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Strategic Environmental Assessment of North East Lincolnshire's Local Flood Risk Management Strategy

Non-Technical Summary

Prepared by LUC
July 2014

Project Title: SEA of North East Lincolnshire's Local Flood Risk Management Strategy

Client: North East Lincolnshire Council

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Introduction

- 1.1 North East Lincolnshire Council has commissioned LUC to undertake Strategic Environmental Assessment (SEA) of its emerging Local Flood Risk Management Strategy (LFRMS). The SEA process involves assessing the potential environmental effects of implementing the LFRMS.
- 1.2 This Non-Technical Summary relates to the full SEA Report ('the Environmental Report') for the final draft version of North East Lincolnshire's Local Flood Risk Management Strategy (July 2014), and should be read alongside those two documents.

The Local Flood Risk Management Strategy

- 1.3 The LFRMS has to be consistent with the National Flood and Coastal Erosion Risk Management Strategy, which was produced by the Environment Agency in 2011. It should set out a vision for the management of flood risk in North East Lincolnshire and, although the Flood and Water Management Act specifies some of the key elements that must be included in the LFRMS, it should be locally specific, reflecting key local issues and enabling communities to be more involved in decision-making about flood risk management.
- 1.4 Local flood risk is defined in the Flood and Water Management Act as flood risk from:
 - Surface runoff.
 - Groundwater.
 - Ordinary watercourses (those that do not form part of a 'main river'¹).
- 1.5 The Flood and Water Management Act requires LFRMSs to specify:
 - The risk management authorities within the authority's area (in North East Lincolnshire these are the Environment Agency, the LLFA (North East Lincolnshire Council), the water company (Anglian Water) and the Highways Authority (again, North East Lincolnshire Council).
 - The flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area.
 - The assessment of local flood risk for the purpose of the strategy.
 - The objectives for managing local flood risk (including any objectives included in the authority's flood risk management plan prepared in accordance with the Flood Risk Regulations 2009).
 - The measures proposed to achieve those objectives.
 - How and when the measures are expected to be implemented.
 - The costs and benefits of those measures, and how they are to be paid for.
 - How and when the strategy is to be reviewed.
 - How the strategy contributes to the achievement of wider environmental objectives.
- 1.6 North East Lincolnshire Council must consult risk management authorities (as listed above) that may be affected by the strategy as well as the general public about its LFRMS.
- 1.7 Section 4 of the final draft LFRMS (July 2014) sets out eight overarching objectives for the management of local flood risk in North East Lincolnshire, with more specific measures set out under each objective that will be implemented in order to achieve the headline objective. A glossary of technical terms relating to flood risk management can be found in Section 9 of the LFRMS.

¹ Main rivers are defined as watercourses marked as such on a main river map. Generally main rivers are larger streams or rivers, but can be smaller watercourses.

What is Strategic Environmental Assessment?

- 1.8 Strategic Environmental Assessment (SEA) is a statutory assessment process, required under the Environmental Assessment of Plans and Programmes Regulations (the SEA Regulations). The SEA Regulations transpose the European SEA Directive into UK law. The SEA Directive and Regulations require a Strategic Environmental Assessment to be carried out for UK plans and programmes which are likely to have significant effects (either positive or negative) on the environment.
- 1.9 The SEA process should be undertaken iteratively (that is, in relation to each version of the plan as it is progressed), and involves predicting the likely significant environmental effects of implementing the plan. The aim is that environmental considerations can be taken into account and integrated into the production of the plan in order to improve its overall environmental and sustainability performance.
- 1.10 Guidance on the production of LFRMSs² refers to the need for them to be subject to SEA, stating that "*the Local Flood Risk Management Strategy is likely to require statutory SEA, but this requirement is something the Lead Local Flood Authority must consider*". North East Lincolnshire Council considers that its emerging LFRMS does require SEA and has commissioned LUC to undertake the process on its behalf.

Compliance with the SEA Regulations

- 1.11 The full SEA Report and this Non-Technical Summary have been prepared in accordance with the SEA Regulations. There are a number of specific pieces of information that must be included in the SEA or 'Environmental Report' as well as in the Non-Technical Summary. Table 1.1 in the full SEA Report indicates where each of the requirements of the SEA Directive has been met, and a summary of the required information is provided in this Non-Technical Summary.

Stages in the SEA Process

- 1.12 There are five main stages in SEA and a summary of how these stages have been undertaken for the North East Lincolnshire LFRMS is provided below:
- **SEA Stage A:** Setting the context and objectives, establishing the baseline and deciding on the Scope
 - **SEA Stage B:** Develop options, taking account of assessed effects
 - **SEA Stage C:** Preparing the SEA Report
 - **SEA Stage D:** Consulting on the LFRMS and the SEA Report
 - **SEA Stage E:** Monitoring the significant environmental effects of implementing the LFRMS

SEA Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope

- 1.13 An SEA Scoping report was prepared and consulted upon with the three statutory consultees (Natural England, the Environment Agency and English Heritage) between September and October 2013. While not statutory consultees, Anglian Water and North East Lindsey Drainage Board were also included in the consultation because, due to the nature of the LFRMS, they were considered to be in a good position to comment on the scope of the SEA.
- 1.14 The SEA Scoping stage involved the following main tasks:
- Identification and review of other relevant policies, plans and programmes, strategies and initiatives which may influence the LFRMS.
 - Characterisation of North East Lincolnshire (i.e. describing the economic, social and environmental character of the District).

² Local Government Association (2011) Framework to Assist the Development of the Local Strategy for Flood Risk Management.

- Development of a framework of SEA objectives against which the LFRMS measures and any reasonable alternatives would be assessed.
 - Identification of the key environmental and sustainability issues of relevance to the LFRMS.
- 1.15 A list of the comments received from the consultees at the Scoping stage, along with a description of how each one has been addressed, is provided in Appendix 1 of the full SEA Report. As a result of some of the comments received, some parts of the Scoping Report were revised and updated. The amended baseline information and review of plans, policies and programmes are summarised in Chapter 3 of the full SEA Report and are presented in full in Appendices 2 and 3 respectively of that report. The updated key environmental and sustainability issues are also presented in Chapter 3 of the full SEA Report.

SEA Stage B: Developing and refining alternatives and assessing effects

- 1.16 North East Lincolnshire Council produced a draft version of the LFRMS which was subject to SEA by LUC in January 2014. No 'reasonable alternatives' to the measures included in the draft LFRMS were identified by the Council for the purposes of SEA. The SEA report was published alongside the Draft LFRMS during the consultation period and included a small number of recommendations for minor changes that could be made to the LFRMS in order to improve its sustainability effects, as well as identifying some areas where uncertainty about likely effects existed.
- 1.17 The final version of the LFRMS has now been produced and the SEA report has been updated to reflect the changes that have been made to the objectives and measures since the draft version as well as the comments received during the consultation on the SEA.
- 1.18 A relatively small number of changes have been made to the LFRMS since the draft version. The eight overarching objectives remain unchanged and although a small number of the measures have been re-worded or their order changed, these amendments are minor and do not result in significant changes to the LFRMS or the actions that are likely to result from its implementation.
- 1.19 The SEA for the Draft LFRMS highlighted a number of uncertain minor positive effects in relation to LFRMS objectives 3 and 4, with the uncertainty existing because of a lack of information about the exact nature of actions that might result from the measures. In the final version of the LFRMS, additional information has been added to section 6 of the strategy (Sustainable Development and the Environment), which has removed some of that uncertainty. Appendix D in the final LFRMS shows how the uncertainties identified in the SEA have been addressed through amendments to the LFRMS.

Stage C: Preparing the SEA Report

- 1.20 The SEA report which this Non-Technical Summary relates to is the output of Stage C.

Stage D: Consulting on the LFRMS and the SEA Report

- 1.21 A consultation on the Draft LFRMS took place between January and February 2014, with the document being made available to the statutory environmental bodies as well as a range of other consultees and the general public. An earlier iteration of this SEA Report was published alongside the Draft LFRMS during the consultation.
- 1.22 Comments received were taken into account as the LFRMS was finalised. The comments relating specifically to the SEA have also been taken into account and addressed where relevant as the SEA Report has been updated to reflect the final version of the LFRMS. Appendix 1 in the full SEA report sets out the comments received and how each has been responded to.

Stage E: Monitoring the significant effects of implementing the LFRMS

- 1.23 Proposals for monitoring the significant effects of implementing the North East Lincolnshire LFRMS are set out in Chapter 6 of the full SEA report and are summarised further ahead in this document.

Difficulties Encountered and Data Limitations

- 1.24 The LFRMS is intended to be a relatively high level document, which meant that during the SEA it was at times difficult to reach a judgement regarding the likely effect of a particular measure in the LFRMS on one or more of the SEA objectives. The sort of detailed information regarding exactly what particular actions would involve, which would enable more certainty in the SA judgements, is not set out in the LFRMS due to the nature of the document. As such, there is uncertainty attached to a number of the potential effects (as described in Chapter 5 of the full SEA Report and further ahead in this Non-Technical Summary).

Review of Plans, Policies and Programmes

- 1.25 As described earlier, stage A of the SEA process involves identifying other plans, policies and programmes which may influence the content of the LFRMS. This review was initially carried out as part of the SEA Scoping Report (September 2013) and was updated during the preparation of the full SEA report, following the consultation comments received.
- 1.26 The full review of international, national and regional level plans, policies and programmes that are considered to be particularly relevant to the LFRMS can be found in Appendix 2 of that report, and the key points are summarised below.

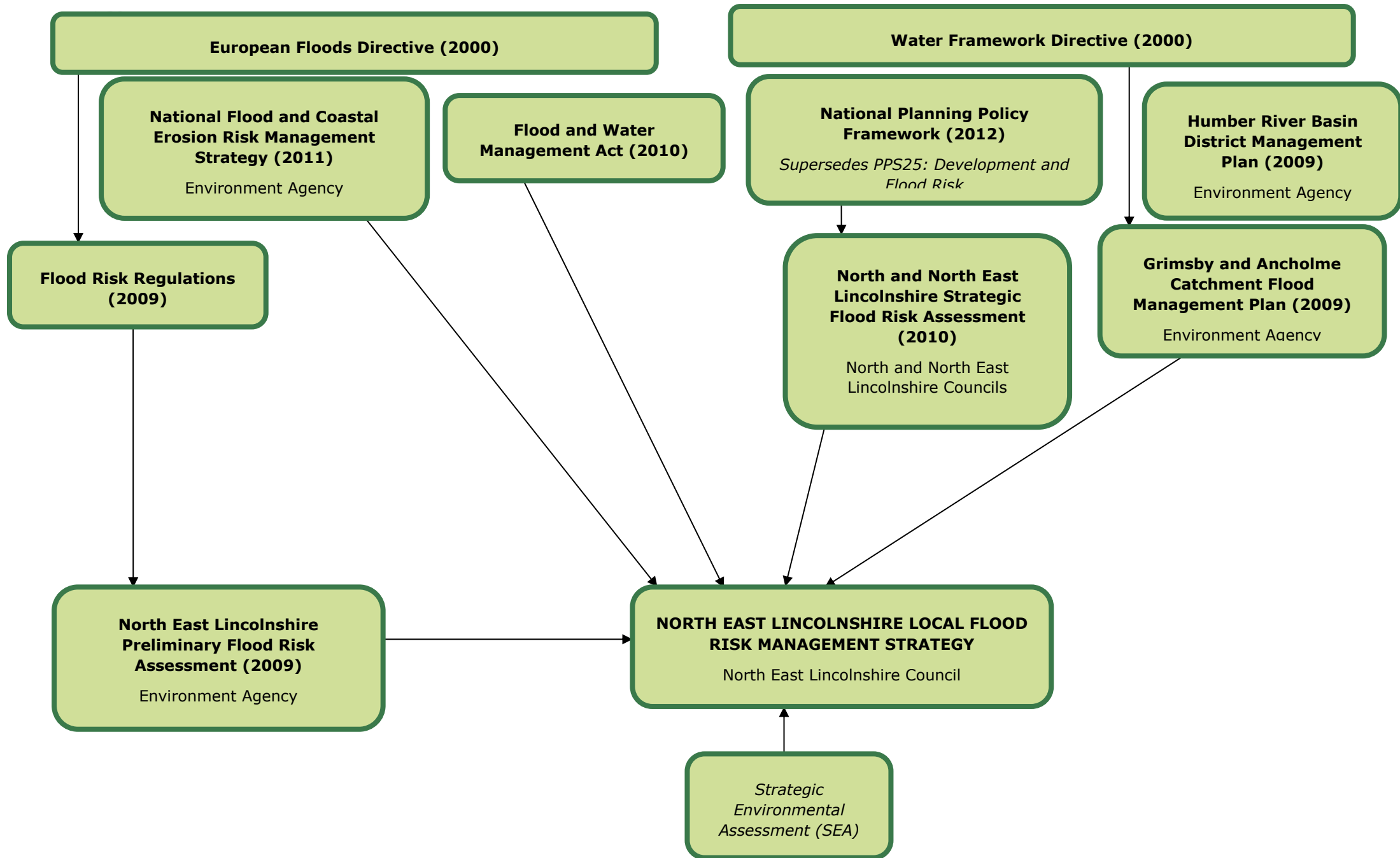
Summary of Review of Plans, Policies and Programmes

- 1.27 Many of the policies, programmes, plans, strategies and initiatives that have been reviewed are indirectly relevant to the LFRMS, for example those that relate to the protection of natural assets including biodiversity and soils. Those that are most directly relevant are summarised below.
- **The EU Floods Directive 2007/60/EC** (2007) requires Member States to assess if all water courses and coast lines are at risk from flooding, to map the flood extent and assets and humans at risk in these areas and to take adequate and co-ordinated measures to reduce this flood risk.
 - **The Water Framework Directive 2000/60/EC** (2000) provides a framework committing EU member states to the protection of inland surface waters, transitional waters, coastal waters and groundwater. There is a requirement to co-ordinate the delivery of the WFD and the Floods Directive (see above), and the Environment Agency is responsible for this in England and Wales.
 - **Flood and Water Management Act** (2010) – This Act sets out the statutory requirement for Lead Local Flood Authorities (LLFAs) such as the North East Lincolnshire Council to produce a strategy for managing local flood risk. It is therefore the legal basis for the production of North East Lincolnshire's LFRMS.
 - **National Flood and Coastal Erosion Risk Management Strategy** (2011) – The Flood and Water Management Act requires all LFRMSs to be in conformity with this Strategy, which encourages more effective risk management by enabling people, communities, business, infrastructure operators and the public sector to work together to achieve better understanding of the risks of flooding both, nationally and locally, so that investment in risk management can be prioritised more effectively. As such, North East Lincolnshire's FRMS must have regard to the contents of the Strategy.
 - **National Planning Policy Framework** (2012) – The NPPF has replaced the suite of planning policy statements and planning policy guidance, including Planning Policy Statement 25 which previously presented national policy in relation to Development and Flood Risk. The NPPF sets out the considerations that local planning authorities need to take account of in order to avoid new development increasing flood risk. The measures included in the emerging FRMS will need to have regard to this national level policy. The information provided in the NPPF is supplemented by the Technical Guidance to the National Planning Policy Framework (2012) which provides additional guidance to local planning authorities to ensure the effective implementation of the planning policy set out in the NPPF on development in areas at risk of flooding. The technical guidance retains key elements of PPS25.

- **North and North East Lincolnshire Strategic Flood Risk Assessment (2010)** – This document establishes the extent of flood risk in North and North East Lincolnshire Districts from rivers, groundwater, surface water and the sea and defines the geographical extent of the various flood risk zones. It is therefore an important part of the evidence base for the production of the LFRMS and the SEA.
- **Flamborough Head to Gibraltar Point Shoreline Management Plan (2010)** - This document addresses shoreline management along the entire coastline of North East Lincolnshire, most of which falls into policy unit L 'East Immingham to Cleethorpes'. In that area, the SMP pursues a policy of hold the line, meaning that the defences will be held in their current position and their function will be maintained. The policy set out in the SMP will provide some of the context for the development of the measures to be included in the LFRMS.
- **North East Lincolnshire's new Local Plan** – The emerging new Local Plan will provide the overarching approach to future development within North East Lincolnshire, and any proposals within the LFRMS must have regard to the policies within it. However, as the new Local Plan is at a very early stage (options for the Plan are currently being developed), it is not yet clear to what extent the LFRMS will be able to be influenced by the Local Plan. The Local Plan should also be influenced by the measures included in the LFRMS.

1.28 **Figure 1** overleaf illustrates the relationships between North East Lincolnshire's emerging LFRMS and other plans and policies relating to flood and water management at the international, national and local levels.

Figure 1: Relationships between the LFRMS and selected other Plans, Policies and Programmes



Baseline Information

- 1.30 Baseline information provides the context for assessing the potential environmental effects and sustainability of measures in the emerging LFRMS and it provides the basis for identifying trends, predicting the likely effects of the LFRMS and monitoring its outcomes.
- 1.31 Annex 1(f) of the SEA Directive requires data to be gathered on biodiversity, population, human health, flora, fauna, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the inter-relationship between the above factors.
- 1.32 The baseline information collated in relation to North East Lincolnshire was originally presented in the SEA Scoping Report (September 2013). In light of the consultation comments received in relation to the Scoping Report, a small number of amendments have been made to the baseline information and the updated version is presented in Appendix 3 of the full SEA Report and key points are summarised below.

The Study Area

- 1.33 North East Lincolnshire District covers an area of 192km² and is located on the east coast of England, between North Lincolnshire District to the north-west, West Lindsey to the west and East Lindsey to the south. The north-eastern boundary of the District is formed by the Humber Estuary.
- 1.34 **Figure 2** below shows the location of North East Lincolnshire District.

Figure 2 Location of North East Lincolnshire District



Summary of Environmental Characteristics

- 1.35 North East Lincolnshire is home to approximately 160,000 people, most of who live in the coastal towns of Grimsby, Cleethorpes and Immingham, with the remainder in the more rural areas of the south and west. Much of the coastal areas of the District lie within flood zones 2 and 3 (areas of medium and high flood risk respectively). In the eastern coastal area of North East Lincolnshire (which includes Grimsby, Cleethorpes and Immingham), the main source of flood risk is a combination of large waves and high water levels in the Humber Estuary.
- 1.36 The Humber Estuary is of international and national importance for biodiversity, being designated as a Special Area of Conservation (SAC), a Special Protection Area (SPA), a Ramsar site and a Site of Special Scientific Interest (SSSI).
- 1.37 Work has recently begun on the first phase of a £20 million flood alleviation scheme in Grimsby, which involves constructing a large concrete wave wall at Grimsby Docks. Work on further phases of the scheme is scheduled to take place in 2014 and 2015. The aim of the work is to reduce the flood risk facing thousands of properties from the Humber Estuary.
- 1.38 Total CO₂ emissions per capita in North East Lincolnshire are higher than regional and national averages. This is mainly due to industrial activities at the ports of Grimsby and Immingham. In 2010, total emissions from industry and commercial sources were 6.8ktCO₂ per capita (this compares to regional and national averages of 4.5ktCO₂ and 3.3ktCO₂ respectively). Domestic carbon emissions in North East Lincolnshire are similar to regional and national averages.
- 1.39 The majority of agricultural land in North East Lincolnshire is classified as Grade 3 agricultural land, with some areas of higher quality (Grade 2) in the southern part of the District (within the Lincolnshire Wolds). The agricultural land in North East Lincolnshire is therefore considered to be relatively flexible, productive and efficient and able to deliver future crops for food and non-food uses. However, it is also noted that ground conditions (in particular the clay content of local soils) have resulted in difficulties with drainage, and can limit the effectiveness of SuDS.

Key Issues and Likely Evolution without the Plan

- 1.40 Reviewing the relevant plans, policies and programmes and considering the baseline character of North East Lincolnshire highlights a number of environmental and sustainability issues facing the District, as set out in **Table 1** below. These issues are relevant to the production of the LFRMS and have been considered throughout the SEA process, in particular having helped to inform the SEA objectives that were set out in the Scoping Report (presented in Chapter 4 of the full SEA Report and summarised below).
- 1.41 The SEA Directive also requires consideration to be given to the likely evolution of the environment in the Plan area if the LFRMS were not to be implemented. **Table 1** also sets out the likely evolution of each of the key environmental and sustainability issues, if the LFRMS were not to be implemented.

Table 1: Key Environmental and Sustainability Issues and Likely Evolution without the LFRMS

Key Environmental and Sustainability Issues	Likely Evolution without the LFRMS
High risk of flooding in the east of the District in particular and the risk of coastal flooding which is likely to increase with climate change. There is a need to ensure the ongoing economic viability of the town centres, which need to be resilient to flood risk and to capitalise on the strength of the Immingham and Grimsby ports to deliver more economic benefits to local communities,	Without the implementation of the LFRMS, a number of other plans and strategies relating to flood risk management would still apply and would address this issue to some extent, including relevant policies in the emerging North East Lincolnshire Local Plan (the first iteration of the Local Plan is yet to be published, therefore there is some uncertainty about what relevant policies may be included).

Key Environmental and Sustainability Issues	Likely Evolution without the LFRMS
whilst ensuring flood risks are appropriately managed.	However, without the implementation of the LFRMS the issue would be less well-addressed as the overarching purpose of the objectives and measures set out in the LFRMS is to manage local flood risk and the associated threat to economic assets.
The risk of water pollution associated with flooding events to watercourses that are already struggling to meet EU Water Framework Directive standards.	Water pollution issues are addressed to some extent through the LFRMS as it will reduce risk of pollution that can be associated with flooding events (e.g. as a result of soil erosion or runoff washing pollutants into water courses). Therefore, without the implementation of the LFRMS the issue would be less well-addressed although policies associated with water quality are likely to be included in the emerging North East Lincolnshire Local Plan and those would still apply in the absence of the LFRMS.
Health inequalities across the authority. Potential impacts of flooding, and the perceived risk of flooding, on the health and wellbeing of the local population particularly the most vulnerable.	Health issues are addressed to some extent through the LFRMS as it will reduce risk of adverse impacts on physical and mental health that can be associated with flooding events (e.g. the associated stress). Therefore, without the implementation of the LFRMS the issue would be less well-addressed and while policies relating to health and well-being are likely to be included in the emerging North East Lincolnshire Local Plan, and those would still apply in the absence of the LFRMS, they are unlikely to specifically address the health impacts of flooding.
Extensive range of community services and facilities, transport infrastructure and other built development, and the need to protect it from future flooding events. Ongoing population growth and the resulting pressure for new housing and associated development, which both need to be protected from flood risk, and also to avoid contributing to increased flood risk.	Without the implementation of the LFRMS, a number of other plans and strategies relating to flood risk management would still apply and would address this issue to some extent, including relevant policies in the emerging North East Lincolnshire Local Plan (the first iteration of the Local Plan is yet to be published, therefore there is some uncertainty about what relevant policies may be included). However, without the implementation of the LFRMS the issue would be less well-addressed as the overarching purpose of the objectives and measures set out in the LFRMS is to manage local flood risk and the associated threat to infrastructure and residential properties.
The need to protect and enhance the District's biodiversity assets, including the internationally designated Humber Estuary.	The protection of biodiversity is addressed to some extent through the LFRMS as it will reduce risk of adverse impacts on habitats and species that can be associated with flooding events (including both direct effects and indirect effects such as the potential impacts of water pollution on aquatic species). Therefore, without the implementation of the LFRMS the

Key Environmental and Sustainability Issues	Likely Evolution without the LFRMS
	issue would be less well-addressed and while policies relating to biodiversity are likely to be included in the emerging North East Lincolnshire Local Plan, and those would still apply in the absence of the LFRMS, they are unlikely to specifically address the impacts of flooding on biodiversity.
<p>The need to protect and enhance the landscape (particularly the Lincolnshire Wolds AONB and its setting), townscape and seascape of the District.</p> <p>The need to conserve and enhance areas of open space, avoiding settlement coalescence.</p>	<p>Policies in the emerging North East Lincolnshire Local Plan are likely to address the protection of the landscape, townscape and seascape of North East Lincolnshire although the first iteration of the Local Plan is yet to be published, therefore there is some uncertainty about what relevant policies may be included. The protection of the landscape is not one of the overarching aims of the LFRMS, therefore without the implementation of the LFRMS this issue is likely to be addressed to some extent although this will depend largely on the emerging Local Plan.</p>
<p>Potential risk of heritage assets being damaged by flooding, including some that are already in poor condition.</p>	<p>The protection of heritage assets is addressed to some extent through the LFRMS as it will reduce risk of adverse impacts on listed buildings and other features that can be associated with flooding events. Therefore, without the implementation of the LFRMS the issue would be less well-addressed and while policies relating to the historic environment are likely to be included in the emerging North East Lincolnshire Local Plan, and those would still apply in the absence of the LFRMS, they are unlikely to specifically address the impacts of flooding on heritage assets.</p>
<p>Ongoing population growth and the resulting pressure for new housing and associated development, which both need to be protected from flood risk, and also to avoid contributing to increased flood risk.</p>	<p>One of the overarching aims of the LFRMS is to manage local flood risk, including that associated with the growth proposed through plans such as the emerging Local Plan. Therefore, without the implementation of the LFRMS, this issue would be less well-addressed. The emerging Local Plan is likely to include policies associated with ensuring that the new development it proposes does not result in increased flood risk but this is uncertain until draft policies are published.</p>

SEA Framework

- 1.42 The SEA framework was prepared and consulted upon as part of the Scoping stage of the SEA, drawing on the review of relevant plans and programmes, baseline information and key environmental and sustainability issues described in Chapter 3 of the full SEA Report.
- 1.43 There are eight SEA objectives in total, as listed in **Table 2** below. As described in Chapter 3 of the full SEA Report, Schedule 2 of the SEA Regulations provides a list of specific environmental topics that must be addressed, and so when drawing up the SEA objectives care was taken to

ensure that those environmental topics were covered. **Table 2** also shows which of the SEA environmental topics are addressed by each SEA objective. The table shows that each SEA environmental issue has been considered in the assessment of the LFRMS although one of the SEA topics, 'air', was scoped out of the assessment due to the fact that the type of measures to be included in the LFRMS are not considered likely to have an impact on air quality, as they relate to flood risk management and will not result in emissions to air that could affect air quality.

Table 2: SEA Framework for North Lincolnshire's LFRMS and the associated SEA environmental topics

SEA Objectives	
1) To minimise the risk of flooding to residential properties and community and economic assets.	Material assets
2) To maintain and enhance soil and water quality.	Soil, water
3) To protect and enhance human health and wellbeing.	Population and human health
4) To minimise the potential impact of flooding on existing and future critical infrastructure.	Material assets
5) To protect and enhance biodiversity.	Biodiversity, flora and fauna
6) To protect and enhance the landscape, townscape, seascape and open space.	Landscape
7) To maintain and/or enhance the quality and character of the built environment and cultural heritage assets.	Material assets, cultural heritage
8) To adapt development to the impacts of climate change, ensuring that new development does not contribute to increased risk of flooding for existing property and people elsewhere.	Air, climatic factors

Use of the SEA Framework

- 1.44 Within the assessment of the potential environmental effects of North East Lincolnshire's LFRMS, symbols have been used against each SEA objective to show whether an effect is likely to be significant, positive or negative, or uncertain, as shown in **Table 3** below.

Table 3: Key to SEA scores

Symbol	Effect
++	Significant positive effect
+	Minor positive effect
0	Negligible effect
-	Minor negative effect
--	Significant negative effect
?	Uncertain effect

- 1.45 The likely effects of the LFRMS need to be determined and their significance assessed, which inevitably requires a series of judgments to be made. This assessment has attempted to differentiate between the most significant effects and other more minor effects through the use of the symbols shown above. The dividing line in making a decision about the significance of an effect is often quite small. Where either ++ or -- has been used to distinguish significant effects from more minor effects (+ or -) this is because the effect of the measure on the SEA objective in question is considered to be of such magnitude that it will have a noticeable and measurable effect taking into account other factors that may influence the achievement of that objective. In the context of the LFRMS, where LFRMS measures relate directly to the achievement of an SEA objective, the likely effect on that objective is considered to be significant.

Assessment of the LFRMS

- 1.46 SEA matrices have been prepared to present the detailed assessment of each of the objectives (and the associated measures) in the final version of North East Lincolnshire's LFRMS against each of the eight SEA objectives. The SEA matrices can be found in Appendix 4 in the full SEA report. **Table 4** below presents a summary of the scores for each SEA objective, and the potential environmental effects of the LFRMS objectives are then summarised below by SEA objective.
- 1.47 In general, the LFRMS objectives have been found to have mostly positive effects on the environment, due to the LFRMS being a proactive strategy to reduce and manage flooding within North East Lincolnshire. Potentially significant positive effects have been identified in relation to three of the SEA objectives:
- **SEA objective 1:** To minimise the risk of flooding to residential properties and community and economic assets.
 - **SEA objective 4:** To minimise the potential impact of flooding on existing and future critical infrastructure.
 - **SEA objective 8:** To adapt development to the impacts of climate change, ensuring that new development does not contribute to increased risk of flooding for existing property and people elsewhere.
- 1.48 No negative effects (either minor or significant) from the measures in the LFRMS have been identified in relation to any of the SEA objectives. Some LFRMS objectives are unlikely to have any effects on particular SEA objectives as they relate more to improving knowledge and understanding of flood risk rather than actual works or actions that could have an effect on the ground (and could therefore affect issues such as biodiversity, soil and water quality).
- 1.49 Therefore, when taken as a whole, the synergistic and cumulative effects of all the LFRMS objectives and measures combined are considered to be overall positive for the environment, due

to the likely outcome of implementing the LFRMS being a reduction in flooding and associated risk to communities and the natural and built environment within North East Lincolnshire.

Table 4: Summary of SEA scores for the North East Lincolnshire LFRMS

LFRMS Objectives	SEA Objective 1: residential properties and community and economic assets	SEA Objective 2: soil and water quality	SEA Objective 3: human health and wellbeing	SEA Objective 4: critical infrastructure	SEA Objective 5: biodiversity	SEA Objective 6: landscape and open space	SEA Objective 7: built environment and cultural heritage	SEA Objective 8: adapt to climate change
1: All stakeholders (including members of the public) will have an improved understanding of their responsibilities for flood risk management	+	+	+	+?	+	0	+	+
2: Improve our understanding of local flood risk	+	+	+	+	+	0	+	+
3: Reduce the risks to those most vulnerable to local flooding	++	+	+	++	+	?	+?	+?
4: Increase the amount of flood risk management work undertaken, ensuring there is a contribution to wider social, economic and environmental outcomes and sustainable development.	++	+	+	+	+	?	+	0
5: Create a strong collaborative approach across stakeholders to address risks from all sources of flooding.	+	+	+	+	+	0	+	0
6: Ensure that local communities are prepared to manage the risks of flooding.	+	0	+	0	0	0	+	0
7: Ensure that new development does not increase local flood risk and contributes to a reduction where possible.	+	+	+	+	+	+	+	++
8: Ensure effective emergency flood response plans are in place.	+	0	+	0	0	0	0	0

SEA objective 1: To minimise the risk of flooding to residential properties and community and economic assets

- 1.50 All of the LFRMS objectives and the associated measures are likely to have either minor or significant positive effects on this SEA objective, as the measures have all been designed with the aim of reducing overall flood risk in North East Lincolnshire, including the risk to residential properties and community and economic assets. In particular, the measures associated with LFRMS objective 3 are likely to have a significant positive effect as they will directly help to manage flood risk by developing an action plan (M3.2) and identifying potential funding sources (M3.3) which will increase the likelihood of the action plan being successfully implemented. Supporting residents in obtaining flood insurance (M3.1) could mean that in the event of a flood more residents are compensated for their material and financial losses. While this would not reduce the likelihood of a flood event occurring, the scale of the risk posed by flooding in terms of its effects would be reduced. A significant positive effect is also likely in relation to the measures associated with LFRMS objective 4 (increase the amount of flood risk management work undertaken, ensuring there is a contribution to wider social, economic and environmental outcomes and sustainable development). This is because encouraging and informing local people about how best to protect their properties (which is one of the measures associated with this objective) is likely to directly result in residents being at reduced risk from the impacts of flooding.
- 1.51 No negative effects from the LFRMS objectives and measures, either minor or significant, have been identified in relation to this SEA objective.

SEA objective 2: To maintain and enhance soil and water quality

- 1.52 No significant effects from any of the LFRMS objectives and measures, either positive or negative, have been identified in relation to this SEA objective. Neither of LFRMS objectives 6 (ensure that local communities are prepared to manage the risks of flooding) or 8 (ensure effective emergency flood response plans are in place) are expected to have an effect on soil and water quality, This is because they either aim to reduce the severity of impacts on local communities in the event of flooding, or they focus on the actions to be taken after a flooding event has already occurred, rather than preventing flooding (that could otherwise affect soil and water quality) from occurring.
- 1.53 All of the other LFRMS objectives are expected to have a minor indirect positive effect on maintaining and enhancing soil and water quality. The measures associated with those LFRMS objectives are expected to combine to reduce the overall risk of flooding occurring, and therefore are expected to indirectly reduce the chance of soil and/or water quality in the District being adversely affected (e.g. as a result of soil erosion or run-off washing sediments and/or chemical fertilisers into watercourses).
- 1.54 No negative effects from the LFRMS objectives and measures, either minor or significant, have been identified in relation to this SEA objective.

SEA objective 3: To protect and enhance human health and wellbeing

- 1.55 All of the LFRMS objectives are expected to have a minor positive effect on this SEA objective. In most cases, the likely positive effects will be indirect because the measures will combine to reduce the overall risk of flooding in the District, thereby reducing the potential for people's physical and mental health to be adversely affected. The impacts of flooding on health can be either direct physical impacts or effects on mental health e.g. as a result of stress, which can be associated with either the risk of flooding occurring or the aftermath of a flood event.
- 1.56 No negative effects from the LFRMS objectives and measures, either minor or significant, have been identified in relation to this SEA objective.

SEA objective 4: To minimise the potential impact of flooding on existing and future critical infrastructure

- 1.57 Most of the LFRMS objectives will have positive effects (either minor or significant) on this SEA objective, although two of the LFRMS objectives (6: ensure that local communities are prepared to manage the risks of flooding and 8: ensure effective emergency flood response plans are in

place) are not expected to have an effect. The measures associated with LFRMS objective 6 aim to reduce the severity of impacts on local communities in the event of flooding, rather than reducing the likelihood of flood events (which can affect critical infrastructure) occurring. The focus of the measures is on helping communities take action themselves to protect their homes and businesses, rather than on protecting critical infrastructure within the District at a larger scale. The measures associated with LFRMS objective 8 focus on the actions to be taken after a flooding event has already occurred, rather than preventing flood incidents (which could potentially affect critical infrastructure) from taking place.

- 1.58 All of the other LFRMS objectives are likely to have a positive effect on this objective as the measures will combine to reduce overall flood risk in the District, including that facing existing and future critical infrastructure. In most cases the positive effect is expected to be minor as it would be indirect; however a significant positive effect is likely in relation to LFRMS objective 3: reduce the risks to those most vulnerable to flooding. This is because those measures are likely to combine directly to reduce the risk of flooding (including to critical infrastructure) as they will directly help to deliver flood risk management work by developing an action plan (M3.2) and identifying potential funding sources for schemes (M3.3), which will increase the likelihood of the action plan being successfully implemented.
- 1.59 There is some uncertainty attached to the potential minor positive effect from LFRMS objective 1 (all stakeholders will have an improved understanding of their responsibilities for flood risk management). Section 2 of the LFRMS describes the roles of stakeholders, including water and sewerage companies (responsible for managing the risk of flooding from public sewer systems) and the Highways Agency (responsible for dealing with surface water run-off from roads). If those particular stakeholders' understanding of their responsibilities in relation to flood risk management is improved through the measures associated with this objective, positive effects in relation to the protection of critical infrastructure are likely, although this is not yet certain.
- 1.60 No negative effects from the LFRMS objectives and measures, either minor or significant, have been identified in relation to this SEA objective.

SEA objective 5: To protect and enhance biodiversity

- 1.61 As with SEA objectives 2 and 4 above, LFRMS objectives 6 and 8 are not expected to have a direct effect on this SEA objective as they relate to actions to be taken when flooding (which can affect biodiversity) has already occurred, rather than aiming to reduce the likelihood of flooding occurring in the first place.
- 1.62 All of the other LFRMS objectives are likely to have a minor positive effect on biodiversity as they will combine to reduce overall flood risk in the District, and therefore will reduce the chance of adverse impacts on biodiversity, which can include both direct impacts from the inundation of habitats with flood water, and indirect impacts such as aquatic species being affected by water pollution resulting from a flood event.
- 1.63 A Habitats Regulations Assessment (HRA) has been undertaken by North East Lincolnshire Council in relation to the LFRMS in order to identify any likely significant effects on the integrity of European sites (SACs, SPAs and Ramsar sites) in and around North East Lincolnshire. The HRA has concluded that none of the objectives or associated measures in the LFRMS are likely to result in significant effects on European sites.
- 1.64 No negative effects from the LFRMS objectives and measures, either minor or significant, have been identified in relation to this SEA objective.

SEA objective 6: To protect and enhance the landscape, townscape, seascape and open space

- 1.65 Most of the LFRMS objectives and measures will not have an effect on this SEA objective as they will not result in physical works or actions that could affect the landscape, townscape or seascape of the District. However, LFRMS 7 could have a minor positive effect as some types of sustainable drainage measures, such as the use of wetlands and flood attenuation areas, could have indirect positive effects on the appearance of the landscape.
- 1.66 Uncertain effects have been identified in relation to two of the LFRMS objectives. The measures associated with LFRMS objective 3 (reduce the risks to those most vulnerable to local flooding)

will support the delivery of flood risk management works, including by developing an action plan of specific works and identifying funding sources, which would increase the certainty of schemes going ahead. Depending on the nature of those schemes, there could potentially be impacts on local landscape, townscape or seascape character; however the potential effects are uncertain without more information about the nature and the location of any schemes.

- 1.67 Most of the measures associated with LFRMS objective 4 (increase the amount of flood risk management work undertaken, ensuring there is a contribution to wider social, economic and environmental outcomes and sustainable development) will not affect the landscape, townscape, seascape or open space within North East Lincolnshire, as they relate to community engagement and improving levels of public understanding. However, it is possible that supporting campaigns by other authorities that aim to reduce flood risk could affect this SEA objective, depending on the nature of the campaigns/works that are being supported and encouraged which is uncertain at this stage.
- 1.68 No negative effects from the LFRMS objectives and measures, either minor or significant, have been identified in relation to this SEA objective.

SEA objective 7: To maintain and/or enhance the quality and character of the built environment and cultural heritage assets

- 1.69 Most of the LFRMS objectives and measures will have a minor positive effect on this objective as they will combine to reduce the overall risk of flooding occurring, which could otherwise have adverse effects on the built environment (including cultural heritage assets) as a result of built assets such as listed buildings being damaged by flooding.
- 1.70 However, there is some uncertainty attached to the potential minor positive effects from LFRMS objective 3 as the measures associated with that objective (reduce the risks to those most vulnerable to local flooding) are likely to result in direct physical works which, depending on their nature and location (for example in relation to heritage features such as listed buildings), could affect the quality and character of the built environment, including the setting of heritage features.
- 1.71 The measures associated with LFRMS objective 8 are not expected to affect the achievement of this SEA objective as they relate to actions to be taken after a flood event has occurred, rather than reducing the likelihood of flooding (which could affect the built environment) occurring in the first place.
- 1.72 No negative effects from the LFRMS objectives and measures, either minor or significant, have been identified in relation to this SEA objective.

SEA objective 8: To adapt development to the impacts of climate change, ensuring that new development does not contribute to increased risk of flooding for existing property and people elsewhere

- 1.73 The measures associated with LFRMS objective 7 (ensure that new development does not increase local flood risk and contributes to a reduction where possible) are likely to have a significant positive effect on this SEA objective as the overarching purpose of those measures is to ensure that new development avoids having negative effects on flood risk and to ensure that positive effects result where possible, for example by requiring developers to use more sustainable drainage techniques on site such as wetlands and attenuation areas rather than the traditional below ground piped systems.
- 1.74 LFRMS objective 2 is likely to have a minor positive effect on this SEA objective because improving the evidence base available to the Council in relation to flood risk will help to inform appropriate decision-making regarding the siting of new development. Similarly, LFRMS objective 1 (all stakeholders will have an improved understanding of their responsibilities for flood risk management) is likely to have a minor positive effect because the measures associated with that LFRMS objective will improve stakeholder understanding of flood risk which could reduce the chances of inappropriately sited development proposals coming forward, and may increase the likelihood of such proposals being considered appropriately in light of the potential impacts on flood risk.

- 1.75 Potential but uncertain minor positive effects have been identified in relation to one other LFRMS objective. The measures associated with LFRMS objective 3 (reduce the risks to those most vulnerable to local flooding) are not expected to have a direct effect on this SEA objective; however depending on the nature of the flood mitigation schemes for which funding sources will be investigated, there may be a minor positive effect, i.e. if these schemes were to involve reducing the potential flood risk associated with new developments.
- 1.76 No negative effects from the LFRMS objectives and measures, either minor or significant, have been identified in relation to this SEA objective.

Recommendations and Mitigation

- 1.77 No negative effects, either minor or significant, have been identified in relation to any of the LFRMS measures that will require mitigation. This is because the LFRMS is a document which is intended to have positive effects on the environment and itself aims to mitigate potential adverse environmental impacts from flooding.
- 1.78 While a number of the potential positive effects identified are uncertain, this is inevitable without more information regarding the detail of the measures in the LFRMS e.g. exactly what type of campaigns by other authorities for reducing flood risk will be supported by North East Lincolnshire. It is considered that one of the measures associated with LFRMS objective 4 (M4.1) may provide some overall mitigation of the potential for any physical works or actions resulting from the LFRMS to have negative environmental effects, as it requires works that are undertaken to be carried out in a way that protects and enhances the environment.
- 1.79 The uncertainties attached to the potential effects of LFRMS objective 1 (all stakeholders (including members of the public) will have an improved understanding of their responsibilities for flood risk management) on SEA objective 4 could be removed if the objective or measures were to make specific reference to stakeholders associated with the protection of critical infrastructure (e.g. the Highways Agency).
- 1.80 No other recommendations for strengthening the protection or improving the environmental effects of the LFRMS are suggested.
- 1.81 The previous iteration of the SEA report, for the Draft LFRMS, identified uncertainty in relation to three of the LFRMS objective 4 for SEA objectives 2, 5 and 7. A number of minor amendments have now been made to the measures associated with LFRMS objective 4 in the final LFRMS which strengthen the environmental protection provided. In particular, reference is made to Section 6 of the LFRMS 'Sustainable Development and the Environment' which has been expanded considerably to describe in more detail how the LFRMS will contribute to sustainable development. This has enabled the uncertainty attached to those objectives to be removed.

Monitoring

- 1.82 The SEA Directive and Regulations require that the significant environmental effects of implementing the plan or programme in question are considered. As discussed above, and in **Chapter 5** of the full SEA Report, many of the effects of the LFRMS are uncertain at this stage and it is not possible to draw detailed conclusions regarding the likely effects of each measure on each SEA objective. Therefore, it is recommended that monitoring of environmental effects due to implementation of the LFRMS is undertaken in relation to **all of the SEA objectives**, in order to ensure that all potential effects are monitored.
- 1.83 To achieve efficiencies and to ensure that the environmental effects of implementing any of the LFRMS measures are monitored, SEA monitoring of the LFRMS should be conducted as part of the overall approach to monitoring the achievement of LFRMS measures. The Council is required to monitor the LFRMS and it will be reviewed within two years of its publication.
- 1.84 In addition, it is recommended that monitoring of the environmental effects of the LFRMS is also tied into the overall approach to monitoring the sustainability effects of other plans and strategies

developed by North East Lincolnshire Council (in particular the emerging new Local Plan), as some of the indicators proposed for monitoring the effects of that Plan will be relevant to the LFRMS.

- 1.85 **Chapter 6** in the full SEA Report presents a number of suggested indicators for monitoring the potential environmental effects of implementing the LFRMS.

Conclusion

- 1.86 None of the measures in the LFRMS are likely to have negative effects, either minor or significant, on any of the SEA objectives. This is because of the nature of the LFRMS, which has an underlying aim of environmental protection through flood risk management, meaning that the effects of the strategy are largely positive. Where uncertain effects have been identified, mitigation should be provided by the LFRMS objective which specifically aims to bring about environmental enhancements.
- 1.87 Likely significant positive effects have been identified in relation to the following SEA objectives:
- SEA objective 1: To minimise the risk of flooding to residential properties and community and economic assets.
 - SEA objective 4: To minimise the potential impact of flooding on existing and future critical infrastructure.
 - SEA objective 8: To adapt development to the impacts of climate change, ensuring that new development does not contribute to increased risk of flooding for existing property and people elsewhere.
- 1.88 All of these significant positive effects are associated with the measures designed to achieve LFRMS objectives 3 (reduce the risks to those most vulnerable to local flooding), 4 (increase the amount of flood risk management work undertaken, ensuring there is a contribution to wider social, economic and environmental outcomes and sustainable development) and 7 (ensure that new development does not increase local flood risk and contributes to a reduction where possible). The measures associated with these objectives are more likely to have significant positive effects either because they involve direct actions to manage flood risk in the District or because they seek directly to address one of the above SEA objectives.

Next Steps

- 1.89 The full SEA Report and this Non-Technical Summary will be published alongside the LFRMS once it has been formally approved by the Council's cabinet and adopted as a Council strategy.

LUC
July 2014