

Implementing a Roll-Back Policy



Task 2 Report Annex 2

for
North Norfolk District Council



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Task 2 Report: Annex 2

prepared for

North Norfolk District Council

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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 communities¹.

The final version of the Kelling to Lowestoft Shoreline Management Plan (SMP²) 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 objective 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 climate change. This report presents the approach and findings of Task 2, which is to assess the indicative costs of implementing a roll-back policy for different types of land use.

1.2 Objectives of Task 2

The objective of Task 2 is to identify the processes through which timely roll-back could occur and to estimate the scale of likely costs involved.

1.3 Overview of Task 2

Task 2 is to investigate issues such as:

- optimum timing of roll-back;
- nature of external intervention necessary;
- nature of the properties for which roll-back is most likely to be effective;
- indicative costs for different types of land use;
- opportunities for adaptation and regeneration;
- community resilience;

¹ NNDC (2003): **Economic Development Strategy to 2007**.

² Halcrow *et al* (2006): **Kelling to Lowestoft Ness Shoreline Management Plan**, First Review Final Report, November 2006.

- influence of historical and cultural heritage; and
- the relationship between affected communities and others.

1.4 Organisation of the Task Report

This Task 2 Report is organised as follows:

- Section 2 sets out the approach followed;
- the key findings are discussed in Section 3; and
- Section 4 provides a summary of Task 2.

The report sets out the findings of Task 2 only, with links to work undertaken in other tasks, as appropriate. The draft Final Report for the study as a whole will provide full discussion on the linkages between the tasks and the overall implications.

2. APPROACH

2.1 Overview

The approach to Task 2 included five stages:

- identification of examples;
- development of a framework to investigate potential for natural roll-back;
- identification of intervention measures necessary to increase the potential for roll-back based on example land use types;
- identification of key constraints and opportunities based on example land use types; and
- examination of potential for extrapolation to other areas (including other land use types not covered specifically in Task 2).

2.2 Identification of Examples

The issues were investigated through a series of specific land use examples to develop a methodology that can be applied to each type of land use. The starting point was to identify all those properties and land use types that are identified as being at risk from erosion along the North Norfolk Coast in the SMP. Properties and land uses were considered to be at risk if they were identified as lying within one of the three erosion zones (i.e. to 2025, to 2055 or to 2105). From this, it was possible to identify a comprehensive list of potentially affected land uses:

- residential properties;
- commercial properties;
- hotels and guest houses;
- schools;
- libraries;
- care homes;
- village halls;
- sewage works;
- sewage pumping stations;
- MoD facility;
- places of worship;
- telephone exchanges;
- mobile phone masts;
- sites of high heritage importance;
- Grade II listed buildings;
- Saxon cemetery;
- agricultural land (Grade 1 and Grade 3);
- caravan, chalet and holiday parks and infrastructure;
- beach access points;
- National Trails and other footpaths;
- promenades;
- playing fields;

- playgrounds;
- car parks;
- slipways;
- allotments;
- golf courses;
- roads (main roads, coast road, local roads);
- cliff top habitats;
- County Wildlife Sites;
- coastguard lookouts;
- lighthouse; and
- lifeguard stations.

These property types and land uses have been grouped into generic categories, where these form the examples to be taken forward for consideration of the potential for roll-back. The generic land use categories used are based on the Town & Country Planning Use Class Order³. The examples deviate somewhat from this Class Order to reflect the potential that the constraints and opportunities for roll-back may be affected by specific property/land use requirements or features (e.g. listed buildings are considered separately from residential properties to allow the specific features and requirements of listed buildings to be taken into account). The generic classes used and the land uses considered within them are:

- residential property;
- commercial property/land use;
- hotels and guest houses;
- residential institutions (including care homes);
- non-residential institutions (including schools and libraries);
- assembly and leisure (including village halls);
- other properties (including sewage works, sewage pumping stations, MoD facility, places of worship, telephone exchange and mobile phone mast);
- historical (including listed buildings, sites of heritage importance and Saxon cemetery);
- agricultural land;
- caravan parks (including chalet and holiday parks and their associated infrastructure);
- recreation/open space (including car parks, National Trails and other footpaths, beach accesses, allotments, slipways, parks, playing fields, playgrounds, promenades;
- golf courses;
- roads;
- environmental sites (including cliff top habitats and County Wildlife Sites); and
- lifesaving and emergency (including coastguard lookouts, lifeguard stations, and lighthouse).

These 15 different land uses comprise the example land uses for which the potential and need for roll-back was considered.

³ downloaded from: <http://www.planningportal.gov.uk/england/genpub/en/1011888237913.html>.

2.3 Development of a Framework to Investigate the Potential for Natural Roll-Back

The next stage was to develop a framework that could be used to assess the potential for roll-back, to identify constraints and, thus, to set out the information needs in terms of intervention measures and mechanisms that provide the basis for estimating indicative costs. Figure 2.1 provides a flowchart showing the overall structure of the framework. Due to the amount of information that needed to be collated for each land use type, the framework has been developed using Microsoft Excel. This Section summarises the information included in the framework, following the stepped approach used to complete the spreadsheet.

2.4 Identification of Intervention Measures to Increase the Potential for Roll-Back

Figure 2.1 identifies the key steps involved in assessing the need for roll-back and its timing, based on the actual properties and land use at risk within each example land use type. This provided the basis for identifying the socio-economic requirements for the land use to ‘function’, since the real needs of each land use were easier to assess than theoretical requirements. These needs include access to services such as water, sewerage and electricity, vehicular and/or foot access to the site itself, and site specific requirements such as sea view/beach access (e.g. for caravan parks, hotels) or context/setting (e.g. for listed buildings). The next step was to identify the implications of loss of the property/land use, with this providing information on the costs of not rolling-back (this informs Tasks 3 and 4 as well as Task 2). These data provided the basis for determining the potential for roll-back.

The next question asked whether roll-back had already occurred. The aim was to identify whether some land uses are already able to adapt to coastal erosion (or the risk of coastal erosion). Any such examples were used to provide an indication of the types of measures that could be implemented elsewhere to facilitate roll-back for other types of land use. Examples of existing roll-back also provided useful information when assessing the indicative costs and/or provided data used to validate indicative cost estimates for other land uses. Such information was particularly useful where, for the same land use, roll-back had occurred in one area but not in another. This then allowed detailed consideration of the site-specific nature of some constraints and opportunities. However, the examples of actual roll-back were limited.

Where roll-back was not identified, the constraints preventing it were identified. This was undertaken by the project team initially, supported by the outcomes of the Bacton and Overstrand workshops, and discussions with caravan park/holiday park owners and operators. The results of these discussions also informed the assessment of how the constraints could be reduced/removed and the indicative costs of addressing the constraints.

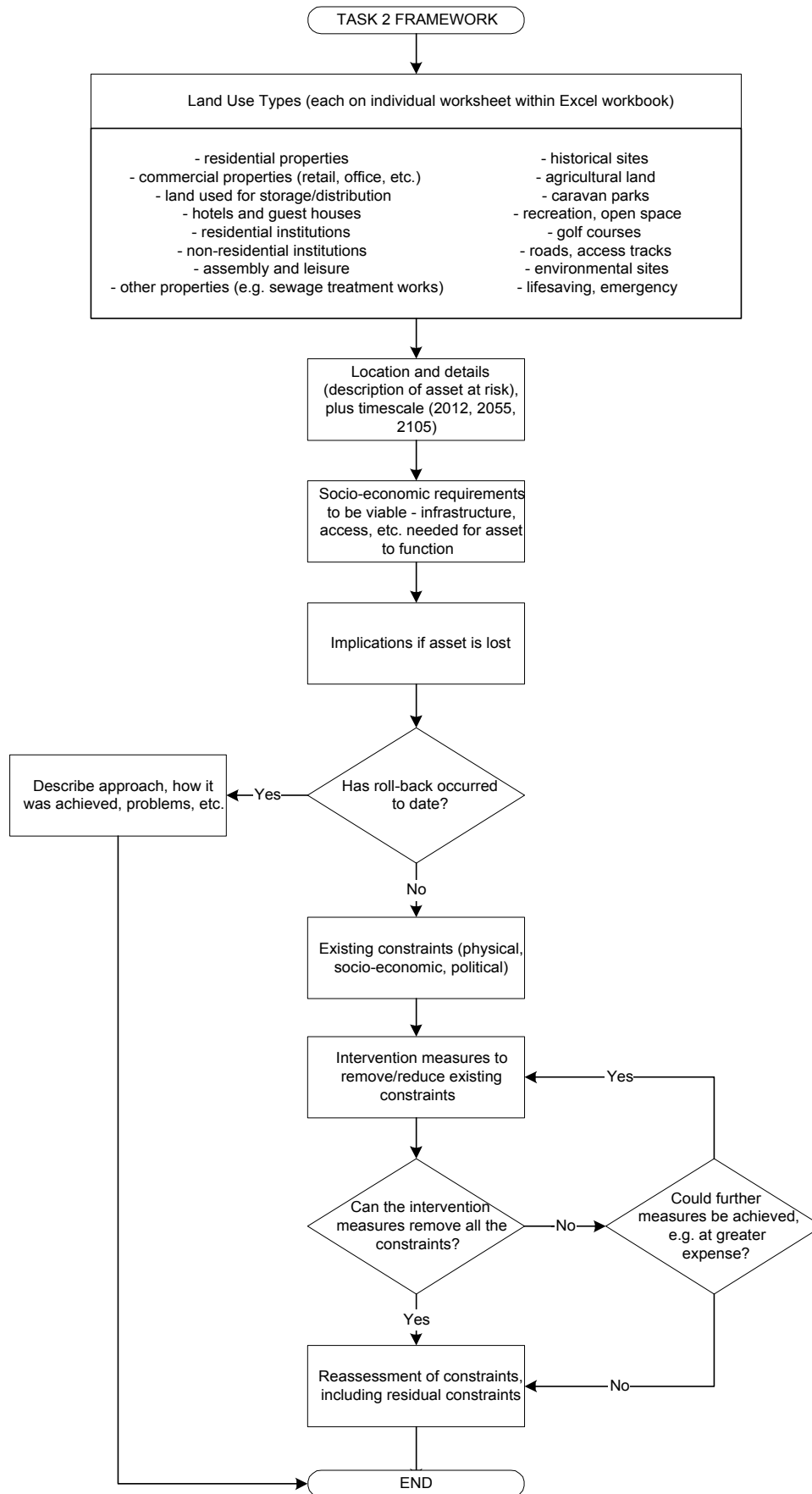


Figure 2.1: Framework for Task 2

The final step was to investigate (to the extent possible) whether there were any residual constraints that could not be addressed and/or whether the removal of some constraints could result in new constraints becoming evident.

2.5 Identification of Key Constraints and Opportunities

Existing constraints were identified for each land use type and grouped under one of three categories:

- physical constraints (such as availability of suitable land);
- socio-economic constraints (such as lack of capital or funding mechanism, or community and personal factors); or
- political constraints (such as implications of policies).

The intervention measures were then identified based on removing or reducing each constraint. These measures could then be costed while any opportunities for additional benefits could be identified (in particular through consideration of the potential to reduce or remove blight, see Task 3 report). Furthermore, the intervention measures considered as part of Task 2 also form an input to Task 4 (adaptation measures for property at risk).

2.6 Examination of Potential for Extrapolation to Other Areas

The approach to Task 2 involves assessment of a wide range of land uses whose function is at risk from coastal erosion. The final stage was to investigate whether the constraints, intervention measures and opportunities are likely to be very site-specific (i.e. relate only to the areas considered for this study), or whether they may be more generic. The aim was to assess whether the intervention measures and their indicative costs could be applied to other areas such that roll-back could be facilitated over a much wider area than just North Norfolk.

3. FINDINGS

3.1 Overview

This section sets out the findings of Task 2. The discussion provided here includes full details for each land use type. As noted above, the identification of constraints, intervention measures, indicative costs and opportunities is based on the ‘real’ requirements of actual land uses and property types in the at risk areas (as defined by the SMP). Wherever possible, these real constraints have been supplemented with potential constraints to provide as comprehensive an assessment as possible. However, it is unlikely that all site-specific requirements for each land use types have been covered. Other issues could only be explored through implementing the intervention measures or from undertaking pilot trials across a number of different land use functions and locations.

3.2 Identification of Intervention Measures to Increase the Potential for Roll-Back

3.2.1 Socio-Economic Requirements for the Land Use to Function

Table 3.1 summarises the key socio-economic requirements and identifies which are essential for the land use to function.

Land Use	Access (vehicle, foot)	Services (water, sewage, electricity)	Additional land	Strategic Location	Drainage/ gravity
Residential property	Y	Y	-	-	-
Commercial property	Y	Y	-	(Y)	-
Hotels, guest houses	Y	Y	(Y)	(Y)	-
Residential institutions	Y	Y	(Y)	(Y)	-
Non-residential institutions	Y	Y	(Y)	(Y)	-
Assembly and leisure	Y	Y	(Y)	(Y)	-
Other properties	Y	Y	(Y)	(Y)	(Y)
Historical	(Y)	-	(Y)	Y	-
Agricultural land	-	(Y)	(Y)	-	(Y)
Caravan parks	Y	Y	(Y)	Y	(Y)
Recreation/open space	Y	-	-	(Y)	(Y)
Golf courses	Y	(Y)	(Y)	(Y)	Y
Roads	-	-	-	(Y)	-
Environmental sites	-	-	-	(Y)	(Y)
Lifesaving and emergency	Y	(Y)	-	Y	-

Notes: Y: definite requirement for land use; (Y): site-specific requirement for sub-set of land use; -: not key requirement

Table 3.1 highlights the range of different key requirements necessary for each land use. The table also shows how site-specific requirements can make it difficult to generalise across the 'whole' land use type. This is particularly true for 'commercial properties' where different types of businesses will have different specific requirements. Where necessary, therefore, the wider land use types are broken down into specific sectors or uses to highlight differences. This also facilitates consideration of the potential for extrapolation to other areas (Section 3.4).

3.2.2 Socio-Economic Consequences of Loss of the Land Use Function

The loss, through erosion, of the example land use types may have socio-economic consequences for the remaining properties and land uses and could affect their viability as well as undermining community resilience. This is important information to include when assessing the constraints and opportunities. The results of this assessment will also inform Task 3 (blight) and Task 4 (adaptation measures).

A summary of the key socio-economic consequences from loss (i.e. assuming no roll-back) of the different land use types is provided in Table 3.2.

Land Use	Loss of or impact on...												
	Home(s)	Jobs	Local facilities	Access	History/heritage	Recreation facility	Attraction for visitors	Food production	Enjoyment	Educational resource	Time	Meeting targets	Safety
Residential property	Y	-	(Y)	-	-	-	-	-	-	-	-	Y	-
Commercial property	-	Y	Y	-	-	-	Y	Y	-	-	-	-	-
Hotels, guest houses	-	Y	Y	-	-	-	Y	-	-	-	-	-	-
Residential institutions	(Y)	Y	Y	-	-	-	-	-	-	-	-	-	-
Non-residential institutions	-	Y	Y	-	-	(Y)	(Y)	-	(Y)	Y	-	(Y)	-
Assembly and leisure	-	Y	Y	-	(Y)	Y	Y	-	(Y)	Y	-	-	-
Other properties	(Y)	Y	Y	-	(Y)	-	(Y)	-	-	(Y)	-	-	(Y)
Historical	-	(Y)	-	-	Y	(Y)	(Y)	-	(Y)	Y	-	(Y)	-
Agricultural land	-	Y	-	-	-	-	-	Y	-	-	-	(Y)	-
Caravan parks	(Y)	Y	Y	-	-	Y	Y	-	Y	-	-	-	-
Recreation/open space	-	(Y)	(Y)	Y	(Y)	Y	Y	-	Y	Y	Y	(Y)	-
Golf courses	-	Y	Y	-	-	Y	Y	-	Y	-	-	-	-
Roads	Y	(Y)	Y	Y	-	Y	Y	-	-	Y	Y	(Y)	Y
Environmental sites	-	(Y)	-	-	(Y)	(Y)	(Y)	-	(Y)	Y	-	Y	-
Lifesaving and emergency	-	Y	Y	(Y)	-	-	(Y)	-	-	Y	Y	(Y)	Y

Notes: Y: definite impact; (Y): site-specific or knock-on impact; -: impact not likely (or small)

Table 3.2 highlights the significant number of impacts that could be caused from loss of any of the example land uses and the functions that they provide. It is important to realise that loss of any one property or small area of land use may not result in all the impacts shown in Table 3.2. However, the magnitude of potential losses highlighted in the SMP would suggest that there could be implications for the on-going viability of village shops and post offices if the land uses that attract and retain visitors are lost (e.g. caravan parks, hotels, recreation facilities, etc.). This would clearly have implications for the local communities directly affected, but such significant impacts are also likely to result in knock-on effects for other communities both along the coast and inland. Such impacts could arise from loss of visitors to the area (as places for them to stay and visit are lost) as well as loss of the local population (who have to move away from the area as their properties are eroded). Loss of businesses through erosion would also affect suppliers and downstream customers, although the actual impacts will depend on (i) the type of businesses that are lost as a result of erosion and (ii) the extent to which those businesses interact on a local, rather than regional, national or international scale. Furthermore, the loss of several hundred residential properties may affect the potential to meet Government housing targets, loss of open space for recreation may result in health targets being missed while loss of roads may reduce access to remaining villages affecting targets for emergency response times.

Impacts on ‘other properties’ vary by property type. Loss of sewage works and sewage pumping stations may have implications for properties outside the erosion risk zone, potentially affecting the viability of communities (or sections of communities) that are not directly at risk from erosion. Loss of the MoD facility may affect national safety and security while loss of places of worship could impact on facilities available to the local community.

3.2.3 Examples of Roll-Back that has Already Occurred

There are two examples where roll-back has occurred in North Norfolk:

- establishment of local agreements for footpaths between Kelling Hard and Sheringham (3b01); and
- possible identification of land by Sheringham Golf Links to replace lost tees/holes.

However, these examples are for specific small areas and wider examples have not been found. Caravan park owners report that they have had problems in identifying and acquiring land for roll-back, which has prevented roll-back occurring. Examples from other areas, e.g. East Riding of Yorkshire, where specific roll-back policies have been introduced for houses, farmsteads, caravans and holiday parks, are also difficult to identify.

East Riding of Yorkshire developed policy guidance on ‘roll-back’ as an interim measure until the approach could be incorporated into the County’s Local Development Framework (LDF⁴). The policy aimed to provide flexibility within the planning system such that residents would be able to apply for planning permission to

⁴ The roll-back policy has now been incorporated into the Housing Development Plan Document (DPD).

roll-back. Without this, the planning framework was considered likely to restrict development in the open countryside and could result in residents being discouraged to move⁵. The policy has been used by one caravan park, where agricultural land was converted to a holiday park for replacement of units lost to coastal erosion, and relocation of an associated public house⁶.

One other caravan park has relocated voluntarily over time, allowing it to provide better infrastructure in the process. The roll-back process involved removing pitches up to 120m from the cliff edge, relocating some to within the existing site and others to an extension to the site on land leased from the District Council. It is believed that this will relieve pressure from coastal erosion for up to 60 years. The result has been to reduce the overall capacity of the site, with future expansion unlikely to occur because of the pressure of surrounding land uses⁷.

The lack of examples of roll-back in the UK suggests that the constraints are much wider than just political and that full consideration of a wide range of issues (including the physical and socio-economic constraints) is needed if roll-back is to be facilitated on a much wider scale than has occurred in the East Riding of Yorkshire.

In France, coastal erosion is identified as a natural disaster in accordance with the 1982 Environment Act. Under the Code of Development and Town Planning (1986 Coastal Act ('loi littoral'), Public Safety Act and the 'loi Barnier'), the local Commune has an obligation to consider the potential of any natural risks when planning land occupancy and defining town planning zones. The Commune can be held responsible if a potential risk was ignored when redrafting the Plan of Ground Occupation (Plan d'Occupation des Sols, POS) or if planning permission has been given without due regard to the potential risks (although consideration is given as to the degree of public knowledge on the existence of a potential risk at the time the planning permission was granted).

The Law Barnier⁸ (No. 95-101, 2 February 1995) authorises the expropriation and compensation by the Government of all property threatened by natural risks when remedial works are too expensive to undertake. The compensation is funded by a State Surcharge of 12% on all property insurance premiums. A Risk Prevention Plan (under the Law Barnier) determines where a natural risk is foreseeable and forms an annex to the POS; it can also prohibit construction and other activities within a particular zone because it will be exposed to a risk, or could exacerbate the risk. Remedial measures are allowed provided they do not exceed 10% of the total value of the asset. The approach has been used to move inhabitants from 17 residential properties at Criel-sur-Mer, with the property price paid at the risk-free market value.

⁵ East Riding of Yorkshire Council (2005): **The 'Roll-Back' of Agricultural and Residential Developments at Risk from Coastal Erosion in the East Riding of Yorkshire**, December 2005.

⁶ letter to the Planning Committee in East Riding of Yorkshire dated 22 August 2006 (downloaded from the East Riding of Yorkshire Internet site (filename: planning_a31august06.pdf).

⁷ David Tyldesley Associates (2003): **The Rollback of Caravans and Holiday Home Parks from the Eroding East Yorkshire Coastline**, Appendices, to a report for East Riding of Yorkshire Council, August 2003.

⁸ Assemblée Nationale (1995): **Loi n° 95-101 du 2 février 1995 relative au renforcement de la protection de l'environnement (dite Loi Barnier)**, extracts from main articles downloaded from the Assemblée Nationale Internet Site.

The US passed a National Flood Insurance Act in 1968 which established the National Flood Insurance Program (NFIP). This Plan explicitly deals with coastal erosion, with areas of special flood-related erosion hazards to be designated as ‘Zone E’ on flood hazard maps. A statement of purpose was added that ‘communities must take into account...flood-related erosion hazards, to the extent that they are known, in all official actions relating to land management and use’. Where an E-Zone had been set up, the community had to ‘require setbacks for all new development...to create a safety buffer’. Communities were also encouraged to reserve erosion prone areas for open space and to adopt preventative measures for E-zones that include relocation of threatened developments, relocation of structures in the path of flood-related erosion and community acquisition of flood-related erosion prone properties. However, erosion occurring on a gradual scale unrelated to a flood event was excluded. Furthermore, no E-zones or safety buffers were designated and no mandatory community land use management measures have been required⁹. The Hazard Mitigation Grant Program, created in 1988, assists States and local communities in implementing long-term hazard mitigation measures following a declaration of a major disaster. This included provision of a \$1.3 million grant to property owners in Humboldt County, California for the purchase of 17 residential properties in the Big Lagoon landslide area that had been threatened by erosion. The grant represented 75% of the appraised value of the properties. The properties were demolished and the land is maintained by the County as open space¹⁰.

In New South Wales, Australia, residential zones have to be separated from the coastline by a buffer zone to allow for extreme movements of beach or cliff erosion (now and in the future). However, it is recognised that such an approach has ‘severe shortcomings’ in areas of high rates of coastal erosion. Buffer zones can be established by acquiring land. It is recognised that creation of buffer zones does not mean that land falls into disuse but that some recreation, amenity and commercial uses (e.g. with portable or expendable facilities) can use the land. Voluntary purchase of properties at risk is identified as a cost-effective means of hazard mitigation where the number of properties is low and isolated from major developments. Planned retreat is also identified as an approach to managing a receding coastline. A variety of responses are suggested including time limited occupation and relocatable buildings¹¹.

3.3 Identification of Key Constraints and Opportunities

3.3.1 Existing and Potential Constraints

The constraints likely to be preventing roll-back in North Norfolk have been considered for each example land use. As noted in Section 2.5, they have been grouped into physical, socio-economic and political constraints to reflect the different nature and causes of barriers to roll-back. A summary of the key constraints identified by land use type is provided in Table 3.3.

⁹ US National Research Council (1990): **Managing Coastal Erosion**, Water and Science Technology Board, National Academies (<http://www.nap.edu/catalog/1446.html>), 204pp.

¹⁰ Lee EM & Jones DKC (2004): **Landslide Risk Assessment**, Thomas Telford, 454pp.

¹¹ New South Wales Government (1990): **NSW Coastline Management Manual**, September 1990.

Table 3.3: Existing and Potential Constraints			
Land Use	Constraints to Roll-Back		
	Physical	Socio-Economic	Political
Residential property	<ul style="list-style-type: none"> • Lack of (nearby) land for development • Sense of place (like living where they do) • Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	<ul style="list-style-type: none"> • Lack of value in property • May not want to move (to available land/properties) • Move may reduce access to services • Loss of community links • Stress of move 	<ul style="list-style-type: none"> • No policy at present • Proposed LDF policy would move people to selected settlements • Need to meet Government targets for housing, affordable housing and quality of housing
Commercial property	<ul style="list-style-type: none"> • Lack of appropriate property/land • Need to be near to markets/customers • Need to be near to suppliers • Need to be near to major roads, sea • Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	<ul style="list-style-type: none"> • Lack of value in business/existing property/assets (where value is tied to existing location) • Commitment to local markets, suppliers • Uncertainty over future business planning 	<ul style="list-style-type: none"> • No policy at present • Proposed LDF policy may not be as restrictive for commercial
Hotels, guest houses	<ul style="list-style-type: none"> • Lack of appropriate property/land • Need to be in attractive location • Need to be near to suppliers • Need to be accessible (major roads, sea) • Customer base associated with current location • Need car parking • Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	<ul style="list-style-type: none"> • Lack of value in business/existing property/assets • Commitment to local markets, suppliers • Uncertainty over future business planning • Previous investment (e.g. refurbishment, maintenance) • Previous investment in marketing of current location/ facilities 	<ul style="list-style-type: none"> • No policy at present • Proposed LDF policy may not be as restrictive for commercial • Changing pattern of sea-side holidays, changing levels/ type of visitors

Table 3.3: Existing and Potential Constraints			
Land Use	Constraints to Roll-Back		
	Physical	Socio-Economic	Political
Residential institutions	<ul style="list-style-type: none"> • Lack of appropriate property/land • Need to be in attractive location • Need to be near to suppliers, staff • Need to be accessible for visits by relatives (care homes) • Need car parking • Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) • Need to be near to facilities (shops) for residents (care homes) 	<ul style="list-style-type: none"> • Lack of value in business/existing property/assets • Commitment to local markets, suppliers • Uncertainty over future business planning • Previous investment (e.g. refurbishment, maintenance) • Previous investment in marketing of current location/ facilities 	<ul style="list-style-type: none"> • No policy at present • Proposed LDF policy may not be as restrictive for commercial
Non-residential institutions	<ul style="list-style-type: none"> • Lack of appropriate property/land • Need to be accessible for users of services • Need car parking • Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	<ul style="list-style-type: none"> • Lack of value in existing property • Lack of funding for move (property, contents) • Cost of providing information about move to users • Resistance from users if site is ‘different’ (further away, smaller, etc.) • Community concerns over loss of service (temporary, permanent) 	<ul style="list-style-type: none"> • No policy at present • Potential interpretation of local people of ‘shutting service’ • Uncertainty over LDF policy and extension to public services
Assembly and leisure	<ul style="list-style-type: none"> • Lack of appropriate property/land • Need to be accessible for users of services • Need car parking • Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	<ul style="list-style-type: none"> • Lack of value in existing property • Lack of funding for move (property, contents) • Cost of providing information about move to users • Resistance from users if site is ‘different’ (further away, smaller, etc.) • Community concerns over loss of service (temporary, permanent) 	<ul style="list-style-type: none"> • No policy at present • Potential interpretation of local people of loss of village facility (e.g. hall) • Uncertainty over LDF policy and extension to public services
Other properties	<ul style="list-style-type: none"> • <i>See below for specific land use constraints</i> 		
- sewage works, pumping stations, telephone exchanges, mobile phone mast	<ul style="list-style-type: none"> • Need for appropriate siting (e.g. gravity drainage, distant from residences) 	<ul style="list-style-type: none"> • Cost of relaying sewerage • Who pays and funding? • Loss of value of previous investments • Disruption with relaying of pipes, changes, disruption to service 	<ul style="list-style-type: none"> • No policy at present • Opposition to new site for sewage works, pumping station, mobile phone mast • Uncertainty over LDF policy and extension to these services

Table 3.3: Existing and Potential Constraints			
Land Use	Constraints to Roll-Back		
	Physical	Socio-Economic	Political
- MoD facility	<ul style="list-style-type: none"> • Need for appropriate land/site 	<ul style="list-style-type: none"> • Funding for new site • Disruption to national security 	<ul style="list-style-type: none"> • Implications of decision of one government body on another • Opposition to re-siting of facility • Implications for roll-back of other land uses (likely to over-ride planning policies of NNDC)
- places of worship	<ul style="list-style-type: none"> • Need for appropriate land/site • Lack of cultural history of alternative sites • Need car parking • Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	<ul style="list-style-type: none"> • Funding issues (change in quality, size, nature of place of worship) • Reduction in cultural well-being 	<ul style="list-style-type: none"> • No policy at present • Uncertainty over LDF policy and extension to places of worship
Historical	<ul style="list-style-type: none"> • <i>See below for specific land use constraints</i> 		
- sites of heritage importance	<ul style="list-style-type: none"> • Context and setting may change with roll-back (could result in loss of designation) • May be impossible to move the site in a way that maintains heritage value 	<ul style="list-style-type: none"> • Context and setting may change with roll-back (reduction in heritage value) • Limited knowledge of site may reduce concerns (no concerns), site may be lost before need for roll-back is identified • Funding issues (who will pay?) 	<ul style="list-style-type: none"> • No policy at present • No specific policy for safeguarding heritage sites (no legislative requirement) • Low priority compared with other (more immediately visible) land uses
- listed buildings	<p>As residential properties, plus:</p> <ul style="list-style-type: none"> • context and setting of building may change with roll-back (could result in loss of listed status) • potential to re-create special features may be limited 	<p>As residential properties, plus:</p> <ul style="list-style-type: none"> • context and setting of building may change with roll-back (reduction in heritage value) • lack of funding for safeguarding listed building and its special features 	<p>As residential properties, plus:</p> <ul style="list-style-type: none"> • no specific policy for safeguarding historic buildings (no legislative requirement)
Agricultural land	<ul style="list-style-type: none"> • May not be possible to find replacement land without causing loss of another land use • Roll-back not possible 	<ul style="list-style-type: none"> • Roll-back would require loss of other land uses 	<ul style="list-style-type: none"> • Issue of food security, sustainability (local produce)

Table 3.3: Existing and Potential Constraints			
Land Use	Constraints to Roll-Back		
	Physical	Socio-Economic	Political
Caravan parks	<ul style="list-style-type: none"> • Lack of appropriate property/land • Need to be in attractive location • Need to be near to suppliers • Need to be accessible (major roads, sea) • Customer base associated with current location • Need car parking • Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) • Need to provide opportunities to replace site facilities (toilets, shower block, clubhouse, etc.) 	<ul style="list-style-type: none"> • Lack of value in business/existing property/assets • Commitment to local markets, suppliers • Uncertainty over future business planning • Previous investment (e.g. development and maintenance of site facilities) • Previous investment in marketing of current location/ facilities • Trade-off between future investment and running current business due to uncertainty of coastal erosion combined with unpredictable nature of business 	<ul style="list-style-type: none"> • No policy at present • Proposed LDF policy may not be as restrictive for commercial • Changing pattern of sea-side holidays, changing levels/type of visitors • Political opposition to caravan parks in AONB • Possible local opposition to re-locating caravan park
Recreation/open space	<ul style="list-style-type: none"> • <i>See below for specific land use constraints</i> 		
- National Trails and other footpaths	<ul style="list-style-type: none"> • Lack of appropriate/available land • Needs to run through villages/near facilities from time to time to be attractive to walkers • Need for appropriate and accessible entry/exit points 	<ul style="list-style-type: none"> • Funding for securing new agreements, signage, publicity, etc. • Loss of enjoyment if path moves away from 'traditional' line or away from coast (especially if path is realigned along roads) 	<ul style="list-style-type: none"> • Low priority compared with other (more immediately visible) land uses
- slipways	<ul style="list-style-type: none"> • Difficulty of maintaining access on eroding coastline • Has to be located on coastline and allow safe access 	<ul style="list-style-type: none"> • Cost/funding for continued repair 	<ul style="list-style-type: none"> • May be lack of political will to replace slipways for fishing
- parks and playgrounds	<ul style="list-style-type: none"> • Lack of appropriate/available land • Needs to be near to villages to be attractive for recreation 	<ul style="list-style-type: none"> • Loss of value of open spaces if there is a change in quality or type (e.g. woodland to grass) • Funding for purchasing new land to act as open space 	<ul style="list-style-type: none"> • Need to meet targets for open space

Table 3.3: Existing and Potential Constraints			
Land Use	Constraints to Roll-Back		
	Physical	Socio-Economic	Political
Golf courses	<ul style="list-style-type: none"> • Lack of appropriate/available land • Needs to be near other holes/tees to be viable as continuous golf course (but could cross over road) • Limitations over distance to roll-back if maintaining 'links' style • Need for free draining/good drainage (or amenable to inclusion of poorly drained areas as water hazards, etc.) 	<ul style="list-style-type: none"> • Cost of purchasing new land • Investment in existing infrastructure 	<ul style="list-style-type: none"> • No policy at present • Regional and national policy over golf courses • Use of land for golf course rather than competing roll-back uses may raise objections, opposition
Roads	<ul style="list-style-type: none"> • Available land for re-routing lost stretches of road • Use of land for roads may facilitate roll-back of other land uses (access) or may hinder it (take up of land, loss of continuous bands/area of land) 	<ul style="list-style-type: none"> • Funding issues in terms of priorities (particularly for local access roads) • Diversions and disruption to communities and businesses 	<ul style="list-style-type: none"> • Compulsory purchase available • May be low priority compared with other road requirements elsewhere in county, nationally • Issue of who is responsible (local, county, national governments)
Environmental sites	<ul style="list-style-type: none"> • Habitats may not be re-creatable elsewhere (cliff top habitats – but may occur naturally as other land uses roll-back, depending on geology) • Lack of appropriate/available land 	<ul style="list-style-type: none"> • Funding and cost of re-creating habitats (locally, regionally) 	<ul style="list-style-type: none"> • No policy at present • May be opposition to roll-back of environmental sites if this impinges on roll-back for other land uses • Need to meet Government targets (e.g. BAP) may raise priority over other land uses
Lifesaving and emergency	<ul style="list-style-type: none"> • Difficulty of maintaining access on eroding coastline • Has to be located on coastline and allow safe access 	<ul style="list-style-type: none"> • Funding for continued maintenance and repair • May be safety issues for lifeboat crew as coast erodes 	<ul style="list-style-type: none"> • No policy at present • May provide political opportunity for combining services (e.g. in major towns, locations)

3.3.2 Intervention Measures

The first step in identifying intervention measures is to assess how each of the constraints included in Table 3.3 could be reduced and/or removed. In some cases, one intervention measure will affect more than one constraint and/or more than one land use. The remainder of this section considers each example land use type in turn.

Residential Properties

Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Lack of (nearby) land for development Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	Need for facilitation of purchase/obtaining land appropriate for residential development that has access to all required services and infrastructure
	<ul style="list-style-type: none"> Sense of place (like living where they do) 	Need for land to be in an appropriate location where people want to move to (which may be in local area for some, but away for others)
Socio-Economic	<ul style="list-style-type: none"> Lack of value in property 	Need for measures to include opportunity for people to be able to finance move (this is considered in detail in Task 4 – adaptation measures)
	<ul style="list-style-type: none"> May not want to move (to available land/properties) Move may reduce access to services Loss of community links 	Need for land to be in an appropriate location where people want to move to (which may be in local area for some, but away for others)
	<ul style="list-style-type: none"> Stress of move 	Difficult to offset through intervention measure, but any action to allow roll-back should help reduce stress associated with uncertainty over future
Political	<ul style="list-style-type: none"> No policy at present Proposed LDF policy would move people to selected settlements Need to meet Government targets for housing, affordable housing and quality of housing 	Introduction of LDF policy would help ensure replacement of properties but would reduce flexibility for people and may affect the extent that the above intervention measures can meet the specific requirements of those whose property has been eroded (particularly in terms of community links and sense of place)

Commercial Properties

Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Lack of appropriate property/land Need to be near to markets/customers Need to be near to suppliers Need to be near to major roads, sea Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	Need for facilitation of purchase/obtaining land appropriate for commercial development that has access to all required services and infrastructure. The actual requirements may vary by commercial property/business type such that the mechanism may need to be flexible

Constraint Type	Constraint	Intervention Measures
Socio-Economic	<ul style="list-style-type: none"> Lack of value in business/existing property/assets (where value is tied to existing location) 	Need for measures to include opportunity for business owners to be able to finance move
	<ul style="list-style-type: none"> Commitment to local markets, suppliers 	Need for land to be in an appropriate location to allow on-going commitments to be honoured
	<ul style="list-style-type: none"> Uncertainty over future business planning 	Need for process to be implemented that provides some degree of certainty such that business owners can plan for future investment, etc.
Political	<ul style="list-style-type: none"> No policy at present Proposed LDF policy may not be as restrictive for commercial 	Introduction of LDF policy could help facilitate roll-back for commercial premises

Hotels, Guest Houses

Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Lack of appropriate property/land Need to be near to suppliers Need to be accessible (major roads, sea) Need car parking Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	Need for facilitation of purchase/obtaining land appropriate for hotel, guest house development that has access to all required services and infrastructure
	<ul style="list-style-type: none"> Need to be in attractive location 	Need for land to be in an attractive location where people want to visit
	<ul style="list-style-type: none"> Customer base associated with current location 	Need for investment in publicity to address concerns of existing customers that the change of location will not affect their stay and to attract new customers (opportunity to market new site)
Socio-Economic	<ul style="list-style-type: none"> Lack of value in business/existing property/assets Previous investment (e.g. refurbishment, maintenance) Previous investment in marketing of current location/ facilities 	Need for measures to include opportunity for hotel, guest house owners to be able to finance move and which takes account (to some extent at least) of previous investment in the business
	<ul style="list-style-type: none"> Commitment to local markets, suppliers 	Need for land to be in an appropriate location to allow on-going commitments to be honoured
	<ul style="list-style-type: none"> Uncertainty over future business planning 	Need for process to be implemented that provides some degree of certainty such that business owners can plan for future investment, etc.
Political	<ul style="list-style-type: none"> No policy at present Proposed LDF policy may not be as restrictive for commercial Changing pattern of sea-side holidays, changing levels/ type of visitors 	Introduction of LDF policy could help facilitate roll-back for hotels and guest houses (but may be residual constraints in terms of appropriate, attractive locations for visitors)

Residential Institutions

Table 3.7: Intervention Measures for RESIDENTIAL INSTITUTIONS		
Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Lack of appropriate property/land Need to be near to suppliers, staff Need to be accessible for visits by relatives (care homes) Need car parking Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) Need to be near to facilities (shops) for residents (care homes) 	Need for facilitation of purchase/obtaining land appropriate for the residential institutions that has access to all required services and infrastructure
	<ul style="list-style-type: none"> Need to be in attractive location 	Need for land to be in an attractive location where people want to live (e.g. care homes)
Socio-Economic	<ul style="list-style-type: none"> Lack of value in business/existing property/assets Previous investment (e.g. refurbishment, maintenance) Previous investment in marketing of current location/ facilities 	Need for measures to include opportunity for residential institution owners to be able to finance move and which takes account (to some extent at least) of previous investment in the business
	<ul style="list-style-type: none"> Commitment to local markets, suppliers 	Need for land to be in an appropriate location to allow on-going commitments to be honoured
	<ul style="list-style-type: none"> Uncertainty over future business planning 	Need for process to be implemented that provides some degree of certainty such that business owners can plan for future investment, etc.
Political	<ul style="list-style-type: none"> No policy at present Proposed LDF policy may not be as restrictive for commercial 	Introduction of LDF policy could help facilitate roll-back for residential institutions

Non-Residential Institutions

Table 3.8: Intervention Measures for NON-RESIDENTIAL INSTITUTIONS		
Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Lack of appropriate property/land Need to be accessible for users of services Need car parking Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	Need for facilitation of purchase/obtaining land appropriate for the non-residential institutions that has access to all required services and infrastructure, and is accessible to users
Socio-Economic	<ul style="list-style-type: none"> Lack of value in existing property Lack of funding for move (property, contents) Cost of providing information about move to users Community concerns over loss of service (temporary, permanent) 	Need for measures to include opportunity for non-residential institution operators to be able to finance move
	<ul style="list-style-type: none"> Resistance from users if site is 'different' (further away, smaller, etc.) 	Need for land to be in an appropriate location to maintain level of service and allow users to maintain access

Table 3.8: Intervention Measures for NON-RESIDENTIAL INSTITUTIONS		
Constraint Type	Constraint	Intervention Measures
Political	<ul style="list-style-type: none"> No policy at present Uncertainty over LDF policy and extension to public services 	Introduction of LDF policy could help facilitate roll-back for non-residential institutions
	<ul style="list-style-type: none"> Potential interpretation of local people of 'shutting service' 	Need for clear information to service users over new location, timescale to opening, etc. (may also require engagement with users to identify appropriate location)

Assembly and Leisure

Table 3.9: Intervention Measures for ASSEMBLY AND LEISURE		
Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Lack of appropriate property/land Need to be accessible for users of services Need car parking Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	Need for facilitation of purchase/obtaining land appropriate that has access to all required services and infrastructure
Socio-Economic	<ul style="list-style-type: none"> Lack of value in existing property Lack of funding for move (property, contents) Cost of providing information about move to users Community concerns over loss of service (temporary, permanent) 	Need for measures to include opportunity for operators to be able to finance move
	<ul style="list-style-type: none"> Resistance from users if site is 'different' (further away, smaller, etc.) 	Need for land to be in an appropriate location to allow on-going use of site (e.g. village hall)
Political	<ul style="list-style-type: none"> No policy at present Uncertainty over LDF policy and extension to public services 	Introduction of LDF policy could help facilitate roll-back for hotels and guest houses (but may be residual constraints in terms of appropriate, attractive locations for visitors)
	<ul style="list-style-type: none"> Potential interpretation of local people of loss of village facility (e.g. hall) 	Need for clear information to service users over new location, timescale to opening, etc. (may also require engagement with users to identify appropriate location)

Other Properties: Sewage Works, Sewage Pumping Stations, Telephone Exchanges, Mobile Phone Masts

Table 3.10: Intervention Measures for OTHER PROPERTIES (SEWAGE WORKS, SEWAGE PUMPING STATIONS, TELEPHONE EXCHANGES, MOBILE PHONE MASTS)		
Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Need for appropriate siting (e.g. gravity drainage, distant from residences) 	Need for facilitation of purchase/obtaining land appropriate for services to be provided at minimum cost

Table 3.10: Intervention Measures for OTHER PROPERTIES (SEWAGE WORKS, SEWAGE PUMPING STATIONS, TELEPHONE EXCHANGES, MOBILE PHONE MASTS)

Constraint Type	Constraint	Intervention Measures
Socio-Economic	<ul style="list-style-type: none"> Who pays and funding? Cost of relaying sewerage Loss of value of previous investments 	Need to identify responsibility and obtain commitment to undertaken works required
	<ul style="list-style-type: none"> Disruption with relaying of pipes, changes, disruption to service 	Need to ensure that work is included within planned programmes of works so can be undertaken in advance of loss of service
Political	<ul style="list-style-type: none"> No policy at present Uncertainty over LDF policy and extension to these services 	Introduction of LDF policy could help facilitate roll-back
	<ul style="list-style-type: none"> Opposition to new site for sewage works, pumping station, mobile phone mast 	Need for engagement with local community and asset owner to identify appropriate site and obtain agreement in timely fashion

Other Properties: MoD Facility

Table 3.11: Intervention Measures for OTHER PROPERTIES (MoD FACILITY)

Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Need for appropriate land/site 	Need for facilitation of purchase/obtaining appropriate land (likely to be undertaken anyway by MoD, therefore roll-back policy may not affect this land use)
Socio-Economic	<ul style="list-style-type: none"> Funding for new site Disruption to national security 	Likely to be undertaken anyway by MoD to avoid any implications for national security, therefore roll-back policy may not affect this land use
Political	<ul style="list-style-type: none"> Implications of decision of one government body on another Opposition to re-siting of facility Implications for roll-back of other land uses (likely to over-ride planning policies of NNDC) 	Likely to be undertaken anyway by MoD to avoid any implications for national security, therefore roll-back policy may not affect this land use. Unlikely that opposition to re-siting would occur as locations are unlikely to be published prior to re-development (or may move to other MoD sites)

Other Properties: Places of Worship

Table 3.12: Intervention Measures for OTHER PROPERTIES (PLACES OF WORSHIP)

Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Need for appropriate land/site Need car parking Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	Need for facilitation of purchase/obtaining land appropriate that has access to all required services and infrastructure
	<ul style="list-style-type: none"> Lack of cultural history of alternative sites 	Need for land to be in an attractive location that provides necessary cultural requirements

Constraint Type	Constraint	Intervention Measures
Socio-Economic	<ul style="list-style-type: none"> Funding issues (change in quality, size, nature of place of worship) 	Need for measures to include opportunity to finance move
	<ul style="list-style-type: none"> Loss of sense of place (C of E parish is part of the community and cannot be relocated outside the community) 	Requires roll-back to take account of 'whole community' issues but unlikely to be an intervention measure to preserve sense of place – would have to move to new sense of place
	<ul style="list-style-type: none"> Reduction in cultural well-being 	Need for land to be in an appropriate location that provides necessary cultural requirements
Political	<ul style="list-style-type: none"> No policy at present Uncertainty over LDF policy and extension to places of worship 	Introduction of LDF policy could help facilitate roll-back

Historical: Sites of Heritage Importance

Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> context and setting may change with roll-back (could result in loss of designation) may be impossible to move the site in a way that maintains heritage value 	Need for land of similar heritage value (or adjacent to) (but may be residual impacts in terms of loss of context)
Socio-Economic	<ul style="list-style-type: none"> context and setting may change with roll-back (reduction in heritage value) 	Need for land of similar heritage value (or adjacent to) (but may be residual impacts in terms of loss of context)
	<ul style="list-style-type: none"> limited knowledge of site may reduce concerns (no concerns), site may be lost before need for roll-back is identified 	Roll-back policy may not assist with protection of heritage sites
	<ul style="list-style-type: none"> Funding issues (who will pay?) 	Need for measures to include opportunity to finance move
Political	<ul style="list-style-type: none"> No policy at present no specific policy for safeguarding heritage sites (no legislative requirement) low priority compared with other (more immediately visible) land uses 	Introduction of LDF policy could help facilitate roll-back

Historical: Listed Buildings

Constraint Type	Constraint	Intervention Measures
Physical	As residential properties, plus: <ul style="list-style-type: none"> context and setting of building may change with roll-back (could result in loss of listed status) 	Need for land of similar heritage value (or adjacent to) (but may be residual impacts in terms of loss of context)
	<ul style="list-style-type: none"> potential to re-create special features may be limited 	Lack of craftsmanship may make it difficult to replicate special features of listed building

Socio-Economic	As residential properties, plus: <ul style="list-style-type: none"> • context and setting of building may change with roll-back (reduction in heritage value) 	Need for land of similar heritage value (or adjacent to) (but may be residual impacts in terms of loss of context)
	<ul style="list-style-type: none"> • lack of funding for safeguarding listed building and its special features 	Need for identification and funding of skills required to re-create special features of listed building Need for measures to include opportunity to finance move
Political	As residential properties, plus: <ul style="list-style-type: none"> • no specific policy for safeguarding historic buildings (no legislative requirement) 	Introduction of LDF policy could help facilitate roll-back

Agricultural Land

Table 3.15: Intervention Measures for AGRICULTURAL LAND		
Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> • May not be possible to find replacement land without causing loss of another land use • Roll-back not possible 	Roll-back of agricultural land may not be possible (although fields used for specific crops could be rolled back, wholesale roll-back to maintain stock is not possible)
Socio-Economic	<ul style="list-style-type: none"> • Roll-back would require loss of other land uses 	Roll-back of agricultural land may not be possible (although fields used for specific crops could be rolled back, wholesale roll-back to maintain stock is not possible)
	<ul style="list-style-type: none"> • Issue of food security, sustainability (local produce) 	Need for funding if requirement to maintain food security results in change of land use on other fields, woods, grassland, etc.
Political	<ul style="list-style-type: none"> • Issue of food security, sustainability (local produce) 	Potential to roll-back key food crops at expense of other agricultural land use (but opportunities will be limited as overall area of land is likely to reduce)

Caravan Parks

Table 3.16: Intervention Measures for CARAVAN PARKS		
Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> • Lack of appropriate property/land • Need to be near to suppliers • Need to be accessible (major roads, sea) • Need car parking • Need to be in location with appropriate services (water, sewerage, electricity, gas, telephone) 	Need for facilitation of purchase/obtaining land appropriate that has access to all required services and infrastructure
	<ul style="list-style-type: none"> • Need to be in attractive location 	Need for land to be in an attractive location where people want to visit/stay (e.g. with sea view) Need time to plant vegetation and for park to become established so visual impact is limited

Table 3.16: Intervention Measures for CARAVAN PARKS		
Constraint Type	Constraint	Intervention Measures
Physical (continued)	<ul style="list-style-type: none"> Need to provide opportunities to replace site facilities (toilets, shower block, clubhouse, etc.) 	Need for opportunity to purchase/obtain large enough area of land to accommodate all required facilities
	<ul style="list-style-type: none"> Customer base associated with current location 	Need for investment in publicity to address concerns of existing customers that the change of location will not affect their stay and to attract new customers (opportunity to market new site)
Socio-Economic	<ul style="list-style-type: none"> Lack of value in business/existing property/assets Previous investment (e.g. development and maintenance of site facilities) Previous investment in marketing of current location/ facilities 	Need for measures to include opportunity for site owners to be able to finance move and which takes account (to some extent at least) of previous investment in the business
	<ul style="list-style-type: none"> Commitment to local markets, suppliers 	Need for land to be in an appropriate location to allow on-going commitments to be honoured
	<ul style="list-style-type: none"> Uncertainty over future business planning Trade-off between future investment and running current business due to uncertainty of coastal erosion combined with unpredictable nature of business 	Need for process to be implemented that provides some degree of certainty such that business owners can plan for future investment, etc.
Political	<ul style="list-style-type: none"> No policy at present Proposed LDF policy may not be as restrictive for commercial Changing pattern of sea-side holidays, changing levels/type of visitors 	Introduction of LDF policy could help facilitate roll-back for hotels and guest houses (but may be residual constraints in terms of appropriate, attractive locations for visitors)
	<ul style="list-style-type: none"> Political opposition to caravan parks in AONB Possible local opposition to re-locating caravan park 	Need planning attitude to recognise contribution of caravan parks to the area's economy May only be issue where importance of caravan parks to local economy is not realised (unlikely to be the case along North Norfolk coast)

Recreation/Open Space: National Trails and Other Footpaths

Table 3.17: Intervention Measures for RECREATION/OPEN SPACE (NATIONAL TRAILS AND OTHER FOOTPATHS)		
Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Lack of appropriate/available land 	Need for potential for rolling path agreements (or orders)
	<ul style="list-style-type: none"> Needs to run through villages/near facilities from time to time to be attractive to walkers Need for appropriate and accessible entry/exit points 	Need for land to be in an attractive location where people want to walk with access to services and reasonable stretches of path

Table 3.17: Intervention Measures for RECREATION/OPEN SPACE (NATIONAL TRAILS AND OTHER FOOTPATHS)

Constraint Type	Constraint	Intervention Measures
Socio-Economic	<ul style="list-style-type: none"> Funding for securing new agreements, signage, publicity, etc. 	Need for measures to finance roll-back
	<ul style="list-style-type: none"> Loss of enjoyment if path moves away from ‘traditional’ line or away from coast (especially if path is realigned along roads) 	Need for land to be in an attractive location where people want walk with access to services and reasonable stretches of path
Political	<ul style="list-style-type: none"> low priority compared with other (more immediately visible) land uses 	Need for footpaths to be fully considered within any roll-back policy (or land uses being considered)

Recreation/Open Space: Slipways

Table 3.18: Intervention Measures for RECREATION/OPEN SPACE (SLIPWAYS)

Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> difficulty of maintaining access on eroding coastline has to be located on coastline and allow safe access 	Need for maintenance of appropriate site(s) to ensure continued access for boats (may be costing issue in terms of need for repeated construction and repair)
Socio-Economic	<ul style="list-style-type: none"> cost/funding for continued repair 	Need for on-going funding to provide continuous access for re-construction and repairs
Political	<ul style="list-style-type: none"> may be lack of political will to replace slipways for fishing 	Need for local importance of slipways to be fully considered within any roll-back policy (or land uses being considered)

Recreation/Open Space: Parks and Playgrounds

Table 3.19: Intervention Measures for RECREATION/OPEN SPACE (PARKS, PLAYGROUNDS)

Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Lack of appropriate/available land Needs to be near to villages to be attractive for recreation 	Need for facilitation of purchase/obtaining land appropriate that is suitably accessible
Socio-Economic	<ul style="list-style-type: none"> Loss of value of open spaces if there is a change in quality or type (e.g. woodland to grass) 	No roll-back mechanism available, can only provide same area (or increased). Change in type of open space is almost inevitable
	<ul style="list-style-type: none"> Funding for purchasing new land to act as open space 	Need for measures to finance roll-back
Political	<ul style="list-style-type: none"> Need to meet targets for open space 	Need to ensure that open space is provided over same (or greater) area than previously. May be an opportunity to provide open space where it would be most used

Golf Courses

Table 3.20: Intervention Measures for GOLF COURSES		
Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Lack of appropriate/available land Needs to be near other holes/tees to be viable as continuous golf course (but could cross over road) 	Need for facilitation of purchase/obtaining land appropriate that is suitably accessible
	<ul style="list-style-type: none"> Limitations over distance to roll-back if maintaining 'links' style 	Need for land to be coastal such that 'links' quality can be retained
	<ul style="list-style-type: none"> Need for free draining/good drainage (or amenable to inclusion of poorly drained areas as water hazards, etc.) 	Need for good draining soil (or potential to introduce drainage to site)
Socio-Economic	<ul style="list-style-type: none"> Cost of purchasing new land Investment in existing infrastructure 	Need for measures to include opportunity for owners to be able to finance move and which takes account (to some extent at least) of previous investment in the course
Political	<ul style="list-style-type: none"> No policy at present 	Introduction of LDF policy could help facilitate roll-back (but may be residual constraints in terms of appropriate, attractive locations for visitors, especially if 'links' nature of course is lost/changed)
	<ul style="list-style-type: none"> Regional and national policy over golf courses Use of land for golf course rather than competing roll-back uses may raise objections, opposition 	Need for engagement with local community and asset owner to identify appropriate site and obtain agreement

Roads

Table 3.21: Intervention Measures for ROADS		
Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Available land for re-routing lost stretches of road 	Compulsory purchase powers already exist for road improvements (main issue is cost)
	<ul style="list-style-type: none"> Use of land for roads may facilitate roll-back of other land uses (access) or may hinder it (take up of land, loss of continuous bands/area of land) 	Opportunity for new roads to encourage/allow roll-back of other land uses
Socio-Economic	<ul style="list-style-type: none"> Funding issues in terms of priorities (particularly for local access roads) 	Highways Agency, county council will have to finance move, which may take money away from other road improvement projects
	<ul style="list-style-type: none"> Diversions and disruption to communities and businesses 	Minor inconvenience compared with much larger disruption/diversions that would be required if many roads are eroded
Political	<ul style="list-style-type: none"> May be low priority compared with other road requirements elsewhere in county, nationally Issue of who is responsible (local, county, national governments) 	Compulsory purchase already in existence and should be sufficient to allow roll-back of roads (main issue is cost)
Other transport infrastructure	<ul style="list-style-type: none"> Roads only at risk in affected area – similar impacts may exist for railway 	-

Environmental Sites

Table 3.22: Intervention Measures for ENVIRONMENTAL SITES		
Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Habitats may not be re-creatable elsewhere (cliff top habitats – but may occur naturally as other land uses roll-back, depending on geology) 	Roll-back is unlikely to be appropriate for all habitat types
	<ul style="list-style-type: none"> Lack of appropriate/available land 	Available land may be particular constraint and may require considerable time to identify appropriate site. Need for mechanism to allow appropriate site to be identified and purchased
Socio-Economic	<ul style="list-style-type: none"> Funding and cost of re-creating habitats (locally, regionally) 	Need for measures to include opportunity to be able to finance roll-back
Political	<ul style="list-style-type: none"> No policy at present May be opposition to roll-back of environmental sites if this impinges on roll-back for other land uses Need to meet Government targets (e.g. BAP) may raise priority over other land uses 	Would require policy for habitats other than Natura 2000. Could build on BAP policies as way of re-creating particular habitats

Lifesaving and Emergency

Table 3.23: Intervention Measures for LIFESAVING AND EMERGENCY		
Constraint Type	Constraint	Intervention Measures
Physical	<ul style="list-style-type: none"> Difficulty of maintaining access on eroding coastline Has to be located on coastline and allow safe access 	Need for maintenance of appropriate site(s) to ensure continued access for boats (may be costing issue in terms of need for repeated construction and repair). Issues such as time for ambulances, fire engines linked to roads
Socio-Economic	<ul style="list-style-type: none"> Funding for continued maintenance and repair May be safety issues for lifeboat crew as coast erodes 	Need for on-going funding to provide continuous access for re-construction and repairs (and safe access/egress)
Political	<ul style="list-style-type: none"> No policy at present May provide political opportunity for combining services (e.g. in major towns, locations) 	Introduction of LDF policy could help facilitate roll-back

3.3.3 Indicative Costs of Intervention Measures

The next step is to identify mechanisms that would allow the intervention measures to be implemented. It is implementation of these mechanisms that provides the basis for costing the measures. Table 3.24 provides a summary of all the intervention measures identified in Section 3.3.2, the land uses to which they are relevant and provides a description of the likely costs of implementation. It is important to note that all of the constraints need to be reduced/removed (or, as a minimum, the key constraints) if roll-back as a policy is to be successful. This will require packages of mechanisms to

be implemented (in this section it is assumed that all mechanisms are to be implemented).

Table 3.24: Mechanisms to Implement Intervention Measures		
Intervention Measures	Relevant Land Uses	Mechanisms to Deliver Measures
Need for facilitation of purchase/obtaining land appropriate for residential development that has access to all required services and infrastructure	<ul style="list-style-type: none"> Residential properties Historical: listed buildings 	<ul style="list-style-type: none"> Cost of identifying appropriate land Cost of negotiations to purchase Cost of purchase of land
Need for facilitation of purchase/obtaining land appropriate for commercial development that has access to all required services and infrastructure. The actual requirements may vary by business type such that the mechanism may need to be flexible	<ul style="list-style-type: none"> Commercial properties Hotels, guest houses Residential institutions (e.g. care homes) Non-residential institutions (also needs to be close to users) Assembly and leisure Other properties: places of worship Caravan parks 	
Need for facilitation of purchase/obtaining land appropriate that is suitably accessible	<ul style="list-style-type: none"> Recreation/open space: parks and playgrounds 	
Need for land to be in an appropriate location where people want to move to (which may be in local area for some, but away for others)	<ul style="list-style-type: none"> Residential properties Residential institutions (e.g. care homes) 	
Need for land to be in an attractive location where people want to visit	<ul style="list-style-type: none"> Hotels, guest houses Caravan parks 	
Need for land to be in an attractive location where people want to walk with access to services and reasonable stretches of path	<ul style="list-style-type: none"> Recreation/open space: National Trails and footpaths 	<ul style="list-style-type: none"> Cost of identifying appropriate land Cost of negotiations to purchase Cost of purchase of land
Need for land to be coastal such that 'links' quality can be retained	<ul style="list-style-type: none"> Golf courses 	
Need for land to be in an attractive location that provides necessary cultural requirements	<ul style="list-style-type: none"> Other properties: places of worship 	
Need for land of similar heritage value (or adjacent to) (but may be residual impacts in terms of loss of context)	<ul style="list-style-type: none"> Historical: sites of heritage importance Historical: listed buildings 	
Need for facilitation of purchase/obtaining land appropriate for services to be provided at minimum cost	<ul style="list-style-type: none"> Other properties (sewage works, sewage pumping stations, telephone exchanges, mobile phone masts) 	
Need for opportunity to purchase/obtain large enough area of land to accommodate all required facilities	<ul style="list-style-type: none"> Caravan parks 	
Need for good draining soil (or potential to introduce drainage to site)	<ul style="list-style-type: none"> Golf courses 	

Table 3.24: Mechanisms to Implement Intervention Measures		
Intervention Measures	Relevant Land Uses	Mechanisms to Deliver Measures
Available land may be particular constraint and may require considerable time to identify appropriate site. Need for mechanism to allow appropriate site to be identified and purchased	<ul style="list-style-type: none"> Environmental sites 	<ul style="list-style-type: none"> Cost of identifying appropriate land Cost of negotiations to purchase Cost of purchase of land
Need for land to be in an appropriate location to allow on-going commitments to be honoured	<ul style="list-style-type: none"> Commercial properties Hotels, guest houses Residential institutions (e.g. care homes) Caravan parks 	<p>As above plus:</p> <ul style="list-style-type: none"> Cost of lost business/recreation value if roll-back cannot be completed or company moves to another location and uses new suppliers
Need for land to be in an appropriate location to maintain level of service and allow users to maintain access	<ul style="list-style-type: none"> Non-residential institutions Assembly and leisure 	
Need to ensure that open space is provided over same (or greater) area than previously. May be an opportunity to provide open space where it would be most used	<ul style="list-style-type: none"> Recreation/open space: parks and playgrounds 	
Need time to plant vegetation and for park to become established so visual impact is limited	<ul style="list-style-type: none"> Caravan parks 	
Need for potential for rolling path agreements (or orders)	<ul style="list-style-type: none"> Recreation/open space: National Trails and footpaths 	<ul style="list-style-type: none"> Cost of investing in land and infrastructure which may require up to five years before it is ready to yield any return Cost of identifying appropriate land Cost of negotiating agreements with landowners
Need for investment in publicity to address concerns of existing customers that the change of location will not affect their stay and to attract new customers (opportunity to market new site)	<ul style="list-style-type: none"> Hotels, guest houses Caravan parks 	<ul style="list-style-type: none"> Cost of preparing publicity about move and its advantages Cost of distributing (making available) publicity material
Need for clear information to service users over new location, timescale to opening, etc. (may also require engagement with users to identify appropriate location)	<ul style="list-style-type: none"> Non-residential institutions Assembly and leisure 	
Need for measures to include opportunity to be able to finance move (see also Task 4 – adaptation measures)	<ul style="list-style-type: none"> Residential properties Commercial properties Residential institutions (e.g. care homes) Non-residential institutions Assembly and leisure Other properties: places or worship Historical: sites of heritage importance Historical: listed buildings Recreation/open space: National Trails and footpaths Recreation/open space: parks and playgrounds Golf courses Environmental sites 	<ul style="list-style-type: none"> Need for funding (national, regional, local) that will provide the capital required to provide owners/operators with the money needed to undertake mechanisms Cost of setting up approach for application for funding Cost of application Cost of assessing applications Cost of distributing funds

Table 3.24: Mechanisms to Implement Intervention Measures		
Intervention Measures	Relevant Land Uses	Mechanisms to Deliver Measures
Need for measures to include opportunities for site owners to be able to finance move and which takes account (to some extent at least) of previous investment in the business	<ul style="list-style-type: none"> Hotels, guest houses Residential institutions (e.g. care homes) Caravan parks 	<ul style="list-style-type: none"> Need for funding (national, regional, local) that will provide the capital required to provide owners/operators with the money needed to undertake mechanisms Cost of setting up approach for application for funding Cost of application Cost of assessing applications Cost of distributing funds
Need for identification and funding of skills required to re-create special features of listed building	<ul style="list-style-type: none"> Historical: listed buildings 	
Need for funding if requirement to maintain food security results in change of land use on other fields, woods, grassland, etc.	<ul style="list-style-type: none"> Agricultural land 	
Need for on-going funding to provide continuous access for re-construction and repairs	<ul style="list-style-type: none"> Recreation/open space: slipways Emergency and lifesaving 	
Need to identify responsibility and obtain commitment to undertake works required	<ul style="list-style-type: none"> Other properties (sewage works, sewage pumping stations, telephone exchanges, mobile phone masts) 	<ul style="list-style-type: none"> Cost of identifying who is responsible for which services and when they could be eroded Cost of obtaining agreement to undertake works in advance Cost of works
Need to ensure that work is included within planned programmes of works so can be undertaken in advance of loss of service	<ul style="list-style-type: none"> Other properties (sewage works, sewage pumping stations, telephone exchanges, mobile phone masts) 	
Need for process to be implemented that provides some degree of certainty such that business owners can plan for future investment, etc.	<ul style="list-style-type: none"> Commercial properties Hotels, guest houses Residential institutions (e.g. care homes) Caravan parks 	<ul style="list-style-type: none"> Cost of publicising availability of funding/help for roll-back Cost of providing advice and assistance to those wanting to undertake roll-back Cost of mediation between conflicting bodies (particularly at outset)
Difficult to offset stress of move through intervention measure, but any action to allow roll-back should help reduce stress associated with uncertainty over future	<ul style="list-style-type: none"> Residential properties 	
Introduction of LDF policy would help ensure replacement of properties but would reduce flexibility for people and may affect the extent that the above intervention measures can meet the specific requirements of those whose property has been eroded (particularly in terms of community links and sense of place)	<ul style="list-style-type: none"> Residential properties Historical: listed buildings 	<ul style="list-style-type: none"> Cost of publicising policy and what it means Cost of dealing with those who consider policy means they are being 'abandoned' Cost of dealing with complaints and problems associated with roll-back policy as it is implemented

Table 3.24: Mechanisms to Implement Intervention Measures		
Intervention Measures	Relevant Land Uses	Mechanisms to Deliver Measures
Introduction of LDF policy could help facilitate roll-back	<ul style="list-style-type: none"> Commercial properties Hotels, guest houses (but may be residual constraints in terms of appropriate, attractive locations for visitors) Residential institutions (e.g. care homes) Non-residential institutions Assembly and leisure Other properties (sewage works, sewage pumping stations, telephone exchanges, mobile phone masts) Other properties: places of worship Historical: sites of heritage importance Caravan parks Emergency and lifesaving 	<ul style="list-style-type: none"> Cost of publicising policy and what it means Cost of dealing with those who consider policy means they are being ‘abandoned’ Cost of dealing with complaints and problems associated with roll-back policy as it is implemented
Introduction of LDF policy could help facilitate roll-back (but may be residual constraints in terms of appropriate, attractive locations for visitors, especially if ‘links’ nature of course is lost/changed)	<ul style="list-style-type: none"> Golf courses 	
Need for engagement with local community and asset owner to identify appropriate site and obtain agreement in timely fashion	<ul style="list-style-type: none"> Other properties (sewage works, sewage pumping stations, telephone exchanges, mobile phone masts) Caravan parks Golf courses 	<ul style="list-style-type: none"> Cost of identifying relevant interested individuals Cost of setting up/organising engagement process Cost of undertaking engagement Cost of reporting findings Cost of acting on findings
Potential to roll-back key food crops at expense of other agricultural land use (but opportunities will be limited as overall area of land is likely to reduce)	<ul style="list-style-type: none"> Agricultural land 	<ul style="list-style-type: none"> Cost of change in land use (may be wider cost to environment, visitors, etc.)
Need for footpaths to be fully considered within any roll-back policy (or land uses being considered)	<ul style="list-style-type: none"> Recreation/open space: National Trails and footpaths 	<ul style="list-style-type: none"> Cost of publicising importance to local economy Cost of developing footpath/slipway policy in eroding areas
Need for local importance of slipways to be fully considered within any roll-back policy (or land uses being considered)	<ul style="list-style-type: none"> Recreation/open space: slipways 	
Would require policy for habitats other than Natura 2000. Could build on BAP policies as way of re-creating particular habitats	<ul style="list-style-type: none"> Environmental sites 	<ul style="list-style-type: none"> Cost of developing policy for other habitats in eroding areas
Need planning attitude to recognise contribution of caravan parks to the area’s economy	<ul style="list-style-type: none"> Caravan parks 	<ul style="list-style-type: none"> Cost of providing guidance to planners on the relationship between caravan sites and the local economy

Each of these mechanisms needs to be costed such that indicative costs for roll-back overall can be estimated. Table 3.25 sets out for each mechanism the types of costs that would be incurred, by whom and the unit costs (e.g. per hour costs for staff). The estimates given in Table 3.25 are based on literature/Internet services and costs held by RPA and the project team from previous experience.

Mechanism	Cost Types	Costs To...	Costs per unit	Units Required
Cost of identifying appropriate land	Time - to search for available and appropriate land	Land/business owner	£133 per hour (estate agent)	40 hours
Cost of negotiations to purchase	Time and legal costs	Land/business owner plus seller	£180 per hour (solicitor) £133 per hour (estate agent)	40 hours (solicitor) 20 hours (estate agent)
Cost of purchase of land	Cost of the land itself (the LDF regards the provision of land for houses lost to erosion as an 'exceptions policy' such that the purchase price of land should tend towards the value for agricultural land)	Land/business owner	£12,300 per ha agricultural land £4,900 per ha poor quality/woodland £25,000 per ha small parcels suitable for grazing £375,000 per ha for land with limited planning permission (assumed to include services, road access, etc.)	included below
Cost of lost business/ recreation value if roll-back cannot be completed or company moves to another location and uses new suppliers	Cost to local community (not likely to be significant at national level)	Local community Local businesses	Will depend on business, links to local economy and whether company moves out of area (or is lost if roll-back is not undertaken)	
Cost of investing in land and infrastructure which may require up to five years before it is ready to yield any return	Capital cost Cost of borrowing (plus interest)	Land/business owner	5% interest charged per year (compound over 5 years to 28% overall, assuming no money can be paid back for 5 years)	
Cost of negotiating agreements with landowners	Time and legal costs	Land/business owner plus seller	£180 per hour (solicitor) £133 per hour (estate agent)	40 hours (solicitor) 20 hours (estate agent)
Cost of preparing publicity about move and its advantages	Cost of designing and producing materials (plus printing if hard copy or updating web-sites, or both)	Land/business owner	£150/1000 A4 leaflets	

Table 3.25: Indicative Costs for Each Mechanisms				
Mechanism	Cost Types	Costs To...	Costs per unit	Units Required
Cost of distributing (making available) publicity material	Cost of advertising Cost of delivering materials (to local shops, TIC, sending to previous customers)	Land/business owner	£200 (web-site updates (own and trade/tourism), delivering leaflets, etc.)	
Need for funding (national, regional, local) that will provide the capital required to provide owners/operators with the money needed to undertake mechanisms	Cost of providing funding (making money available)	Government? NNDC? Other (e.g. banks)?	10% funder charge (unless organised by public body)	
Cost of setting up approach for application for funding	Cost of setting up body to organise and run funding applications	Government? NNDC?	1 additional FTE to organise funding (£50,000 including salary, superannuation and add-on costs)	
Cost of application	Cost of completing application for funding	Land/business owner	£100 per hour (land/business owner)	16 hours
Cost of assessing applications	Cost of reviewing applications for funding	Government? NNDC?	£100 per hour (land/business owner)	8 hours
Cost of distributing funds	Cost of distributing funds, e.g. sending out cheques, setting up bank transfers	Government? NNDC?	Part of additional 1 FTE's job	
Cost of identifying who is responsible for which services and when they could be eroded	Costs of identifying appropriate asset/utilities and contacting	Government? NNDC? Utility	£100 per hour (council officers, utility)	16 hours
Cost of obtaining agreement to undertake works in advance	Costs of consultation with utilities, inclusion of works in planning programmes	Government? NNDC? Utility	£100 per hour (council officers, utility)	32 hours
Cost of works	Costs of undertaking works (to utility, to community e.g. from diversions)	Utility Local community Local businesses	Dependent on works Diversion costs will depend on location and duration	
Cost of publicising availability of funding/help for roll-back	Cost of advertising funding options and how to apply	Government? NNDC?	Part of job of additional FTE	
Cost of providing advice and assistance to those wanting to undertake roll-back	Cost of help-desk (from telephone/email to on-site help?)	Government? NNDC? Land/business owner	Part of job of additional FTE	

Table 3.25: Indicative Costs for Each Mechanisms				
Mechanism	Cost Types	Costs To...	Costs per unit	Units Required
Cost of mediation between conflicting bodies (particularly at outset)	Cost of meeting and consensus building Cost of confirming outcomes and gaining agreement from all sides	Government? NNDC? Land/business owner Sellers	£180 per hour (solicitor) £133 per hour (estate agent) £100 per hour (council officers) £100 per hour (land/business owner/sellers)	16 hours
Cost of publicising policy and what it means	Cost of advertising adaptation policy (e.g. letter/leaflet to all those at risk)	Government? NNDC? Land/business owner	£100 per hour (council officers)	24 hours
Cost of dealing with those who consider policy means they are being 'abandoned'	Cost of dealing with phone calls, letters, emails and on-going complaints Costs of responding to media interest	Government? NNDC? Land/business owner Sellers Other interested parties Media companies	£100 per hour (council officers)	40 hours
Cost of dealing with complaints and problems associated with roll-back policy as it is implemented	Cost of dealing with phone calls, letters, emails and on-going complaints Costs of responding to media interest	Government? NNDC? Land/business owner Sellers Other interested parties Media companies	£100 per hour (council officers)	80 hours
Cost of identifying relevant interested individuals	Costs of consultation with at risk businesses and services	Government? NNDC? Land/business owner	Part of job of additional FTE	
Cost of setting up/organising engagement process	Costs of organising meetings with at risk businesses and services (site, invitations, agenda, etc.)	Government? NNDC? Land/business owner	Part of job of additional FTE £100 per hour (council officers) £100 per hour (land/business owner/sellers)	36 hours
Cost of undertaking engagement	Costs of meeting with at risk businesses and services (time, expenses)	Government? NNDC? Land/business owner	Part of job of additional FTE £100 per hour (council officers) £100 per hour (land/business owner/sellers) £180 per hour (solicitor) £133 per hour (estate agent)	16 hours

Table 3.25: Indicative Costs for Each Mechanisms				
Mechanism	Cost Types	Costs To...	Costs per unit	Units Required
Cost of reporting findings	Costs of writing up findings of meetings and getting sign-off from those present	Government? NNDC? Land/business owner	Part of job of additional FTE £100 per hour (council officers) £100 per hour (land/business owner/sellers) £180 per hour (solicitor) £133 per hour (estate agent)	16 hours
Cost of acting on findings	Cost of responding to action points and providing outcomes promised Time/cost to manage expectations	Government? NNDC? Land/business owner	Part of job of additional FTE £100 per hour (council officers)	40 hours
Cost of change in land use (may be wider cost to environment, visitors, etc.)	Opportunity cost from use of land for agriculture rather than current/alternative use	Linked to other land use (may be environmental cost)	Will depend on the change, current and future land use	
Cost of publicising importance to local economy	Cost of highlighting importance of footpaths - preparation of reports, leaflets and advertising findings	Government? County Council NNDC Footpath/walker groups	£100 per hour (council officers)	80 hours
Cost of developing footpath/slipway policy in eroding areas	Cost of identifying appropriate policy Cost of justifying policy (e.g. in face of complaints)	Government? NNDC? Footpath/walker groups? Local community? Local businesses? Landowners?	£100 per hour (council officers)	120 hours
Cost of developing policy for other habitats in eroding areas	Cost of identifying appropriate policy Cost of justifying policy (e.g. in face of complaints)	Government? NNDC? Interest groups? Local community? Local businesses? Landowners?	£100 per hour (council officers) £100 per hour (Natural England, etc.)	120 hours
Cost of providing guidance to planners on the relationship between caravan sites and the local economy	Cost of highlighting importance of caravan parks - preparation of reports, leaflets and advertising findings (but likely to have to be seen as independent view if needed to change attitudes)	Caravan park owners Consultants NNDC Interest groups Local community Local businesses	£100 per hour (council officers) £180 per hour (planning consultants) £180 per hour (economic consultants, EEDA)	40 hours

Table 3.25 includes a wide range of different mechanisms, some of which apply per property and some of which are not linked to the number or type of properties affected. Others are only relevant to certain land use types (e.g. commercial properties or caravan parks). Table 3.26 splits the costs into three broad categories:

- those costs that are likely to apply to all properties affected by erosion;
- those costs that are relevant to specific land uses (sub-divided into: commercial properties, caravan parks, utilities, agriculture and environmental sites); and
- those costs that are not linked to the properties but to other mechanisms that need to be put in place to ensure that roll-back can occur.

Table 3.26: Indicative Costs for Each Mechanisms by Type of Cost			
Mechanism	Costs per unit	Units Required	Indicative Cost
<i>Costs that are Likely to Apply to All Properties Affected by Erosion</i>			
Cost of identifying appropriate land	£133 per hour (estate agent)	40 hours	£5,320
Cost of negotiations to purchase	£180 per hour (solicitor) £133 per hour (estate agent)	40 hours (solicitor) 20 hours (estate agent)	£9,860
Cost of purchase of land ('exceptions policy' in LDF is expected to reduce the purchase price of land to similar to the value of agricultural land)	£5,000 agricultural land £2,000 poor quality/woodland £10,000 small parcels suitable for grazing £930,000 for land with limited planning permission (assumed to include services, road access, etc.)	included below	
Cost of rebuilding property (or assets)	£850 per m ² for residential and commercial properties £15,000 per pitch for caravan parks £33 per metre run for footpaths £56,000 per hole (golf course)		
Cost of negotiating agreements with landowners	£180 per hour (solicitor) £133 per hour (estate agent)	40 hours (solicitor) 20 hours (estate agent)	£9,860
Cost of application	£100 per hour (land/business owner)	16 hours	£1,600
Cost of assessing applications	Part of additional 1 FTE's job	See below	
Cost of distributing funds	Part of additional 1 FTE's job	See below	
<i>Costs Relevant to Specific Land Uses (Commercial Properties)</i>			
Cost of lost business/ recreation value if roll-back cannot be completed or company moves to another location and uses new suppliers	Will depend on business, links to local economy and whether company moves out of area (or is lost if roll-back is not undertaken)		
Cost of preparing publicity about move and its advantages	£150/1000 A4 leaflets	£150	£150
Cost of distributing (making available) publicity material	£200 (web-site updates (own and trade/tourism), delivering leaflets, etc.)	£200	£200

Table 3.26: Indicative Costs for Each Mechanisms by Type of Cost			
Mechanism	Costs per unit	Units Required	Indicative Cost
<i>Costs Relevant to Specific Land Uses (Caravan Parks)</i>			
Cost of investing in land and infrastructure which may require up to five years before it is ready to yield any return	5% interest charged per year (compound over 5 years to 28% overall, assuming no money can be paid back for 5 years)	28% of total amount borrowed	
Cost of providing guidance to planners on the relationship between caravan sites and the local economy	£100 per hour (council officers) £180 per hour (planning consultants) £180 per hour (economic consultants, EEDA)	40 hours	£18,400
<i>Costs Relevant to Specific Land Uses (Utilities)</i>			
Cost of identifying who is responsible for which services and when they could be eroded	£100 per hour (council officers, utility)	16 hours	£1,600
Cost of obtaining agreement to undertake works in advance	£100 per hour (council officers, utility)	32 hours	£3,200
Cost of works	Dependent on works Diversion costs will depend on location and duration		
<i>Costs Relevant to Specific Land Uses (Agriculture)</i>			
Cost of change in land use (may be wider cost to environment, visitors, etc.)	Will depend on the change, current and future land use		
<i>Costs Relevant to Specific Land Uses (Recreation/Open Spaces)</i>			
Cost of publicising importance of footpaths to local economy	£100 per hour (council officers)	80 hours	£8,000
Cost of developing footpath/slipway policy in eroding areas	£100 per hour (council officers)	120 hours	£12,000
<i>Costs Relevant to Specific Land Uses (Environmental Sites)</i>			
Cost of developing policy for other habitats in eroding areas	£100 per hour (council officers) £100 per hour (Natural England, etc.)	120 hours	£24,000
<i>Overall or Once-Off Costs Required to Facilitate Roll-Back</i>			
Need for funding (national, regional, local) that will provide the capital required to provide owners/operators with the money needed to undertake mechanisms	10% funder charge (unless organised by public body)		
Cost of setting up approach for application for funding	1 additional FTE to organise funding (£50,000 including salary, superannuation and add-on costs)	1 FTE	£50,000
Cost of publicising availability of funding/help for roll-back	Part of job of additional FTE	See below	
Cost of providing advice and assistance to those wanting to undertake roll-back	Part of job of additional FTE	See below	
Cost of mediation between conflicting bodies (particularly at outset)	£180 per hour (solicitor) £133 per hour (estate agent) £100 per hour (council officers) £100 per hour (land/business owner/sellers)	16 hours	£8,208
Cost of publicising roll-back policy and what it means	£100 per hour (council officers)	24 hours	£2,400

Mechanism	Costs per unit	Units Required	Indicative Cost
Cost of dealing with those who consider policy means they are being 'abandoned'	£100 per hour (council officers)	40 hours	£4,000
Cost of dealing with complaints and problems associated with roll-back policy as it is implemented	£100 per hour (council officers)	80 hours	£8,000
Cost of identifying relevant interested individuals	Part of job of additional FTE	See below	
Cost of setting up/organising engagement process	Part of job of additional FTE £100 per hour (council officers) £100 per hour (land/business owner/sellers)	36 hours	£7,200
Cost of undertaking engagement	Part of job of additional FTE £100 per hour (council officers) £100 per hour (land/business owner/sellers) £180 per hour (solicitor) £133 per hour (estate agent)	16 hours	£8,208
Cost of reporting findings	Part of job of additional FTE £100 per hour (council officers) £100 per hour (land/business owner/sellers) £180 per hour (solicitor) £133 per hour (estate agent)	16 hours	£8,208
Cost of acting on findings	Part of job of additional FTE £100 per hour (council officers)	40 hours	£4,000

The costs in Table 3.26 can be used to identify indicative administrative and legal costs of £27,000 per property of roll-back, including preparation of applications for funding, identification of appropriate land and negotiations for purchase. In addition, there will be costs associated with purchasing land and costs of building the replacement property. These are also given in Table 3.26, with the cost of purchasing land for buildings (residential or commercial) taken as £930,000 per hectare for land with this assumed to represent land with limited planning permission and which includes the costs of access to services and roads, etc¹². For other land uses, it is assumed that land can be purchased at an agricultural land rate of £12,300 per hectare. Rebuild costs are taken at an average of £850 per m² for property. The costs per property associated with applying for funding and negotiating purchase of land (i.e. the administration and legal costs) could be reduced if different options are used to implement roll-back. The implications in terms of potential cost reductions are considered as part of Task 4. Here it is assumed that the indicative costs are those set out in Table 3.26.

¹² The LDF regards the provision of alternative sites for houses lost to erosion as an 'exceptions policy' that would allow construction of new housing on land that would not otherwise gain consent. This should reduce the potential for speculative developers to move in and buy up cheap land and sell it on when it gets consent. The effect of this policy should be to reduce the purchase price of land for replacement dwellings to between agricultural and residential values, probably tending towards agricultural values. Thus, the cost estimates provided for roll-back are likely to be over-estimates when considering the purchase price of land and are given here as a worst case.

Other land uses are expected to incur additional costs, including costs associated with publicising the change in location (for all commercial properties and services). The rebuild costs for caravan parks are based on a cost per pitch, while for golf courses the rebuild costs are per hole (assuming that loss of any key part of the hole would result in relocation of the entire hole). The costs of re-building footpaths are estimated at £33 per metre run (based on overall costs from the Task 1 report) and replacement of major roads at £120 per metre run (based on a 6.4m wide with bitumen coating).

The total indicative costs of roll-back are estimated by multiplying the number of properties affected by the area of land required and the cost of purchasing land, plus the rebuild costs for the floor area of the property. The per property administration and legal costs are also multiplied by the number of properties affected. Different floor areas are used for residential properties (62m² based on the flood area of a post-1985 detached property) and for commercial properties (varying from 80m² for a caravan pitch to 3,000 m² for a hotel or residential care home, based on typical floor space as given in the Multi-Coloured Manual). Costs have been estimated for the three SMP epochs to illustrate how the costs increase over time, as a greater number of properties is affected. Table 3.27 presents the main assumptions and costs for Epoch 1 (to 2025), Table 3.28 presents the same information for Epoch 2 (to 2055) and Table 3.29 provides the estimates for Epoch 3 (to 2105). In all cases, the number of properties (and type) affected have been based on datasets provided by North Norfolk District Council or using the maps which form part of the SMP.

Table 3.27 shows that the overall total roll-back costs are estimated at £16 million for Epoch 1 (all costs are given to two significant figures to highlight uncertainty in the estimates and the indicative nature of the cost calculations). The costs for residential properties (£1.4 million) and caravan parks (£4.9 million) are the most significant relocate/rebuild cost estimates. The overall costs are broken down into £11 million for land purchase and rebuild across all properties and land use types (£1.8 million for land purchase and £9.0 million for rebuild). These costs include £1.4 million borrowing costs for caravan parks that are incurred because the site has to be prepared up to five years in advance to make it attractive and useable. The one-off and non-property related costs total almost £2.2 million, much of which is made up of a 10% funder's charge (£1.1 million).

For Epoch 2 (Table 3.28), the costs have increased to £59 million. Again, the majority of the costs are associated with land purchase and rebuild for residential properties (£24 million) and caravan parks (£10 million). The borrowing costs for caravan park owners are also significant, at £2.8 million. The funder's fee in Epoch 2 increases to £4.2 million (all of the non-property specific costs are assumed to have been incurred in Epoch 1, except the FTE costs for the funding post which is required in each year).

The results in Table 3.29 for Epoch 3 (to 2105) shows that the costs have increased considerably over those of Epochs 1 and 2. This is to be expected as the number of properties affected is significantly greater. The overall estimated cost of roll-back for Epoch 3 is £120 million. This includes £55 million for residential properties, £13 million for hotels and guest houses and £7.4 million for caravan parks. Due to the smaller number of caravan pitches affected in Epoch 3, the borrowing costs for

caravan park owners have reduced to £2.1 million. Other significant costs include £3.4 million for replacement of the main/coast road linking villages and £4.9 million for land purchase and rebuild of commercial properties (mainly offices, cafés/restaurants and shops). The large number of residential properties requiring roll-back (655) means that the administration and legal costs for these properties alone are estimated at £18 million.

The overall indicative costs of roll-back can be estimated by summing the costs across the three epochs:

- Epoch 1 (to 2025): £16 million;
- Epoch 2 (to 2055): £59 million; and
- Epoch 3 (to 2105): £120 million.

This gives total indicative costs for roll-back of **£190 million** (to two significant figures). Of this, costs for residential properties make up 56% of the total costs, with costs for caravan parks at 12%. The third most significant cost is the non-property specific cost at 10% (which is mainly comprised of the funder's fee associated with obtaining and retaining the appropriate level of funding to allow roll-back to be undertaken; if this role were undertaken by a public body, the costs could be reduced). Following this, hotels/guest houses make up 8%, with other commercial properties at 4%.

The current calculations tend to assume that it is the property owner or an anonymous funder that would incur the costs associated with negotiations and agreements for land purchase and rebuild. Costs to North Norfolk District Council (NNDC) are mainly associated with development of the appropriate policies and research to highlight the importance of key sectors such as caravan parks, and dealing with complaints from those who feel abandoned by the decision to roll-back (estimated at around £77,000). Other non-property specific costs are not allocated to any specific body, although the £50,000 per year post¹³ to organise, promote and run the funding scheme for roll-back (including providing a help-desk and assessing applications for funding) could be undertaken by NNDC. Many of the engagement and publicity activities may also have to be undertaken by NNDC if it takes on responsibility for organising the funding scheme (at an additional cost of £38,000). Some of these activities may have to be repeated during the 100 year time horizon of the SMP, such that these costs would recur.

¹³ This includes salary, superannuation and on-costs.

Table 3.27: Estimated Indicative Costs for Roll-Back in Epoch 1 (costs not rounded)													
EPOCH 1	Number affected	Area of land required (m2)	Cost per m2 (plot)	Total costs (land)	Costs of rebuild or infrastructure	Total costs (build)	TOTAL	Agreement costs	TOTAL	Land Use Specific costs	TOTAL	Details	
Residential property	51	333	£93	£1,579,419	£850	£2,687,700	£4,267,119	£27,000	£1,377,000				
Commercial property	4	250	£93	£93,000	£850	£850,000	£943,000	£27,000	£108,000	£350	£1,400	Costs associated with publicising move to new location	
Hotels, guest houses	0	-	£93	£0	£850	£0	£0	£27,000	£0	£350	£0		
Residential institutions	0	-	£93	£0	£850	£0	£0	£27,000	£0	£350	£0		
Non-residential institutions	0	-	£93	£0	£850	£0	£0	£27,000	£0	£350	£0		
Assembly and leisure	1	300	£93	£27,900	£850	£255,000	£282,900	£27,000	£27,000	£350	£350		
Other properties	0	-	£93	£0	£850	£0	£0	£27,000	£0	£350	£0		
Other properties (utilities)	1	-	-	-	-	-	-	£4,800	£4,800	-			
Historical	0	333	£93	£0	£850	£0	£0	£27,000	£0	£350	£0		
Agricultural land	0	-	£93	£0	-	-	£0	£27,000	£0				
Caravan parks	327	80	£1	£32,177	£15,000	£4,905,000	£4,937,177	£27,000	£108,000	£1,412,650	£1,412,650	£18,000	Costs of new policy
Recreation/open space	0	-	£1	£0	£33	£0	£0	£27,000	£0	(borrowing costs for caravan parks)		£8,000	
Environmental sites	0	-	£93	£0	£0	£0	£0	£27,000	£0	-		£24,000	
Golf courses	0	-	£1	£0	£55,556	£0	£0	£27,000	£0	-			
Roads	0	-	£1	£0	£120	£0	£0	£27,000	£0	-			
Lifesaving and emergency	2	200	£93	£37,200	£850	£340,000	£377,200	£27,000	£54,000	£350	£700		

Table 3.28: Estimated Indicative Costs for Roll-Back in Epoch 2 (costs not rounded)												
EPOCH 2	Number affected	Area of land required (m2)	Cost per m2 (plot)	Total costs (land)	Costs of rebuild or infrastructure	Total costs (build)	TOTAL	Agreement costs	TOTAL	Land Use Specific costs	TOTAL	Details
Residential property	283	333	£93	£8,764,227	£850	£14,914,100	£23,678,327	£27,000	£7,641,000			
Commercial property	6	250	£93	£139,500	£850	£1,275,000	£1,414,500	£27,000	£162,000	£350	£2,100	Costs associated with publicising move to new location
Hotels, guest houses	1	3,000	£93	£279,000	£850	£2,550,000	£2,829,000	£27,000	£27,000	£350	£350	
Residential institutions	1	3,000	£93	£279,000	£850	£2,550,000	£2,829,000	£27,000	£27,000	£350	£350	
Non-residential institutions	0	0	£93	£0	£850	£0	£0	£27,000	£0	£350	£0	
Assembly and leisure	0	300	£93	£0	£850	£0	£0	£27,000	£0	£350	£0	
Other properties	0	0	£93	£0	£850	£0	£0	£27,000	£0	-		
Other properties (utilities)	3	0	£0	-	-	-	-	£4,800	£14,400	-		
Historical	2	333	£93	£61,938	£850	£105,400	£167,338	£27,000	£54,000	£350	£700	
Agricultural land	1	0	£1	£0	-	-	£0	£27,000	£27,000			
Caravan parks	656	80	£1	£62,976	£15,000	£9,840,000	£9,902,976	£27,000	£216,000	£2,833,313	£2,833,313	Costs of new Policy included in Epoch 1
Recreation/open space	614m	1,920	£1	£2,304	£33	£63,360	£65,664	-	-	(borrowing costs for caravan parks)		
Environmental sites	0	0	£1	£0	£0	£0	£0	£27,000	£0	-		
Golf courses	3	64,438	£1	£77,326	£55,556	£166,668	£243,994	£27,000	£54,000	£350	£700	
Roads	860m	8,600	£1	£10,320	£120	£1,032,000	£1,042,320	-	-	-		
Lifesaving and emergency	0	200	£93	£0	£850	£0	£0	£27,000	£0	£350	£0	

Table 3.29: Estimated Indicative Costs for Roll-Back in Epoch 3 (costs not rounded)												
EPOCH 3	Number affected	Area of land required (m2)	Cost per m2 (plot)	Total costs (land)	Costs of rebuild or infrastructure	Total costs (build)	TOTAL	Agreement costs	TOTAL	Land Use Specific costs	TOTAL	Details
Residential property	655	333	£93	£20,284,695	£850	£34,518,500	£54,803,195	£27,000	£17,685,000			
Commercial property	19	300	£93	£27,900	£850	£4,845,000	£4,872,900	£27,000	£513,000	£350	£6,650	Costs associated with publicising move to new location
Hotels, guest houses	5	3,000	£93	£279,000	£850	£12,750,000	£13,029,000	£27,000	£135,000	£350	£1,750	
Residential institutions	0	-	£93	£0	£850	£0	£0	£27,000	£0	£350	£0	
Non-residential institutions	0	-	£93	£0	£850	£0	£0	£27,000	£0	£350	£0	
Assembly and leisure	2	300	£93	£27,900	£850	£510,000	£537,900	£27,000	£54,000	£350	£700	
Other properties	2	300	£93	£27,900	£850	£510,000	£537,900	£27,000	£54,000	-		
Other properties (utilities)	1		£0	-	-	-	-	£4,800	£4,800	-		
Historical	5	333	£93	£154,845	£850	£263,500	£418,345	£27,000	£135,000	£350	£1,750	
Agricultural land	175 ha	175	£1	£210			£210	£27,000	£27,000			
Caravan parks	491	80	£1	£47,088	£15,000	£7,357,500	£7,404,588	£27,000	£162,000	£2,118,645	£2,118,645	Costs of new Policy included in Epoch 1
Recreation/open space	0	-	£1	£0	£33	£0	£0	-	£0	(borrowing costs for caravan parks)		
Environmental sites	0	-	£1	£0	£0	£0	£0	-	£0	-		
Golf courses	4	95,470	£1	£114,564	£55,556	£222,224	£336,788	£27,000	£54,000	£350	£700	
Roads	2830m	28,300	£1	£33,960	£120	£3,396,000	£3,429,960	£27,000	-	-		
Lifesaving and emergency	2	1,000	£93	£186,000	£850	£1,700,000	£1,886,000	£27,000	£54,000	£350	£700	

3.3.4 Opportunities for Roll-back in Relation to Planning Legislation

Opportunities for the implementation of roll-back could be guided by the Core Strategy (Submission) Development Plan Document Policy EN12, which deals with the relocation and replacement of development affected by coastal erosion risk. This policy distinguishes residential properties from commercial and business assets and community facilities as well as stipulating various conditions within which roll-back is allowed to occur. For example, replacements for residential buildings have to be located within or next to selected settlements, in addition to being outside the Coastal Erosion Constraint Area. This policy has the potential to be used in conjunction with Policy EN11 which presumes against enhancing existing or building new development in the Coastal Erosion Constraint Area. Countering the restrictive element of Policy EN11 with adaptation facilitated by EN12 should help lessen the impact of blight and loss of investment¹⁴.

There is the potential for the use of Section 106 planning agreements to ensure any new development in relation to roll-back is performed sensitively. The local planning authority could enter into an agreement with developers of replacement properties to the effect that money could be obtained to help cover the costs of demolishing 'at risk' properties or to subsidise the construction of new roads or community buildings, such as schools. This is likely to be more important in some areas than others, depending on how many and what type of buildings are at risk within which epochs. For example, the Sidestrand Hall School begins to be at risk within the period 2025 to 2055, although the main school building is not at risk until epoch 3. In terms of policies in the Core Strategy (Submission) Development Plan Document, CT 2 Developer Contributions may be relevant for any large development schemes. Additionally SS 6 Access and Infrastructure could be implemented to ensure new developments have adequate access to open space and public services and are well maintained by appropriate infrastructure.

Roll-back provides the opportunity for the construction of replacement buildings which are more energy efficient and include open spaces in their surroundings, thus contributing towards sustainable development as suggested in Strategic Policy SS4 - Environment. New areas of development can be designed to fit with this policy, thus ensuring habitat fragmentation is limited and any urban areas are linked to the countryside. Developments can also be drawn up with reference to other policies including HO 1 on Dwelling Mix and Type, to ensure there is a variety of accommodation available. This fits with comments obtained from workshops with local stakeholders. When considering roll-back, suggestions were made that there should be a flexible approach, the normal planning process should be used and consideration should be given to social needs, for example those of the elderly. Roll-back does not therefore need to be seen as totally separate to normal planning, since there are opportunities within several existing policies to ensure subsequent replacement development is appropriate to the area.

¹⁴ NNDC (2008): **Core Strategy (Submission) Development Plan Document Policy (incorporating all minor modifications 25.01.08).**

3.3.5 Opportunities for Roll-back at the Individual Level

Where owners of coastal plots of land have the space to roll-back within the confines of their own property, planning legislation could be used to facilitate this. For example, in the case of caravan park owners, efforts could be made by the local authority to ensure that roll-back of units on land under the same ownership was not restrained by planning and licensing technicalities. Indeed, workshops held with caravan site owners and operators have indicated that some individuals are actively looking to roll-back on their own land. The opportunity to implement roll-back without having to consider land purchase may not be widespread, but it will exist in some cases and could be actively encouraged with appropriate help and advice.

Roll-back at the individual levels offers significant opportunities in terms of adaptation and regeneration. In the East Riding of Yorkshire, one caravan park used roll-back as the basis for investing in infrastructure improvements. Similar opportunities would arise from roll-back of any commercial property, where design of the rebuild could take account of specific business requirements. Acceptance of roll-back as a feasible policy for moving to an out-of-risk area also requires adaptation and provides the mechanism. At the community level, roll-back provides opportunities for communities to retain inhabitants and businesses, thus promoting community resilience. Careful planning and/or zoning could target where properties can relocate to providing the potential for on-going regeneration of key areas and promote better/stronger linkages between adjacent communities (e.g. by siting of properties where they can be more easily shared). This could also help to retain links with the history and culture of the settlement and the wider area.

3.3.6 Opportunities to Link Roll-back to Other Tasks

Roll-back brings opportunities which relate to the other tasks in this study. For example, Policy EN12 makes reference to the temporary use of vacated buildings for affordable housing. This links into Task 4 where consideration is given to the opportunity to use 'at risk' buildings which do not yet need to be knocked down for time-restricted sale. Although use of empty buildings for affordable housing could help avoid blight associated with unoccupied properties, discussions with council planners have cast doubts on the principle of using buildings with a limited life expectancy for housing vulnerable people, who might subsequently have to be moved again in ten years. There may also be issues if vulnerable people are moved into areas where the range or number of services is reducing. This may result in isolated pockets of communities becoming even more vulnerable, which is likely to be detrimental to community resilience.

Even if 'at risk' houses and other buildings cannot be used themselves, their demolition and roll-back will result in land becoming available on the coast. Assuming the properties are completely cleared away and some landscaping occurs, such plots of land have the potential to be used for touring caravans and tents, for relocatable properties or as public access open space. Use of the area for holiday or temporary habitation could probably fetch quite high rents considering they would have sea views. From discussions with caravan site owners and operators, this is a factor known to command a premium price. The only limitation for use of the area

for caravan or tent pitches would be the distance from facilities such as clubhouses and shower and toilet blocks. Therefore this time-limited use of newly available land would likely be restricted to areas adjacent to coastal caravan sites and the appropriate facilities. However, it could be a means of providing temporary pitches for those site owners who are losing land and hence income. Where newly cleared land is far from caravan sites, there is the possibility of using such areas for relocatable properties which could be moved further inland as health and safety dictated. Otherwise, maintaining the land as public open space could have significant community benefits, with the potential to link neighbouring communities via footpaths that could have recreation and visitor benefits.

3.4 Examination of Potential for Extrapolation to Other Areas

3.4.1 Coverage of Land Use Examples

Many different land uses have been considered for this report. However, due to the small spatial scale of the study when compared with the country as a whole, there are likely to be different uses in other areas which have not been covered, such as small harbours and jetties, coastal fairgrounds and model boating ponds. It would be possible to deal with these uses following the same method of identifying constraints, suggesting intervention measures and looking at the costs involved. There would probably be some overlap of constraints and intervention measures for new land uses with those already considered. For example a coastal fairground, like a golf course, would be constrained by the lack of appropriate or available land.

However, there are likely to be some constraints and associated intervention measures which are very specific to each particular land use. This study included a special workshop for caravan sites, because they are a prominent land use in the area investigated. Caravan site owners and operators may be at risk of losing their home and business, yet they need to retain a coastal location because that is partly what attracts their visitors. This situation may be relevant to other commercial coastal enterprises such as guesthouses, hotels and shops reliant on the tourist trade. Yet there are other points which are only relevant to caravan sites. From discussions it appears that some caravan park owners are trying to invest in the future and gradually roll-back, but they have to balance this with the present demands on their businesses. One stakeholder pointed out that if a park was to roll-back, it would need several years to become established and blend in with the local environment, thus minimising the visual impact and making the park attractive to visitors. This need for landscaping would be unlikely to be so important to other tourism-based businesses such as seafront hotels, or it may be possible to manage the change in different ways. It is a very specific requirement and shows the importance of considering different land uses in detail and not merely combining all land uses in broad groups such as commercial premises. Therefore when considering the coverage of different land use types and potential extrapolation to other areas, there may be some overlap of constraints and intervention measures, but each type of land use does need to be taken account of individually.

3.4.2 Implications for Comprehensiveness of Constraints

In terms of dealing with the practicalities of roll-back, the physical and socio-economic constraints are probably quite comprehensive for each land use considered. However, if the process is put into practice in other areas of the country, there are likely to be different politics and opinions involved, even with underlying similarities in regional planning legislation. Hence the political constraints may be significantly different. Attitudes towards roll-back and how acceptable it is as a way of dealing with coastal change have varied throughout the workshops undertaken as part of this study. When implementing roll-back and allocating land which is in limited supply, there would probably also be conflicting opinions on the importance of different land uses. It may therefore not be possible to generalise when considering political constraints, because by their very nature they will be subject to local variation, and hence require local identification. Universal application of many of the physical and socio-economic constraints to similar land uses may be feasible, because problems such as the need to maintain access to the seashore are likely to be valid in all cases of adaptation to coastal change. In contrast, political constraints will probably show local and/or regional variation, so will need to be identified in each area and not simply inferred from the land uses covered in this study.

3.4.3 Implications for Coverage of Intervention Measures

As shown by the tables given above, several constraints may be dealt with by one intervention measure. In consequence, any new constraints identified in other areas of the country may not necessarily require additional measures. The importance of different constraints will probably vary between land uses and individual cases as well so not all of the intervention measures given will be appropriate or necessary in each instance of roll-back. It may therefore be possible to use the measures already identified to deal with any new constraints which are discovered when extrapolating this roll-back framework to other areas.

3.4.4 Implications for Indicative Costs of Intervention Measures

When considering the extrapolation of the indicative costs of intervention measures to other areas, it is necessary to remember that there will be considerable variation between regions. For example, the price of land or rebuild costs will not be consistent throughout the country. It may therefore not be possible to generalise with respect to specific costs. In addition the extent to which the indicative costs are seen as reasonable in any location will be affected by the likely benefits to be achieved from roll-back. These will be different for each land use and will be affected by various factors, for example, the number of expected visitors to the new site if the enterprise relies on tourism. Whether the costs of intervention measures can be met will be affected by the amount of money individuals have and are prepared to invest in roll-back, and if there is likely to be any funding available from other sources for example local authority or government. These factors may also vary considerably when looking at different areas.

4. SUMMARY

This Task 2 Report gives an account of the processes through which roll-back could occur and an estimate of the extent of the costs involved for the area from Kelling Hard to Eccles on the North Norfolk Coast.

The affected land uses have been identified to produce a comprehensive list ranging from residential and commercial properties to roads, golf courses and places of worship. The different types of constraints preventing the roll-back of each land use have been grouped as:

- physical constraints - concerning availability of land, proximity to infrastructure, roads and services, and specific requirements of particular land uses for example the need for caravan parks to be in an attractive location where tourists will want to stay;
- socio-economic constraints - relating to the issues of declining value in present assets, uncertainty in business planning, funding issues and more intangible aspects such as stress caused by the move; and
- political constraints - dealing with the implications of planning legislation and the lack of specific policies on roll-back as well as local attitudes and opinions on the process.

Intervention measures to deal with these factors perceived as currently limiting roll-back have been suggested, with one measure sometimes being able to address several constraints. For example, for recreation space the need for the facilitation of purchase or obtaining appropriate land that is suitably accessible covers the constraints of lack of available or appropriate land and the need to be near villages to be attractive for recreation.

The indicative cost of mechanisms to implement these measures has been calculated, assuming all the constraints need to be overcome before roll-back can happen. Some costs apply to all land uses. These costs include those required when:

- identifying appropriate land (£5,320 per property);
- negotiating to purchase land (£9,860 per property);
- purchasing land (variable dependent on asset but estimated at around £375,000 for residential/commercial property development to £12,300 for purchasing agricultural land);
- rebuilding (variable dependent on asset but estimated at around £850/m² for property, £15,000 per static caravan pitch and £120 per metre run for replacing main roads);
- setting up and publicising a funding scheme for roll-back (assumed to form a new role for 1 FTE at a cost of £50,000 per year, where this includes salary, superannuation and on-costs);
- applying for funding for roll-back (£1,600 per application);
- assessing applications (part of additional 1 FTE's job); and
- distributing funds (part of additional 1 FTE's job).

Other mechanisms and their associated fees will only be relevant to specific operations. For example, business owners and service providers will have to prepare and distribute publicity about their move in order that their existing (and future) customers can find them.

Not all of the costs would be incurred immediately or even in the short-term; instead they will be dependent on the pattern and timing of coastal erosion. Table 4.1 provides a summary of the indicative cost estimates of roll-back for the three different Epochs of the Shoreline Management Plan. In all three Epochs, the majority of the cost results from land purchase and rebuilding. Within Epoch 1 this stands at nearly £11 million but by Epoch 3 it has risen to around £87 million. Epoch 3 incurs the biggest indicative cost in terms of the money required to finance the mechanisms to enable roll-back and administration and legal costs. However since this period is also the furthest away, it brings the greatest opportunity in terms of financial planning.

Table 4.1: Indicative Costs of Roll-back (all costs given to two significant figures)					
Epoch	No. properties and assets affected	Land purchase and rebuild costs	Admin and legal costs	One-off costs	Total Cost
1 (to 2025)	59 properties 327 pitches 0m main road 0 golf course holes	£11 million	£1.7 million	£1.4 million	£16,000,000
2 (to 2055)	292 properties 656 pitches 860m main road 3 golf course holes	£42 million	£8.2 million	£2.8 million	£59,000,000
3 (to 2105)	679 properties 491 pitches 2,830m main road 4 golf course holes	£87 million	£19 million	£2.1 million	£120,000,000
Total	1,030 properties 1,471 pitches 3,690m main road 7 golf course holes	£140 million	£29 million	£6.4 million	£190,000,000

Within the Core Strategy (Submission) Development Plan Document, there are possibilities for the implementation of roll-back, most notably Policy EN12 on the relocation and replacement of development affected by coastal erosion. Other general planning policies on infrastructure and environment are also relevant. Comments from the workshops held as part of this study have suggested that there is a role for the 'normal' planning process when implementing any roll-back policy. At a more individual level, there is also the opportunity for planning to facilitate the roll-back of individuals on their own land, particularly in the case of caravan parks. It may also be possible to extrapolate aspects of this process to other areas, because some of the constraints and intervention measures are likely to be similar if not the same as those identified on the North Norfolk Coast. However, additional land uses and different local economies and attitudes may mean that more work is required before other areas have sufficient evidence to fully assess the costs and potential for implementation of roll-back.