15 per m = <b>£87,000</b><br><br>Clearance of new tracks: 400m @ £0.17 per m = <b>£68</b><br><br>Signposts: 5 rural directional signs @ £65 = <b>£325</b> | This route adds an additional 500m on to existing maintenance; of which 430m is on the road.<br><br>Maintenance: 70m @ £0.29 per m = £20 + 430m @ £0.07 = £30 = <b>£50 additional annual maintenance costs</b>  | Low estimate: £3,300 per owner x 8 owners = <b>£26,400</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 11 owners = <b>£112,200</b> | 1,600m RoW – 3 owners; 400m new RoW – 1 owner; 430m on road; 3,800m rolling path – 4 or 7 owners<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry                          |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |               |   |   |               |   |  |   |  |  |  |   |   |   |  |
|--|------------------|---------------|---|---|---------------|---|--|---|--|--|--|---|---|---|--|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset         | Impact to 2025  | Nearest Similar Asset (remaining after first epoch) | Options       |   | Issues with Option   | Indicative Costs  |  |  | Details of Costs and Assumptions   |   |   |   |  |
|  |                  |               |   |   |               |   |  | Low   | Mid  | High   | Planning and Design  | Engagement/Agreement  | Capital   | Maintenance   | Legal  |
|  |                  |               |   |   | Long          | 5. Use roads in Weybourne before linking to existing tracks from museum to Kelling Hard | New access agreements are likely to be required: through Muckleburgh Collection land to west 'Coastal' path; with rolling path agreement from Weybourne car park to Sheringham | £21,700<br>£83,250<br>£325<br>£23,100<br>=<br><b>£128,375</b><br>+<br><b>£209</b><br><b>Additional annual savings</b> | =<br><b>£182,975</b><br>+<br><b>£209</b><br><b>Additional annual savings</b> | £52,000<br>£83,250<br>£325<br>£102,000<br>=<br><b>£237,575</b><br>+<br><b>£209</b><br><b>Additional annual savings</b> | Low estimate: £3,100 per owner x 7 owners = <b>£21,700</b><br><br>High estimate: £5,200 per owner x 10 owners = <b>£52,000</b> | Land purchase: 5,550 m @ £15 per m = <b>£83,250</b><br><br>Signposts: 5 rural directional signs @ £65 = <b>£325</b> | This route adds an additional 350m on to existing maintenance; however, 1,300m is on the road. This means that 950m is on road, rather than off-road – a saving in maintenance costs of £0.22 per m<br><br>Maintenance: 950m @ £0.22 per m = <b>£209 annual maintenance savings</b> | Low estimate: £3,300 per owner x 7 owners = <b>£23,100</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 10 owners = <b>£102,000</b> | 1,750m existing track to become RoW – 3 owners; 1,300m on road; 3,800m rolling path – 4 or 7 owners<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry |
|  |                  |               |   |   | Short to Long | 6. Rolling path agreement along whole section   | New access agreements are likely to be required  | £21,700<br>£78,000<br>£130<br>£23,100<br>=<br><b>£122,930</b>   | =<br><b>£177,530</b>   | £52,000<br>£78,000<br>£130<br>£102,000<br>=<br><b>£232,130</b>   | Low estimate: £3,100 per owner x 7 owners = <b>£21,700</b><br><br>High estimate: £5,200 per owner x 10 owners = <b>£52,000</b> | Land purchase: 5,200 m @ £15 per m = <b>£78,000</b><br><br>Signposts: 2 rural directional signs @ £65 = <b>£130</b> | No additional maintenance costs   | Low estimate: £3,300 per owner x 7 owners = <b>£23,100</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 10 owners = <b>£102,000</b> | 5200m rolling path – 7 or 10 owners<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry   |
| Sheringham   | 3b02             | Beach         | Narrow beach retained – asset not considered further  | -   | -             | -   | -  | -   | -  | -  | -  | -   | -   | -   |  |
| Sheringham   | 3b02             | Other assets  | Maintained – no impact, assets not considered further | -   | -             | -   | -  | -   | -  | -  | -  | -   | -   | -   |  |
| Sheringham to Cromer   | 3b03             | Access points | Maintained – no impact, asset not considered further  | -   | -             | -   | -  | -   | -  | -  | -  | -   | -   | -   |  |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |                |   |  |         |   |                                       |  |   |  |   |  |   |  |  |
|--|------------------|----------------|---|--|---------|---|---------------------------------------|--|---|--|---|--|---|--|--|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset          | Impact to 2025  | Nearest Similar Asset (remaining after first epoch)  | Options |   | Issues with Option                    | Indicative Costs   |   |  | Details of Costs and Assumptions  |  |   |  |  |
|  |                  |                |   |  |         |   |                                       | Low  | Mid   | High   | Planning and Design   | Engagement/Agreement   | Capital   | Maintenance  | Legal  |
| Sheringham to Cromer   | 3b03             | Car parks      | SMP states that car park will be maintained. However, maps suggest that car park at West Runton may be lost and the car park west of Cromer will lose a small number of spaces. West Runton is a private car park and therefore not the responsibility of NNDC, whilst the loss of parking at Cromer is expected to be insignificant up to 2025, but may require some additional space after this time. Therefore this asset is not considered further. | -  | -       | -   | -                                     | -  | -   | -  | -   | -  | -   | -  | -  |
| Sheringham to Cromer   | 3b03             | Beach          | Maintained – no impact, asset not considered further  | -  | -       | -   | -                                     | -  | -   | -  | -   | -  | -   | -  | -  |
| Sheringham to Cromer   | 3b03             | National Trail | Short section east of Sheringham requires relocation  | Path diagonally across field visible on Google Earth but not OS map<br><br>RoW from end of Nelson Road | Medium  | 1. Link National Trail with RoW from Nelson Road with new route along end of gardens on Conway Road | New access agreement will be required | £3,100<br>£2,850<br>£32<br>£130<br>£3,300<br>=<br><b>£9,412</b><br><b>One-off costs</b><br>-<br><b>£38</b><br><b>Additional annual savings</b> | =<br>=<br>=<br>=<br>=<br>=<br><b>£13,912</b><br><b>One-off costs</b><br>-<br><b>£38</b><br><b>Additional annual savings</b> | £5,200<br>£2,850<br>£32<br>£130<br>£10,200<br>=<br><b>£18,412</b><br><b>One-off costs</b><br>-<br><b>£38</b><br><b>Additional annual savings</b> | Low estimate: £3,100 per owner x 1 owner = <b>£3,100</b><br><br>High estimate: £5,200 per owner x 1 owner = <b>£5,200</b> | Land purchase: 190 m @ £15 per m = <b>£2,850</b><br><br>Clearance of new tracks: 190m @ £0.17 per m = <b>£32</b><br><br>Signposts: 2 rural directional signs @ £65 = <b>£130</b> | This 380m route is shorter than the current 510m. This results in a saving of maintenance costs of £0.29 per m 130m @ £0.29 per m = <b>£38</b><br><b>annual maintenance savings</b> | Low estimate: £3,300 per owner x 1 owners = <b>£3,300</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 1 owners = <b>£10,200</b> | 190m new RoW - 1 landowner; 190m of existing RoW to be upgraded to NT standard.<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |              |   |   |               |   |   |   |  |   |   |   |   |  |  |
|--|------------------|--------------|---|---|---------------|---|---|---|--|---|---|---|---|--|--|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset        | Impact to 2025  | Nearest Similar Asset (remaining after first epoch) | Options       |   | Issues with Option  | Indicative Costs  |  |   | Details of Costs and Assumptions  |   |   |  |  |
|  |                  |              |   |   |               |   |   | Low   | Mid  | High  | Planning and Design   | Engagement/Agreement  | Capital   | Maintenance  | Legal  |
|  |                  |              |   |   | Short to Long | 2. Rolling path along cliff top         | Rolling path agreement will be required                     | £3,100<br>£3,450<br>£65<br>£3,300<br>=<br><b>£9,915</b> | =<br><br><br><br><br><b>£14,415</b>                          | £5,200<br>£3,450<br>£65<br>£10,200<br>=<br><b>£18,915</b>   | Low estimate: £3,100 per owner x 1 owner = <b>£3,100</b><br><br>High estimate: £5,200 per owner x 1 owner = <b>£5,200</b> | Land purchase: 230 m @ £15 per m = <b>£3,450</b><br><br>Signposts: 1 rural directional signs @ £65 = <b>£65</b> | No additional maintenance costs   | Low estimate: £3,300 per owner x 1 owner = <b>£3,300</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 1 owner = <b>£10,200</b> | 230m rolling path – 1 owners<br><br>Low estimate assumes agreement; high estimate assumes creation order plus public inquiry |
| Sheringham to Cromer   | 3b03             | Footpath     | Track (not RoW) from east of Sheringham to Wood Hill will be lost | No obvious alternative currently available          | Rolling path  | Rolling path agreement will be required | £15,500<br>£34,050<br>£65<br>£16,500<br>=<br><b>£66,115</b> | =<br><br><br><br><br><b>£88,615</b>                     | £26,000<br>£34,050<br>£65<br>£51,000<br>=<br><b>£111,115</b> | Low estimate: £3,100 per owner x 5 owners = <b>£15,500</b><br><br>High estimate: £5,200 per owner x 5 owners = <b>£26,000</b> | Land purchase: 2,270 m @ £15 per m = <b>£34,050</b><br><br>Signposts: 1 rural directional signs @ £65 = <b>£65</b>        | No additional maintenance costs   | Low estimate: £3,300 per owner x 5 owners = <b>£16,500</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 5 owners = <b>£51,000</b> | 2,270m rolling path – 5 owners<br><br>Low estimate assumes agreement; high estimate assumes creation order plus public inquiry                                   |  |
| Sheringham to Cromer   | 3b03             | Footpath     | RoW from Wood Hill to Cromer                                      | No obvious alternative currently available          | Rolling path  | Rolling path agreement will be required | £12,400<br>£27,600<br>£65<br>£13,200<br>=<br><b>£53,265</b> | =<br><br><br><br><br><b>£74,490</b>                     | £20,800<br>£34,050<br>£65<br>£40,800<br>=<br><b>£95,715</b>  | Low estimate: £3,100 per owner x 4 owners = <b>£12,400</b><br><br>High estimate: £5,200 per owner x 4 owners = <b>£20,800</b> | Land purchase: 1,840 m @ £15 per m = <b>£27,600</b><br><br>Signposts: 1 rural directional signs @ £65 = <b>£65</b>        | No additional maintenance costs   | Low estimate: £3,300 per owner x 4 owners = <b>£13,200</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 4 owners = <b>£40,800</b> | 1,840m rolling path – 4 owners<br><br>Low estimate assumes agreement; high estimate assumes creation order plus public inquiry                                   |  |
| Cromer   | 3b04             | Beach        | Narrow beach retained   | -   | -             | -                                       | -   | -   | -  | -   | -   | -   | -   | -  | -  |
| Cromer   | 3b04             | Other assets | Maintained – no impact, assets not considered further             | -   | -             | -                                       | -   | -   | -  | -   | -   | -   | -   | -  | -  |
| Cromer to Overstrand   | 3b05             | Beach        | Maintained – no impact, assets not considered further             | -   | -             | -                                       | -   | -   | -  | -   | -   | -   | -   | -  | -  |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |                |   |  |               |                 |   |   |                     |   |  |  |                                 |  |   |
|--|------------------|----------------|---|--|---------------|-----------------|---|---|---------------------|---|--|--|---------------------------------|--|---|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset          | Impact to 2025                            | Nearest Similar Asset (remaining after first epoch)  | Options       |                 | Issues with Option                      | Indicative Costs  |                     |   | Details of Costs and Assumptions   |  |                                 |  |   |
|  |                  |                |   |  |               |                 |   | Low   | Mid                 | High  | Planning and Design  | Engagement/Agreement   | Capital                         | Maintenance  | Legal   |
| Cromer to Overstrand   | 3b05             | Playing field  | End of playing field lost                 | Majority remaining – does not appear to be cricket or football ground. Other grounds exist within Cromer, therefore no options needed. | -             | -               | -                                       | -   | -                   | -   | -  | -  | -                               | -  | -   |
| Cromer to Overstrand   | 3b05             | National Trail | Paston footpath will need to be relocated | Tracks through Warren Woods, around playing field and along some edges of golf course. No continuous alternative.                      | Short to long | 1. Rolling path | Rolling path agreement will be required | £9,300<br>£18,000<br>£65<br>£9,900<br>=<br><b>£37,265</b> | =<br><b>£50,765</b> | £15,600<br>£18,000<br>£65<br>£30,600<br>=<br><b>£64,265</b> | Low estimate: £3,100 per owner x 3 owners = <b>£9,300</b><br><br>High estimate: £5,200 per owner x 3 owners = <b>£15,600</b> | Land purchase: 1,200 m @ £15 per m = <b>£18,000</b><br><br>Signposts: 1 rural directional signs @ £65 = <b>£65</b> | No additional maintenance costs | Low estimate: £3,300 per owner x 3 owners = <b>£9,900</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 3 owners = <b>£30,600</b> | 1,200m rolling path – 3 owners<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |       |                |   |         |  |  |  |  |  |   |  |  |  |  |
|--|------------------|-------|----------------|---|---------|--|--|--|--|--|---|--|--|--|--|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset | Impact to 2025 | Nearest Similar Asset (remaining after first epoch) | Options |  | Issues with Option                     | Indicative Costs   |  |  | Details of Costs and Assumptions  |  |  |  |  |
|  |                  |       |                |   |         |  |  | Low  | Mid  | High   | Planning and Design   | Engagement/Agreement   | Capital  | Maintenance  | Legal  |
|  |                  |       |                |   | Medium  | 2. Make tracks in Warren Woods RoW, join to RoW around playing field and down to Overstrand Road. New path into Overstrand | New access agreements will be required | £3,100<br>£4,500<br>£195<br>£3,300<br>=<br><b>£11,095</b><br><b>One-off costs</b><br>+<br><b>£20</b><br><b>Additional annual costs</b> | =<br><b>£15,595</b><br><b>One-off costs</b><br>+<br><b>£20</b><br><b>Additional annual costs</b> | =<br>£5,200<br>£4,500<br>£195<br>£10,200<br>=<br><b>£20,095</b><br><b>One-off costs</b><br>+<br><b>£20</b><br><b>Additional annual costs</b> | Low estimate: £3,100 per owner x 1 owner = <b>£3,100</b><br><br>High estimate: £5,200 per owner x 1 owner = <b>£5,200</b> | Land purchase: 300 m @ £15 per m = £4,500<br><br>Signposts: 3 rural directional signs @ £65 = £195 | This route adds an additional 750m on to existing maintenance; however, 900m is on the road. This means that 150m is on road, rather than off-road – a saving in maintenance costs of £0.22 per m<br><br>Maintenance: 750m @ £0.07 = <b>£53</b><br><br>-<br><br>150m @ £0.22 per m = <b>£33</b><br><b>annual maintenance savings</b><br><br>= <b>£20</b><br><b>additional annual maintenance costs</b> | Low estimate: £3,300 per owner x 1 owners = <b>£3,300</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 1 owners = <b>£10,200</b> | 300m of existing track to become RoW - 1 landowner for Warren Woods; upgrade 750 m of RoW; and 900m section on road<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |       |                |   |         |   |  |  |  |  |   |  |  |  |  |
|--|------------------|-------|----------------|---|---------|---|--|--|--|--|---|--|--|--|--|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset | Impact to 2025 | Nearest Similar Asset (remaining after first epoch) | Options |   | Issues with Option                     | Indicative Costs   |  |  | Details of Costs and Assumptions  |  |  |  |  |
|  |                  |       |                |   |         |   |  | Low  | Mid  | High   | Planning and Design   | Engagement/Agreement   | Capital  | Maintenance  | Legal  |
|  |                  |       |                |   | Long    | 3. Make tracks in Warren Woods RoW. New route down to Overstrand Road and into Overstrand | New access agreements will be required | £3,100<br>£5,100<br>£195<br>£3,300<br>=<br><b>£11,695</b><br><b>One-off costs</b><br>-<br><b>£55</b><br><b>Additional annual savings</b> | =<br><b>£16,195</b><br><b>One-off costs</b><br>-<br><b>£55</b><br><b>Additional annual savings</b> | =<br>£5,200<br>£5,100<br>£195<br>£10,200<br>=<br><b>£20,695</b><br><b>One-off costs</b><br>-<br><b>£55</b><br><b>Additional annual savings</b> | Low estimate: £3,100 per owner x 1 owner = <b>£3,100</b><br><br>High estimate: £5,200 per owner x 1 owner = <b>£5,200</b> | Land purchase: 340 m @ £15 per m = <b>£5,100</b><br><br>Signposts: 3 rural directional signs @ £65 = <b>£195</b> | This route adds an additional 790m on to existing maintenance; however, 1,300m is on the road. This means that 510m is on road, rather than off-road – a saving in maintenance costs of £0.22 per m<br><br>Maintenance: 790m @ £0.07 = <b>£55</b><br><br>510m @ £0.22 per m = <b>£112</b><br><b>annual maintenance savings</b><br><br>= <b>£55</b><br><b>additional annual maintenance savings</b> | Low estimate: £3,300 per owner x 1 owners = <b>£3,300</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 1 owners = <b>£10,200</b> | 340m of existing track to become RoW - 1 landowner for Warren Woods; upgrade 350 m of RoW; and 1,300m section on road<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |          |                |   |   |   |   |     |   |   |                      |  |  |   |  |
|--|------------------|----------|----------------|---|---|---|---|-----|---|---|----------------------|--|--|---|--|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset    | Impact to 2025 | Nearest Similar Asset (remaining after first epoch)                     | Options                                   | Issues with Option  | Indicative Costs  |     |   | Details of Costs and Assumptions  |                      |  |  |   |  |
|  |                  |          |                |   |   |   | Low   | Mid | High  | Planning and Design   | Engagement/Agreement | Capital  | Maintenance                                      | Legal   | Assumptions  |
| Overstrand   | 3b06             | Car park | Some loss      | 4.3 km to Cromer coastal car park; 8.3 km to Mundesley coastal car park | Create alternative car park in Overstrand | Option will require purchase of a similar area of land to current car park, fencing and new signs | £3,100<br>£6,000<br>£472<br>£300<br>£1,450<br>£3,300<br>=<br><b>£14,622</b><br><b>One-off costs</b> |     | £5,200<br>£6,000<br>£180,000<br>£472<br>£300<br>£1,450<br>£10,200<br>=<br><b>£203,622</b><br><b>One-off costs</b> | Low estimate: £3,100 per owner x 1 owner = <b>£3,100</b><br><br>High estimate: £5,200 per owner x 1 owner = <b>£5,200</b> |                      | Land purchase: 0.6 ha @ £10,000 per ha = <b>£6,000</b><br><br>High estimate: toilet facilities = <b>£180,000</b><br><br>360m of perimeter fencing @ £1.31 per m = <b>£472</b><br><br>2 road signs @ £150 each = <b>£300</b><br><br>1 information board @ <b>£1,450</b> | Maintenance costs as at present – not additional | Low estimate: <b>£3,300</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = <b>£10,200</b> | Area of current car park is approximately 0.6ha, perimeter is 360m<br><br>Assume land acquired from 1 owner<br><br>Assume toilet facilities rebuilt under high estimate, to be close to car park; but existing ones maintained under low estimate<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |   |  |  |   |  |   |  |  |   |   |  |   |  |   |
|--|------------------|---|--|--|---|--|---|--|--|---|---|--|---|--|---|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset   | Impact to 2025                                       | Nearest Similar Asset (remaining after first epoch)  | Options   |  | Issues with Option  | Indicative Costs   |  |   | Details of Costs and Assumptions  |  |   |  |   |
|  |                  |   |  |  |   |  |   | Low  | Mid  | High  | Planning and Design   | Engagement/Agreement   | Capital   | Maintenance  | Legal   |
| Overstrand   | 3b06             | National Trail                                      | Paston footpath will need to be relocated            | Path across golf course, local roads into Overstrand | Direct Paston Way across golf course and along local roads to Overstrand. |  | Option will require creation of a small section of Ro, but majority of alternative route exists. However, it will need to be upgraded to National Trail standard. | £3,100<br>£4,500<br>£260<br>£3,300<br>=<br><b>£11,160</b><br><b>One-off costs</b><br>+<br><b>£24</b><br><b>Additional annual costs</b> | =<br><b>£15,660</b><br><b>One-off costs</b><br>+<br><b>£24</b><br><b>Additional annual costs</b> | £5,200<br>£4,500<br>£260<br>£10,200<br>=<br><b>£20,160</b><br><b>One-off costs</b><br>+<br><b>£24</b><br><b>Additional annual costs</b> | Low estimate: £3,100 per owner x 1 owner = <b>£3,100</b><br><br>High estimate: £5,200 per owner x 1 owner = <b>£5,200</b> | Land purchase: 300 m @ £15 per m = <b>£4,500</b><br><br>Signposts: 4 rural directional signs @ £65 = <b>£260</b> | This route adds an additional 550m on to existing maintenance; however, 620m is on the road. This means that 70m is on road, rather than off-road – a saving in maintenance costs of £0.22 per m<br><br>Maintenance: 550m @ £0.07 = <b>£39</b><br><br>70m @ £0.22 per m = <b>£15</b><br><b>annual maintenance savings</b><br><br>= <b>£24</b><br><b>additional annual maintenance costs</b> | Low estimate: £3,300 per owner x 1 owners = <b>£3,300</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 1 owners = <b>£10,200</b> | 300m of existing track to become RoW - 1 landowner; upgrade 500 m of RoW; and 620m section on road<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry |
| Overstrand   | 3b06             | Promenade   | Maintained – no impact, asset not considered further | -  | -   | -  | -   | -  | -  | -   | -   | -  | -   | -  | -   |
| Overstrand   | 3b06             | Beach access  | Maintained – no impact, asset not considered further | -  | -   | -  | -   | -  | -  | -   | -   | -  | -   | -  | -   |
| Overstrand   | 3b06             | Beach access at end of High Street and Clifton Road | Lost (not identified in SMP, maps only)              | 1.5 km via roads to other Overstrand access          | Short   | 1. Re-construct access road when necessary |   | £3,100<br>£3,450<br>£14,950<br>£3,300<br>=<br><b>£24,800</b><br><b>per reconstruction</b>  | =<br><b>£29,300</b><br><b>per reconstruction</b>   | £5,200<br>£3,450<br>£14,950<br>£10,200<br>=<br><b>£33,800</b><br><b>per reconstruction</b>  | Low estimate: £3,100<br><br>High estimate: £5,200   | Land purchase: 230m @ £15 per m = £3,450<br><br>Construction of tarmac road @ £65 per m = £14,950                | Low estimate: agreement = £3,300<br><br>High estimate: order = £5,000 + £5,200 for public inquiry = £10,200   | Current road length is 230m  |   |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |   |   |   |   |       |  |   |  |  |   |   |   |   |   |
|--|------------------|---|---|---|---|-------|--|---|--|--|---|---|---|---|---|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset   | Impact to 2025                          | Nearest Similar Asset (remaining after first epoch) | Options   |       | Issues with Option   | Indicative Costs  |  |  | Details of Costs and Assumptions  |   |   |   |   |
|  |                  |   |   |   |   |       |  | Low   | Mid                                    | High   | Planning and Design   | Engagement/Agreement  | Capital   | Maintenance   | Legal   |
|  |                  |   |   |   | Construct metal walkway and tower as at Happisburgh, extend and move as necessary to long | Short | Requires a relatively stable piece of land and planning permission |   | £95,000                                |  |   |   | Construct = £40,000<br>Extend once = £15,000<br>Move completely: 1 time<br>@£40,000 = £40,000           |   | Land erodes 40m, construct; extend walkway once, then moved back 1 time |
|  |                  |   |   | Medium  |   |       |  | £215,000  |  |  | Construct = £40,000<br>Extend once = £15,000<br>Move completely: 4 times<br>@£40,000 = £160,000 |   | Land erodes 110m, construct; extend walkway once, then moved back 4 times                               |   |   |
|  |                  |   |   | Long  |   |       |  | £335,000  |  |  | Construct = £40,000<br>Extend once = £15,000<br>Move completely: 7 times<br>@£40,000 = £280,000 |   | Land erodes 190m, construct; extend walkway once, then moved back 7 times                               |   |   |
| Overstrand to Mundesley                                      | 3b07             | Beach   | Present                                 | -   | -   | -     | -  | -   | -                                      | -  | -   | -   | -   | -   | -   |
| Overstrand to Mundesley                                      | 3b07             | Beach access – Vale Road/Little Marl Point at Mundesley | Lost (not identified in SMP, maps only) | 2.1 km via roads to Mundesley access                | Reconstruct access road when necessary  |       |  | £3,100<br>£7,350<br>£31,850<br>£3,300<br>=<br><b>£45,600 per reconstruction</b> | =<br><b>£50,100 per reconstruction</b> | £5,200<br>£7,350<br>£31,850<br>£10,200<br>=<br><b>£54,600 per reconstruction</b> | Low estimate: £3,100<br>High estimate: £5,200   | Land purchase: 490m @ £15 per m = £7,350<br>Construction of tarmac road @ £65 per m = £31,850 | Low estimate: agreement = £3,300<br>High estimate: order = £5,000 + £5,200 for public inquiry = £10,200 | Current road length is 490m   |   |
|  |                  |   |   |   | Construct metal walkway and tower as at Happisburgh, extend and move as necessary to long | Short |  |   | £95,000                                |  |   | Construct = £40,000<br>Extend once = £15,000<br>Move completely: 1 time<br>@£40,000 = £40,000 |   | Land erodes 50m, construct; extend walkway once, then moved back 1 time |   |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |   |  |   |                                   |   |  |                              |  |   |                      |  |  |   |   |
|--|------------------|---|--|---|-----------------------------------|---|--|------------------------------|--|---|----------------------|--|--|---|---|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset   | Impact to 2025                                       | Nearest Similar Asset (remaining after first epoch) | Options                           | Issues with Option  | Indicative Costs   |                              |  | Details of Costs and Assumptions  |                      |  |  |   |   |
|  |                  |   |  |   |                                   |   | Low  | Mid                          | High   | Planning and Design   | Engagement/Agreement | Capital  | Maintenance                                      | Legal   | Assumptions   |
|  |                  |   |  |   | Medium                            |   |  | £175,000                     |  |   |                      | Construct = £40,000<br>Extend once = £15,000<br>Move completely: 3 times<br>@£40,000 = £120,000  |  |   | Land erodes 90m, construct; extend walkway once, then moved back 3 times                                    |
|  |                  |   |  |   | Long                              |   |  | £255,000                     |  |   |                      | Construct = £40,000<br>Extend once = £15,000<br>Move completely: 5 times<br>@£40,000 = £200,000  |  |   | Land erodes 130m, construct; extend walkway once, then moved back 5 times                                   |
| Overstrand to Mundesley                                      | 3b07             | Car park – Vale Road/Little Marl Point at Mundesley | Lost (not identified in SMP, maps only)              | 1.7 km and 2.4 km to Mundesley car parks            | Replacement car park in Mundesley | Option will require purchase of a similar area of land to current car park, fencing and new signs | £3,100<br>£1,000<br>£393<br>£300<br>£1,450<br>£3,300<br>=<br><b>£9,543 One-off costs</b> | <b>£14,043 One-off costs</b> | £5,200<br>£1,000<br>£393<br>£300<br>£1,450<br>£10,200<br>=<br><b>£18,543 One-off costs</b> | Low estimate: £3,100 per owner x 1 owner = <b>£3,100</b><br><br>High estimate: £5,200 per owner x 1 owner = <b>£5,200</b> |                      | Land purchase: 0.1 ha @ £10,000 per ha = <b>£1,000</b><br><br>300m of perimeter fencing @ £1.31 per m = <b>£393</b><br><br>2 road signs @ £150 each = <b>£300</b><br><br>1 information board @ <b>£1,450</b> | Maintenance costs as at present – not additional | Low estimate: <b>£3,300</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = <b>£10,200</b> | Area of current car park is approximately 0.1ha, perimeter is 300m<br><br>Assume land acquired from 1 owner |
| Overstrand to Mundesley                                      | 3b07             |   | No loss of other community facilities                | -   | -                                 | -   | -  | -                            | -  | -   | -                    | -  | -  | -   | -   |
| Mundesley  | 3b08             |   | No loss of assets landward of defences               | -   | -                                 | -   | -  | -                            | -  | -   | -                    | -  | -  | -   | -   |
| Mundesley  | 3b08             | Beach   | Maintained – no impact, asset not considered further | -   | -                                 | -   | -  | -                            | -  | -   | -                    | -  | -  | -   | -   |
| Mundesley to Bacton Gas Terminal                             | 3b09             | Beach   | Maintained – no impact, asset not considered further | -   | -                                 | -   | -  | -                            | -  | -   | -                    | -  | -  | -   | -   |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |                        |  |   |  |  |  |  |   |   |   |   |  |  |             |
|--|------------------|------------------------|--|---|--|--|--|--|---|---|---|---|--|--|-------------|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset                  | Impact to 2025   | Nearest Similar Asset (remaining after first epoch)   | Options  | Issues with Option   | Indicative Costs   |  |   | Details of Costs and Assumptions  |   |   |  |  |             |
|  |                  |                        |  |   |  |  | Low  | Mid  | High  | Planning and Design   | Engagement/Agreement  | Capital   | Maintenance  | Legal  | Assumptions |
| Mundesley to Bacton Gas Terminal                             | 3b09             | Footpath               | SMP states that Paston Way footpath would need to be relocated but currently runs along beach, which will be maintained. Therefore path does not require relocation. | -   | -  | -  | -  | -  | -   | -   | -   | -   | -  | -  | -           |
| Bacton Gas Terminal  | 3b10             | All assets             | Maintained – no impact, assets not considered further  | -   | -  | -  | -  | -  | -   | -   | -   | -   | -  | -  | -           |
| Bacton, Walcott and Ostend                                   | 3b11             | Beach                  | Maintained – no impact, assets not considered further  | -   | -  | -  | -  | -  | -   | -   | -   | -   | -  | -  | -           |
| Bacton, Walcott and Ostend                                   | 3b11             | Beach access at Ostend | Access is part of sea defences and may be damaged within period  | 600m along footpath; 900 m by road to Walcott Gap   | Create timber ramp when access is damaged  |  |  |  |   |   |   | £100,000  |  |  |             |
| Ostend to Eccles   | 3b12             | Footpath               | RoW from Ostend to Happisburgh along cliff top would need to be relocated  | RoW from track by Ostend Cottages to track by High House, through Happisburgh and across by St Mary's – but will be further in land in places than current footpath | Rolling path from Ostend to field boundary by Thatcher's Cottage, RoW along field boundary to road | Rolling path agreement will be required, and RoW creation, and 2 new signs | £3,100<br>£24,300<br>£32<br>£130<br>£3,300<br>=<br><b>£30,862</b><br><b>One-off costs</b><br>+<br><b>£55</b><br><b>Additional annual costs</b> | =<br><b>£35,362</b><br><b>One-off costs</b><br>+<br><b>£55</b><br><b>Additional annual costs</b> | £5,200<br>£24,300<br>£32<br>£130<br>£10,200<br>=<br><b>£39,862</b><br><b>One-off costs</b><br>+<br><b>£55</b><br><b>Additional annual costs</b> | Low estimate: £3,100 per owner x 1 owner = <b>£3,100</b><br><br>High estimate: £5,200 per owner x 1 owner = <b>£5,200</b> | Land purchase: 1,620 m @ £15 per m = <b>£24,300</b><br><br>Clearance: 190m @ £0.17 per m = <b>£32</b><br><br>Signposts: 2 rural directional signs @ £65 = <b>£130</b> | This route adds an additional 190m on to existing maintenance costs<br><br>Maintenance: 190m @ £0.29 = <b>£55</b><br><b>additional annual maintenance costs</b> | Low estimate: £3,300 per owner x 1 owners = <b>£3,300</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 1 owners = <b>£10,200</b> | Length of rolling path required is 1,430m; length of RoW is 190m. Assume 1 land owner<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry |             |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |              |  |  |  |   |  |     |  |  |  |   |  |  |  |   |  |
|--|------------------|--------------|--|--|--|---|--|-----|--|--|--|---|--|--|--|---|--|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset        | Impact to 2025                                   | Nearest Similar Asset (remaining after first epoch)              | Options  | Issues with Option  | Indicative Costs                         |     |  | Details of Costs and Assumptions   |  |   |  |  |  |   |  |
|  |                  |              |  |  |  |   | Low                                      | Mid | High                                       | Planning and Design  | Engagement/Agreement   | Capital   | Maintenance  | Legal  | Assumptions  |   |  |
| Ostend to Eccles   | 3b12             | Footpath     | Track (not RoW) lost from Happisburgh to Halholm | Inland tracks via power plant to public path/road                | Rolling path agreement   | Mast and surrounding area will have to be circumnavigated                                   | £3,100<br>£14,400<br>£130<br>£3,300<br>= | =   | £10,400<br>£14,400<br>£130<br>£20,400<br>= | Low estimate: £3,100 per owner x 1 owner = <b>£3,100</b><br><br>High estimate: £5,200 per owner x 2 owner = <b>£10,400</b> | Land purchase: 960m @ £15 per m = <b>£14,400</b><br><br>Signposts: 2 rural directional signs @ £65 = <b>£130</b> | Maintenance costs as at present – not additional  | Low estimate: £3,300 per owner x 1 owners = <b>£3,300</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = £10,200 per owner x 2 owners = <b>£20,400</b> | Length of path required 960m, running inland of mast. Low costs assume 1 private land owner; high costs assume 2 private landowners<br><br>Low estimate assumes creation agreement; high estimate assumes creation order plus public inquiry |  |   |  |
| Ostend to Eccles   | 3b12             | Beach access | May be maintained at Happisburgh                 | 3.1 km to Cart Gap; 4.5 km to Walcott Gap                        | Access is maintained using metal tower. Current length is 15m (?). Maximum length of walkway is approx. 22.5m. | Metal tower can be extended up to 50%, after that it is necessary to move it back.          |  |     |  |  |  |   |  | Extend once = £15,000<br>Move completely: 4 times @£40,000 = £160,000  | Land erodes 100m, walkway extended once, then moved back 4 times |   |  |
|  |                  |              |  |  |  |   |  |     |  |  |  |   |  | Short term:  | <b>£175,000</b>  | Extend once = £15,000<br>Move completely: 7 times @£40,000 = £280,000 | Land erodes 160m, walkway extended once, then moved back 7 times |
|  |                  |              |  |  |  |   |  |     |  |  |  |   |  | Mid term:  | <b>£295,000</b>  | Extend once = £15,000<br>Move completely: 9 times @£40,000 = £360,000 | Land erodes 200m, walkway extended once, then moved back 9 times |
|  |                  |              |  |  |  |   |  |     |  |  |  |   |  |  |  |   |  |
| Ostend to Eccles   | 3b12             | Beach        | Little or no beach                               | 3.1 km to Eccles to Winterton; 4.5 km to narrow beach at Walcott | Produce leaflet directing people to stable beaches   | How many leaflets would be required, cost of design, information signs may also be required |  |     | £1,000<br>£1,700<br>£2,900<br>=            |  | Leaflet design = <b>£1,000</b>   | Leaflet printing = <b>£1,700</b><br><br>2 large information panels @ £1,450 = <b>£2,900</b> |  | Up to 100,000 leaflets, A4 double sided full colour<br><br>2 large information panels  |  |   |  |

| Main Task Table: Effects of Coastal Change on Infrastructure |                  |                                     |                |  |  |   |  |   |   |   |                      |   |  |   |   |
|--|------------------|-------------------------------------|----------------|--|--|---|--|---|---|---|----------------------|---|--|---|---|
| Policy Unit (Location Ref.)                                  | Policy Unit Ref. | Asset                               | Impact to 2025 | Nearest Similar Asset (remaining after first epoch)                        | Options  | Issues with Option  | Indicative Costs   |   |   | Details of Costs and Assumptions  |                      |   |  |   |   |
|  |                  |                                     |                |  |  |   | Low  | Mid                                     | High  | Planning and Design   | Engagement/Agreement | Capital   | Maintenance                                      | Legal   | Assumptions   |
| Ostend to Eccles   | 3b12             | Car park at Beach Road, Happisburgh | Lost           | 3.1 km to Cart Gap coastal car park; 4.5 km to Walcott Gap coastal parking | Replacement car park and toilet and facilities required in Happisburgh | Option will require purchase of a similar area of land to current car park, fencing and new signs | £3,100<br>£7,000<br>£180,000<br>£524<br>£300<br>£1,450<br>£3,300<br>=<br><b>£195,674</b><br><b>One-off costs</b> | <b>£200,174</b><br><b>One-off costs</b> | £5,200<br>£7,000<br>£180,000<br>£524<br>£300<br>£1,450<br>£10,200<br>=<br><b>£204,674</b><br><b>One-off costs</b> | Low estimate: £3,100 per owner x 1 owner = <b>£3,100</b><br><br>High estimate: £5,200 per owner x 1 owner = <b>£5,200</b> |                      | Land purchase: 0.7 ha @ £10,000 per ha = <b>£7,000</b><br><br>Toilet facilities = <b>£180,000</b><br><br>400m of perimeter fencing @ £1.31 per m = <b>£524</b><br><br>2 road signs @ £150 each = <b>£300</b><br><br>1 information board @ <b>£1,450</b> | Maintenance costs as at present – not additional | Low estimate: <b>£3,300</b><br><br>High estimate: £5,000 + £5,200 for public inquiry = <b>£10,200</b> | Area of current car park is approximately 0.7ha, perimeter is 400m<br><br>Assume land acquired from 1 owner |