



Northamptonshire  
Local Flood Risk  
Management Strategy  
Strategic Environmental  
Assessment  
Environmental Report – Part 3  
Results of the SEA and  
Proposed Monitoring Strategy

Northamptonshire County Council  
November 2016



## Document Status

This Strategic Environmental Assessment Environmental Report Part 3 Results of the SEA and Proposed Monitoring Strategy has been prepared and is intended solely for Northamptonshire County Council's information and use in relation to the Northamptonshire Local Flood Risk Management Strategy (LFRMS). This document will be updated annually in line with the annual LFRMS Action Plan update.

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# 1. INTRODUCTION

## *This Report*

1.1. This report forms Part 3 of the Environmental Report for the Strategic Environmental Assessment (SEA) of the Northamptonshire Local Flood Risk Management Strategy (LFRMS). It should be read in conjunction with the following documents:

- **Northamptonshire Local Flood Risk Management Strategy Strategic Environmental Assessment Environmental Report - Part 1: Introduction** setting the context for the SEA and discussing parallel assessments, providing an outline of the contents and main objectives of the Northamptonshire LFRMS and identifying where the requirements of the SEA Regulations<sup>1</sup> have been met in the Environmental Report; and
- **Northamptonshire Local Flood Risk Management Strategy Strategic Environmental Assessment Environmental Report - Part 2: Scoping Report** setting out the scope of the SEA, baseline data about the County, the environmental objectives and targets of relevant other documents, key environmental issues and the assessment framework to be used to assess the Local Flood Risk Management Strategy (LFRMS).

1.2. The contents and structure of this report are as follows:

- Section 2 sets out the methodology used to assess the LFRMS and its alternatives;
- Section 3 describes the assessment of alternatives and its findings;
- Section 4 sets out the findings of the assessment of the LFRMS (the preferred option for the strategy); and
- Section 5 presents a proposed strategy for monitoring the significant effects of the LFRMS.

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<sup>1</sup> Statutory Instrument 2004 No. 1633: The Environmental Assessment of Plans and Programmes Regulations 2004

## 2. METHODOLOGY

### *Introduction*

- 2.1. This Section sets out the methodology used to assess the Northamptonshire LFRMS and its alternatives. Government guidance and advice from statutory consultees sets out a five stage process (A-E) for undertaking SEA.

**Table 2.1 Stages in the SEA process**

SEA Stages
Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope
Stage B: Developing and refining options and assessing effects
Stage C: Preparing the Environmental Report
Stage D: Consulting on the draft LFRMS and the Environmental Report
Stage E: Monitoring the significant effects of implementing the LFRMS

- 2.2. The methodology used for Stage A of the SEA (Scoping) is set out within Part 2 of the Environmental Report. The Scoping Report forms a separate document and has been updated in line with the LFRMS revision process.

### *Approach to the SEA*

- 2.1. Officers from Northamptonshire County Council (NCC) have undertaken the update of the SEA. Stakeholders have been actively involved in assessing the plan and its alternatives. The approach to the assessment is informed by best practice and the experience of the assessing officer(s). The approach is compliant with the SEA Regulations; tasks undertaken for each of the SEA stages are set out below.

#### **Stage A**

- 2.2. The updated SEA Scoping Report and Environmental Report was consulted on for a 6 week period from 16<sup>th</sup> June 2016 to 28<sup>th</sup> July 2016, alongside the updated LFRMS. Consultation included the statutory SEA consultees, other key stakeholders and the public. Given the limited scope of the current update to the LFRMS the update of the SEA documents will only address components of the LFRMS that are subject to revision. The remaining components of the adopted LFRMS that are not being updated at this time do not require further SEA. As a result of this the SEA framework has not been amended as it is considered fit for purpose and to do so would not value-add to the process or prove an efficient approach.

#### **Stage B**

- 2.3. No amendments to the SEA framework are proposed. The SEA framework provides a set of agreed objectives and sub-objectives against which to assess the update to the LFRMS and its alternatives. The SEA framework, which is presented in Part 2, is reproduced as Table 2.2 below.
- 2.4. Given that the SEA relates to amendments resulting from the update of the adopted LFRMS, the reasonable alternatives considered were limited to the business as usual (BAU) scenario. In some cases the BAU scenario was not applicable as: (1) the updated direction stemmed from further investigations being undertaken (based on the BAU scenario) and so effectively acts as an extension of the adopted intent; or (2) the update of the document involved removing action items as these had been complete, absorbed into other projects (as this was determined to be a more appropriate vehicle for delivery)

or are no longer intended to be taken forward. In such cases the update of the SEA acts more as an administrative amendment process rather than actual assessment. An assessment of the alternatives making a relative comparison between them, and to the baseline evidence was undertaken using the SEA Framework.

- 2.5. The preferred options (being the amendments proposed through the update) for the LFRMS were then subject to assessment against the SEA Framework where appropriate. Previous SEA examined whether and how well the SEA questions in the SEA Framework were addressed by the policies; no amendments to the LFRMS objectives or policies are proposed and so no amendment to the previous SEA outcome has been made. Rather than using a conventional scoring system (e.g. ++ / -- etc.), a more descriptive approach was used. This provided an indication of the importance of the impact, some sense of scale and an idea of the likely sensitive receptors. This is how the significance of potential impacts was described and identified. Wherever possible, baseline data, references and evidence were provided to support the assessment.
- 2.6. As set out above, the updated SEA Scoping Report and Environmental Report was consulted on for a 6 week period from 16<sup>th</sup> June 2016 to 28<sup>th</sup> July 2016, alongside the updated LFRMS. Consultation included the statutory SEA consultees, other key stakeholders and the public. All comments received have been given due consideration and amendments made where considered appropriate in preparing the final SEA and LFRMS documents.
- 2.7. Section 3 of this report sets out the approach and findings of the assessment of alternatives. Section 4 of this report sets out the findings of the assessment of the preferred option, the LFRMS.

Table 2.2 SEA Framework

SEA Topic	Local Environmental Issues/Problems	SEA Objective	Assessment Criteria Does the LFRMS...
Water	<p>The quality of water bodies in Northamptonshire is generally moderate as identified by the WFD assessments and there are pressures on the quality and volume of water resources from a range of social, economic and industrial activities.</p> <p>There are several floodplains in the County.</p> <p>Past incidences of surface water flooding highlight the risk of flooding to the social, economic and environmental character of Northamptonshire.</p>	<p>To protect and improve the quality and condition of water resources in Northamptonshire.</p>	<ul style="list-style-type: none"> <li>• Have an adverse impact on the hydromorphological condition of water bodies in the county?</li> <li>• Contribute to maintaining and enhancing the riverside environment?</li> <li>• Have an adverse effect on water-based recreational activities?</li> <li>• Promote the sustainable use of water resources?</li> <li>• Meet requirements of the Water Framework Directive River Basin Management Plans?</li> <li>• Have an adverse impact on water quality?</li> <li>• Contribute to improvements in the quality of water bodies in the County?</li> </ul>
Biodiversity- Flora and Fauna	<p>Biodiversity in Northamptonshire is under severe pressure from social, economic and industrial activities (agriculture, housing, infrastructure development etc.). There has been a steady decline in the areas that can be defined as semi-natural habitats of wildlife importance. Those areas that have survived are often small and have a fragmented distribution.</p> <p>There are designated Special Protection Areas/Ramsar Sites within (and adjacent to) the County, which are statutorily protected by international and national legislation.</p>	<p>To conserve and enhance biodiversity and habitat quality across Northamptonshire and to create new habitat through measures to reduce the impacts of local flooding.</p>	<ul style="list-style-type: none"> <li>• Comply with natural environment statutory obligations?</li> <li>• Conserve, and where possible enhance, designated nature conservation sites (SSSI, SPA, SAC and Ramsar) and undesignated nature conservation sites?</li> </ul>

SEA Topic	Local Environmental Issues/Problems	SEA Objective	Assessment Criteria Does the LFRMS...
Soils	In Northamptonshire, there are a number of historic and current landfill sites, areas of made ground, brownfield land with an industrial history and areas where there has been a loss of good quality agricultural land. Flooding and subsequent erosion of these lands is likely to give rise to pollution pathways from potential sources of pollution towards other environmental receptors. There is a risk that flooded historic landfills and quarries could have negative effects on water quality, especially where erosion occurs.	To protect and conserve soils and reduce their ability to act as pollution sources and pathways in times of local flooding.	<ul style="list-style-type: none"> <li>• Protect and conserve soils, and increase resilience to degradation?</li> <li>• Reduce the risk to waters from diffuse pollution in times of local flooding?</li> <li>• Conserve and protect the best and most productive agricultural land from the impact of local flooding?</li> </ul>
Climatic Factors	The UK climate change projections (UKCP09) for the East Midlands indicate that there are significant implications for Northamptonshire. They suggest that in the future climate change will place increased pressure on existing flood risk management regimes, requiring increased flexibility and adaptability, to be able to accommodate future changes in rainfall, river flows and storminess. Climate change will also exacerbate many existing environmental problems in the County.	To promote adaptation to the impacts of climate change and its effects on flood risk across Northamptonshire.	<ul style="list-style-type: none"> <li>• Contribute to the County's ability to adapt to the effects of climate change related local flooding?</li> <li>• Ensure climate change is factored into decision-making including effects on flooding and water abstraction?</li> <li>• Introduce new or contribute to existing mechanisms for mitigating the effects of climate change related to local flooding?</li> </ul>
Air	N/A -Scoped out – See section 3.2		
Material Assets	There are several material assets and critical infrastructure (homes, businesses, roads, railway lines, energy and water infrastructure) in the County which are located within floodplains and therefore at risk from river water flooding and are also at risk from surface water flooding.	To safeguard existing and future material assets and critical infrastructure in Northamptonshire from the potential impacts of local flooding.	<ul style="list-style-type: none"> <li>• Minimise risks to vital infrastructure and community facilities?</li> <li>• Reduce the risk of local flooding to properties and businesses?</li> </ul>

SEA Topic	Local Environmental Issues/Problems	SEA Objective	Assessment Criteria Does the LFRMS...
Population and Human Health	<p>A significant number of households in the County are at risk of flooding; local disparities in levels of multiple deprivation across the County mean that some local people and places have a low resilience and resistance to future flooding events.</p> <p>With increasing population and levels of multiple-deprivation in the County, there is a strong possibility that access to the natural environment for sports, informal recreation and other activities that play a role in improving health, will continue to shrink over time.</p> <p>The physical and psychological health and wellbeing of local people could be adversely affected by repeated incidents of flooding - particularly when such events result in loss of life and property, which could also exacerbate existing health issues.</p>	To protect the health and wellbeing of local people and communities in Northamptonshire from the potential impacts of local flooding.	<ul style="list-style-type: none"> <li>• Minimise and reduce local flood related risks to the population and the environment and adverse impacts on human health?</li> <li>• Protect areas with an amenity use and reduce community disruption from local flooding?</li> <li>• Improve local resilience and resistance to local flooding events?</li> </ul>
Cultural Heritage	<p>There are a range of heritage assets (designated and non-designated) and their settings in The Strategy area at risk from flooding (see part 2 for further information). Listed and historic buildings, many of which have associated underground cellars, are also vulnerable to flooding.</p> <p>There is a risk that archaeological remains and Palaeo-environmental evidence buried in riparian areas in the County could be lost or damaged by the development or upgrade of new flood defences.</p>	To safeguard (or 'protect') and enhance heritage assets and their settings across Northamptonshire.	<ul style="list-style-type: none"> <li>• Protect and enhance heritage assets and their settings from the impacts of flooding?</li> <li>• Introduce changes that affect the significance of heritage assets, including their setting, or historic landscape/townscape character e.g. specific schemes?</li> </ul>

SEA Topic	Local Environmental Issues/Problems	SEA Objective	Assessment Criteria Does the LFRMS...
Landscape	<p>Landscape character areas and living landscapes in Northamptonshire have recognisable landscape characteristics and historic landscape character, which create a distinct sense of place for each area.</p> <p>Many of the character areas identified in the Landscape character assessments are of significant quality and have a moderate or high sensitivity to development and change.</p>	<p>To protect and enhance the character and appearance of Northamptonshire's landscapes and townscapes.</p>	<ul style="list-style-type: none"> <li>• Introduce significant changes that visually detract from the quality of local landscape character areas e.g. schemes identified?</li> </ul>

### **Stage C**

- 2.8. This document is Part 3 of the SEA Environmental Report. It outlines the significant effects of the LFRMS and sets out the strategy for monitoring these significant effects. This part of the Environmental Report should be read in conjunction with associated SEA documents including Part 1: Introduction and Part 2: Scoping Report. No amendments to the monitoring strategy are proposed through the update of the LFRMS

### **Stage D**

- 2.9. The final Environmental Report will be subject to consultation alongside the final LFRMS. Consultation will include the statutory SEA consultees, other key stakeholders and the public. All comments received will be given due consideration and amendments made where considered appropriate in preparing the SEA and LFRMS documents for adoption.

### **Stage E**

- 2.10. The strategy for monitoring the significant effects of the LFRMS is presented in Section 5. No amendments to the SEA framework or monitoring strategy are proposed.

### ***Who has undertaken the SEA***

- 2.11. Officers from NCC have undertaken the update of the SEA. Stakeholders have been actively involved in assessing the plan and its alternatives.

### ***Difficulties Encountered in Undertaking the SEA***

- 2.12. The identification of alternatives has been difficult because the purpose, content and scope of the LFRMS update is relatively prescriptive. This is discussed further in Section 3.
- 2.13. Identifying the potential effects of some of the actions within the Action Plan has been difficult because a number of the actions either relate to studies which are being or will be undertaken or relate to maintenance works to infrastructure, such as new and replacement culverts, but the action to be taken has not yet been identified. In the case of ongoing or planned studies, the studies themselves are unlikely to have environmental effects; however, actions identified through or following the studies may require site-specific environmental assessment in order to identify potential significant environmental effects. In addition, it has not been possible to consider the impact of the actions of the Water Framework Directive and that following studies may need specific WFD assessments. For infrastructure works identified as required but where information is not yet available about the works that could be proposed, potential uncertain and negative effects have been identified in all cases, as shown within Table A3.
- 2.14. It has also not been possible to identify mitigation or future remedial actions to be taken for some of the actions within the Action Plan for which NCC does not have responsibility and in these circumstances NCC will work with the relevant partners. In such cases, potential action, such as the need to assess the environmental impacts of options, has been stated as being required.

### 3. THE ASSESSMENT OF ALTERNATIVES

- 3.1. NCC, under its role as Lead Local Flood Authority (LLFA) for Northamptonshire, must 'develop, maintain, apply and monitor' a LFRMS. The LFRMS focuses on local flood risk resulting from surface water, groundwater and ordinary watercourse flooding; the interaction with main river flooding has also been assessed.
- 3.2. The Flood and Water Management Act (2010) states that the LFRMS must cover:
  - The risk management authorities in the authority's area;
  - The flood risk management functions that may be exercised by those authorities in relation to the area;
  - The objectives for managing local flood risk;
  - 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;
  - The assessment of local flood risk for the purpose of the strategy; and
  - How and when the strategy is to be reviewed, and how the strategy contributes to the achievement of wider environmental objectives.
- 3.3. Therefore, the purpose and content of the LFRMS is clearly defined and this means that there is limited scope for the consideration of radical alternatives. The scope for subsequent updates to the LFRMS is again limited relating to progress made on action items rather than alteration of the plans intent (i.e. objectives and policies). However, at points through the development of the LFRMS, certain decisions have been made where alternatives could be identified. Checks have been made to make sure that the preferred alternative selected does not have significant negative effects on the SEA objectives, and where necessary mitigation has been included within the preferred alternative.
- 3.4. Table 3.1 sets out a summary of the alternatives considered and their relative performance when related to/compared against the SEA objectives. The second column of Table 3.1 has been used to indicate whether the alternatives could have any effects on the SEA Objectives within the SEA Framework (see Table 2.2 for the SEA Framework). Reasons for the selection or rejection of options are also given in the fourth column, along with mitigation measures given due consideration in preparing the LFRMS.
- 3.5. Consideration has also been given to whether there were any reasonable alternatives for the actions/projects included within the LFRMS Action Plan. The assessment of the Action Plan is summarised in Section 4 of this report and the full assessment can be found in Appendix A. This includes a consideration of alternatives where practical.

**Table 3.1 Assessment of LFRMS Alternatives**

Alternatives tested	SEA Objectives								Summary of performance	Reasons for selection or rejection
	Water	Biodiversity	Soils	Climatic Factors	Material Assets	Pop & Health	Cultural Heritage	Landscape		
<b>Strategy Objectives</b> <ul style="list-style-type: none"> <li>National objectives</li> <li>Locally adapted objectives</li> </ul>		✓	✓		✓			✓	<ul style="list-style-type: none"> <li>The locally adapted objectives cover the same themes as the national objectives but include two additional objectives compared to the national objectives. These are objectives 2 and 7. Locally adapted objective 7 seeks to place a greater emphasis on riparian owner responsibilities. Section 7 of the LFRMS includes a consistency assessment, which has been undertaken to assess the key themes of the National strategy and compliance with the LFRMS.</li> <li>The national objectives are therefore weaker than the locally adapted objectives, which have stronger focus on local environmental issues, economic sustainability and riparian owner responsibilities.</li> <li>Using the locally adapted objectives does not address all catchment issues, which could lead to negative effects with regards to material assets downstream and potentially positive effects with regards to landscape.</li> <li>National objectives seek to address flooding on a catchment scale. This has been addressed in locally adapted</li> </ul>	<ul style="list-style-type: none"> <li>The locally adapted objectives have a broader coverage with regards to local environmental issues and economic sustainability and are more specifically tailored to local issues. The locally adapted objectives are considered to address catchment flood issues as far as is possible in the LFRMS.</li> </ul>

Alternatives tested	SEA Objectives								Summary of performance	Reasons for selection or rejection
	Water	Biodiversity	Soils	Climatic Factors	Material Assets	Pop & Health	Cultural Heritage	Landscape		
									objective 5 but in a more locally focused manner than the national objectives.	
<b>Funding and prioritisation</b> <ul style="list-style-type: none"> <li>Different prioritisation methodology and works programme;</li> <li>Non-partnership funding approach – NCC to retain the money that would be paid to the RFCCs and use this to fund their own prioritised flood defence schemes.</li> </ul>	✓	✓	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>It is difficult to attribute potential effects to the two different options and it would very much depend on the type of scheme and bidding process. All future schemes and associated bids will need to address HRA and WFD requirements.</li> <li>Partnership funding approach – NCC bid to RFCC and then top up with partnership funds e.g. DCs, PCs, Highways England, water companies etc. a co-ordinated partnership approach. This approach facilitates the actualisation of a range of different schemes (rather than just a small number of large schemes) and is focussed on beneficiaries contributing financially to schemes. Higher outcome measures are likely to be the result.</li> <li>In the non-partnership approach option, scheme development would be limited.</li> </ul>	<ul style="list-style-type: none"> <li>Partnership funding approach should result in multiple benefits / higher outcome measures.</li> <li>In the non-partnership approach option - scheme development would be limited, as few schemes would score highly enough to be fully funded in Northamptonshire due to the limited number of properties that would be protected, the level of deprivation and the cost of schemes. Also in-house capital funding is limited.</li> </ul>
<b>Consenting</b> Options for the delivery of the consenting role have been explored, including through: <ul style="list-style-type: none"> <li>Keeping the service in-house</li> </ul>	✓	✓	✓	✓	✓	✓	✓	✓	<ul style="list-style-type: none"> <li>Consenting relates to activities on ordinary watercourses that could alter water flows – looked at holistically including nature conservation, WFD, flood risk and the historic environment. Environment Agency (EA) are consulted if consent relates to a NCC project. There is</li> </ul>	<ul style="list-style-type: none"> <li>The chosen approach is to keep the service in-house as a lead but to outsource to the Bedford Group of Drainage Boards. All consents will be dealt with and this can allow for opportunities to be identified for improvements.</li> </ul>

Alternatives tested	SEA Objectives							Summary of performance	Reasons for selection or rejection
	Water	Biodiversity	Soils	Climatic Factors	Material Assets	Pop & Health	Cultural Heritage		
<ul style="list-style-type: none"> <li>Using external consultants;</li> <li>Another LLFA undertaking the role on behalf of NCC;</li> <li>A Borough or District Council undertaking the role on behalf of NCC;</li> <li>The EA undertaking the role on behalf of NCC; and</li> <li>The Bedford Group of Drainage Boards undertaking the role on behalf of NCC.</li> </ul> <p>An alternative could also be to take a risk based approach to consenting - only determine consents in high risk areas.</p>								<p>no statutory requirement for any other consultation process. In some circumstances Natural England (NE) are consulted. The EA have prepared guidance that determines when consent is required.</p> <ul style="list-style-type: none"> <li>Key issue is whether the necessary skills and resources are held by the organisation to undertake the consenting role. NCC does not have the necessary resources in house, nor in the District Councils. There is limited experience and lack of guidance in determining WFD compliance and habitat impacts.</li> <li>The Bedford Group of Drainage Boards has most experience of dealing with consents as well as the relevant skills and resources.</li> <li>A risk based approach could result in some consents being deemed 'approved' if only high risk consents are considered. This could lead to negative effects on all SEA objectives.</li> </ul>	<ul style="list-style-type: none"> <li>Policies in the LFRMS will be used to determine what needs consent.</li> <li>There is limited experience and lack of guidance in determining WFD compliance and habitat impacts.</li> <li>When approached, other authorities such as the EA and the Borough and District Councils were unable to take on this role due to legislative and capacity restrictions.</li> <li>Mitigation: There is a need for National guidance relating to consenting and the implications of WFD to be produced by Defra/EA.</li> </ul>
<p><b>SuDS Approval Body</b> This role is clearly defined within the legislation, although this has not yet</p>	✓	✓		✓			✓	<ul style="list-style-type: none"> <li>All options for delivery reviewed. No decision made at time of assessment.</li> </ul>	<ul style="list-style-type: none"> <li>NCC Highways contractors have the skills and resources and so this would be a favoured option. SuDS are currently designed</li> </ul>

Alternatives tested	SEA Objectives							Summary of performance	Reasons for selection or rejection
	Water	Biodiversity	Soils	Climatic Factors	Material Assets	Pop & Health	Cultural Heritage		
<p>been implemented as a requirement for the LLFA (expected Implementation April 2013). Delivery Options were explored to assess the provision of the service by:</p> <ul style="list-style-type: none"> <li>• NCC Development Control (Planning);</li> <li>• NCC Development Control (Highways);</li> <li>• External consultants;</li> <li>• NCC Highways Contractor;</li> <li>• Another LLFA;</li> <li>• A Water Company;</li> <li>• A Borough or District Council;</li> <li>• The EA; and</li> <li>• The Bedford Group of Drainage Boards.</li> </ul>								<ul style="list-style-type: none"> <li>• Secondary legislation has not been enacted yet. Little is known about what the National standards will include.</li> <li>• NCC DC planning – limited skills/resources.</li> <li>• NCC DC highways – limited skills/resources.</li> <li>• External consultants – costs implications, lack of geographical knowledge and understanding.</li> <li>• Another LLFA – geographical knowledge lacking.</li> <li>• Water company – do not have legal powers so not a realistic alternative.</li> <li>• BC and DC – limited skills/resources.</li> <li>• EA – do not have the resources.</li> <li>• Bedford Group – do not have the resources.</li> </ul>	<p>through highways projects and therefore the highways contactors have the desired skills. This option is currently being progressed.</p>
<p><b>Definition of a 'significant' flooding event</b> This is for a LLFA to determine locally. No National Guidance has been established or</p>				✓		✓		<ul style="list-style-type: none"> <li>• Options proposed in the LFRMS for dealing with this issue have been developed based on local circumstances.</li> </ul>	<ul style="list-style-type: none"> <li>• A 'significant' flood event in this local area has been identified as at least 20 properties being affected.</li> <li>• Does not consider climate change implications.</li> <li>• <b>Mitigation: thresholds were reviewed in light of responses</b></li> </ul>

Alternatives tested	SEA Objectives							Summary of performance	Reasons for selection or rejection
	Water	Biodiversity	Soils	Climatic Factors	Material Assets	Pop & Health	Cultural Heritage		
<p>thresholds set by DEFRA in relation to the definition of significant.</p> <p>This could be any threshold. NCC has based this threshold on past flooding experiences.</p>									<p><b>to the public consultation on the LFRMS. No changes have been made.</b></p> <ul style="list-style-type: none"> <li>Relies on good flooding records.</li> <li><b>Mitigation: Need to ensure that flooding records are kept up to date and the public are aware of the importance of reporting their flooding incidents.</b></li> </ul>
<p><b>Thresholds for flood investigations</b></p> <p>This is for a LLFA to determine locally. No National Guidance has been established or thresholds set.</p>				✓		✓		<ul style="list-style-type: none"> <li>Options proposed in the LFRMS for dealing with this issue have been developed based on local circumstances.</li> </ul>	<ul style="list-style-type: none"> <li>Allows events to be categorised. NCC record and collect information on every flood event reported to them to determine if an investigation is required. Investigating flooding provides a history of flooding which is useful knowledge to assess the level of risk and options for its management and to raise the awareness of flooding. A formal flood investigation will be carried out if one or more of the following occurs: Flooding has affected critical infrastructure for a period &lt; 3 hours from the onset of flooding; Internal flooding of one property has been experienced on more than one occasion in the last 5</li> </ul>

Alternatives tested	SEA Objectives							Summary of performance	Reasons for selection or rejection
	Water	Biodiversity	Soils	Climatic Factors	Material Assets	Pop & Health	Cultural Heritage		
									<p>years; Internal flooding of 5 properties in close proximity has been experienced during a single flood incident.</p> <ul style="list-style-type: none"> <li>• <b>Mitigation: thresholds need to be reviewed regularly.</b></li> </ul>

## 4. ASSESSMENT OF THE NORTHAMPTONSHIRE LOCAL FLOOD RISK MANAGEMENT STRATEGY

### *Introduction*

- 4.1. Previous SEA has involved assessment of the LFRMS Strategy Objectives and the Consenting Policies against the SEA Objectives within the SEA Framework; this also included the adopted Action Plan. A summary of the previous assessment is included below for ease of reference. The purpose of this update to the SEA is to assess amendments made to the LFRMS including the Action Plan against the SEA Framework.
- 4.2. Amendments made to the LFRMS involved updating of the policy context, updating to reflect completed work/status of projects (including new actions), removal of guidance/good practice, removal of content migrated to related project and reports, data updates (e.g. baseline information) and partnership or administrative arrangements. Material removed that related to guidance/good practice now makes up the NCC Flood Toolkit (<http://www.floodtoolkit.com/pdf-library/>), which forms a library of living guidance documents on flood risk matters. This action was taken to enable more efficient updating of guidance information. It is not possible, or necessary, to assess these types of amendments through the SEA process.
- 4.3. No amendments to the LFRMS objectives and policies are proposed; in addition much of the content is being rolled forward unchanged, as such further assessment of these components is not required. No other parts of the LFRMS were identified as being possible to assess, as they relate to, for example, partnership or administrative arrangements.
- 4.4. An assessment table has been completed for components of the LFRMS and Action Plan subject to amendment; these can be found in Appendix A. A summary of the assessment is presented below.

### *Assessment Summaries*

#### ***Assessment of the Strategy Objectives***

- 4.5. The assessment found that all of the sub-objectives in relation to the SEA topics of Soils, Cultural Heritage and Landscape were adequately covered by the LFRMS Strategy Objectives.
- 4.6. The assessment found that there were some sub-objectives within the SEA framework that were not being adequately addressed by the LFRMS Strategy Objectives. Where this was the case, mitigation measures were put forward. The suggested mitigation measures and the response from NCC are presented in Table 4.1. The residual effects of the Strategy Objectives, following implementation of the recommended mitigation measures, are identified in Table 4.1. It was concluded that no negative and uncertain effects remained.
- 4.7. In addition to the mitigation and enhancement measures identified in Table 4.1, with regards to the assessment against the Cultural Heritage SEA Objectives, the LFRMS was amended to include specific reference to the historic environment in Objective 3 “Enhance the Natural and Historic Environment – Adopt a sustainable approach to reducing local flood risk, seeking to lessen the risk of localised flooding using mechanisms that are economically viable, deliver wider environmental benefits, conserve and enhance heritage assets and their settings, and promote the wellbeing of local people”. In addition the Action Plan includes an additional action item under Objective 3 “The LLFA will assess the potential impact of flooding on designated heritage sites”. This action was completed in 2015 with outcomes factored into the prioritisation methodology.

As such the related monitoring parameter has been removed from the monitoring strategy.

**Table 4.1 Response to Mitigation and Recommendations put forward in the Strategy Objectives Assessment and Residual Effects**

SEA Topic	Potential conflict	Mitigation measure / enhancement measure	NCC response	Residual negative or uncertain effects
Water	Promoting the sustainable use of water resources is not addressed within the LFRMS objectives or elsewhere in the plan.	<ul style="list-style-type: none"> <li>• Include activities to promote the sustainable use of water as a natural resource within the LFRMS objectives.</li> <li>• Under objective 5 the guidance should include clearer reference to water resources.</li> </ul>	The LLFA does not have any remit with regards to recommending land use. The EA have the remit for dealing with drought and abstraction. The SuDS approval process deals with maintaining water resources; the first option in the SuDS 'train' is source control. Maintaining water quality is part of the strategy objectives.	None
Biodiversity, Flora and Fauna	No potential conflict was identified in the assessment; however, an enhancement measure has been suggested in the third column of this table.	The plan should contain a safeguard for nature conservation from vegetation removal activities to ensure that notices to cut vegetation are not in conflict with nature conservation objectives e.g. BAP species and habitats plans, and also protected species and the habitats and species found in undesignated sites, e.g. removal of vegetation outside of breeding bird seasons etc. and riparian habitats.	NCC has strengthened the requirement to promote the consideration of all designated nature conservation sites and not just in the Nene Valley.	None
Climatic Factors	No potential conflict was identified in the assessment; however, an enhancement measure has been suggested in the third column of this table.	Consider including some more specific activities, which relate to avoiding actions that foreclose or limit future adaptation, or that contribute to climate change.	After 6.38 – wording has been added <i>'as the understanding of climate change is developed, this will be factored into the flood risk prioritisation methodology.</i> Wording added to action 7 in Action plan – <i>The Lead Local Flood Authority will continue to develop and implement actions in highest priority wards and will continue to develop the</i>	None

SEA Topic	Potential conflict	Mitigation measure / enhancement measure	NCC response	Residual negative or uncertain effects
			<i>understanding of climate change implications.</i>	
Material Assets	Critical infrastructure, properties, community facilities and businesses are addressed however a specific reference to community facilities could be included	Include reference to the minimisation of risks to community facilities within Objective 4. Bullet point should be added to 7.4.1 and ensure coverage in Appendix 7.	Objective 4 added ' <i>reduce the harmful consequences of local flooding to communities</i> '. Para 7.4.1 added new bullet point after 8th – <i>Continue to support local communities to develop Community Flood Plans and promote the Community Flood Warden Scheme</i> . Para 7.4.8 added reference to community flood plans/ flood warden scheme.	None
Population and Human Health	<ul style="list-style-type: none"> <li>Objective 4: Preparedness and Resilience deals specifically with local resilience and resistance to local flooding events and will also contribute to minimising community disruption. However no specific reference is made to protecting areas with an amenity use.</li> <li>The objectives will indirectly reduce adverse impacts on human health through actions to reduce flood risk – however this is not mentioned directly.</li> </ul>	<ul style="list-style-type: none"> <li>Include reference to protecting amenity areas within Objectives 4 and 5.</li> <li>Amend Objective 4 as follows: "Objective 4: Preparedness and Resilience deals specifically with local resilience and resistance to local flooding events and will also contribute to minimising community disruption and human health".</li> <li>Add information into Objective 2 (7.2.2), which discusses SWMPs to mention depth and velocity and risk to life and how that can influence development. Under 7.2.4 mention that the outputs to SWMP will be used to inform the development control decisions.</li> </ul>	<ul style="list-style-type: none"> <li>Included reference to protecting amenity areas within Objective 4 and 5.</li> <li>Amended Objective 4</li> <li>Added information into Objective 2 - depth and velocity related to proposed development.</li> <li>Amended 7.2.4 to state that the outputs to SWMP will be used to inform the development control decisions.</li> </ul>	None

### ***Assessment of the Consenting Policies***

- 4.8. This assessment sought to identify whether positive or negative effects could occur as a result of the LFRMS consenting policies. Unless included within Table 4.2 below, the potential effects of the consenting policies were identified as positive. However, a number of potential negative and uncertain effects were identified through the assessment and these are set out within Table 4.2, along with proposed mitigation measures and the response from NCC. Table 4.2 also considers the residual effects of the Consenting Policies following changes made to the LFRMS and concludes that no negative and uncertain effects remain.

**Table 4.2 Response to Mitigation and Recommendations put forward in the Consenting Policies Assessment and Residual Effects**

<b>SEA topic</b>	<b>Potential negative / uncertain effect</b>	<b>Mitigation / enhancement measure</b>	<b>NCC response</b>	<b>Residual negative and uncertain effects</b>
Biodiversity, Flora and Fauna	Policy 6 may be in conflict with nature conservation, e.g. BAP species and habitat plans through the removal of vegetation and this could result in negative effects on habitats and species.	The plan should contain a safeguard for nature conservation from vegetation removal activities to ensure that notices to cut vegetation are not in conflict with nature conservation objectives e.g. BAP species and habitats plans, e.g. removal of vegetation outside of breeding bird seasons etc. and riparian habitats.	7.5.28 reworded – <i>The following policies relate to the Ordinary Watercourse Consenting process. If any works are proposed on Ordinary Watercourses (non-main river) such as: culverting, stopping or diverting watercourses, formal consent will be required. The consenting application process assesses all environmental considerations.</i>	None
Soils	Policy 6 may be in conflict with the protection of soils in the banks of ordinary watercourses as it allows for notice to be served to remove vegetation, which could play a role in stabilising the soils of riverbanks. However, it is unlikely that a notice to remove vegetation would be served if it resulted in the erosion of soils from a riverbank, as this would presumably be in conflict with the purposes of serving such a notice. The policy and supporting text is currently unclear.	7.5.28 should be amended to make it clearer that the consenting process includes consideration of environmental/soils effects.	7.5.28 reworded – <i>The following policies relate to the Ordinary Watercourse Consenting process. If any works are proposed on Ordinary Watercourses (non-main river) such as: culverting, stopping or diverting watercourses, formal consent will be required. The consenting application process assesses all environmental considerations.</i>	None
Cultural Heritage	It is difficult to assess whether the policies will have any negative effects on heritage assets (designated and non-designated)	The LFRMS plan could include a mechanism to trigger the consideration of heritage effects from notices served / prepared	Flood Defence Consents (FDCs) and considerations of heritage: Objective 3 has been amended as follows:	None

SEA topic	Potential negative / uncertain effect	Mitigation / enhancement measure	NCC response	Residual negative and uncertain effects
	<p>and their settings e.g. from vegetation clearance or from requiring repairs to buildings on, over or near to the banks of ordinary watercourses. Negative effects could occur in relation to such activities. Such potential impacts on heritage assets and their settings would need to be assessed at more detailed stages of flood risk management e.g. when notices in relation to these policies are prepared/considered. Considering heritage impacts is included in Objective 5, paragraph 7.5.55.</p>	<p>in relation to these policies 1-12. Ensure that the document “flood risk and the historic environment” is referred to in the consenting process. A screening process could be developed to ensure that notices consider heritage effects.</p>	<p><b>Enhance the Natural and Historic Environment</b> – Adopt a sustainable approach to reducing local flood risk, seeking to lessen the risk of localised flooding using mechanisms that are economically viable, deliver wider environmental benefits, <b>conserve and enhance heritage assets and their settings</b>, and promote the wellbeing of local people;</p> <p>Section 7: Has been developed to include more about enhancing the historic environment. An action has been included to evaluate the impact of flooding on historic assets;</p> <p>Each application for consent is screened to assess any environmental, including heritage, constraints. If any constraints are identified, the applicant is made aware of these constraints. All consents include a disclaimer stating that other consents and permissions may be required before any works can commence.</p>	

### Assessment of the Action Plan

4.9. A key has been used in this assessment to categorise the actions and to identify those that could potentially lead to potential negative environmental effects. The key is set out in Table 4.3 below.

**Table 4.3 Key Used in the Assessment of the Action Plan (see Table A.3 in Appendix A)**

Colour Code	Meaning
	No negative environmental effects anticipated.
	Potential negative effects could occur but information is not yet available on what is proposed to enable the identification of potential effects. Opportunities may also exist to achieve environmental benefits. For actions in the Action Plan for which there is considerable uncertainty, the project checklist (Box 4.1 below) should be used by those progressing the actions to ensure that there is sufficient information to determine whether the proposed action is likely to be compliant with the Habitats Regulations, Water Framework Directive (WFD) and SEA objectives.
	Based on the information available, negative environmental effects are likely to occur which will require further investigation and potential mitigation by those responsible for progressing the action.

4.10. A number of difficulties were identified whilst undertaking the assessment of the Action Plan and these have been discussed in Section 2 under the heading “Difficulties Encountered in Undertaking the SEA”.

4.11. The majority of the items within the Action Plan were categorised as ‘amber’. This is because there is the potential for negative effects to occur as a result of implementation of individual action items, however there is insufficient information to hand, given the early stage of the action item/project, to identify what the effect/s might be and their magnitude, location, timing, etc. A project checklist was developed to ensure that there is sufficient information to determine whether the action is likely to be compliant with the Habitats Regulations, Water Framework Directive and SEA objectives. The checklist is to be applied to the adopted actions, plus any new actions that are to be included as part of each annual review of the Action Plan.

#### **Box 4.1 Project Checklist**

- 1. Are details of the scheme/activity location provided?**
- 2. Are details of any options associated with the scheme/activity provided?**
- 3. Does this scheme/activity require any consents, permits or planning permission and if so what?**
- 4. Does this scheme/activity have the potential for any adverse effects on European designated sites?**
- 5. Does this scheme/activity have the potential to cause deterioration and/or lead to failure to achieve good status/ecological objectives as set out by the WFD?**
- 6. Where this scheme/activity has the potential to cause deterioration or failure to meet potential objectives, do the conditions within Article 4.7 of the WFD apply? (see conditions below).**
- 7. Does the scheme/ activity have the potential to give rise to adverse impacts or potential enhancements with relation to the following criteria:**
  - Water: including hydro-morphological condition, maintenance of the riverside, water quality, water resources, water-based recreational activities;**
  - Biodiversity Flora and Fauna: local, regional, national and international designated nature conservation sites;**
  - Soils: protection and conservation of soils and agricultural land. Risk of diffuse pollution during flooding events;**
  - Climatic Factors: adaption, mitigation and incorporation into decision-making;**
  - Material assets: risk to critical infrastructure, community facilities, properties and businesses;**
  - Population and human health: protection of amenity areas; resilience and risks to human health from flood events;**
  - Cultural Heritage: heritage assets, historic landscape character and their setting;**
  - Landscape: quality of local landscape character areas.**

**Box 4.1 Project Checklist (continued)**

**WFD Article 4.7 conditions:**

***Member States will not be in breach of this Directive when:***

***-failure to achieve good groundwater status, good ecological status or, where relevant, good ecological potential or to prevent deterioration in the status of a body of surface water or groundwater is the result of new modifications to the physical characteristics of a surface water body or alterations to the level of bodies of groundwater, or***

***-failure to prevent deterioration from high status to good status of a body of surface water is the result of new sustainable human development activities,***

***and all the following conditions are met:***

***(a) all practicable steps are taken to mitigate the adverse impact on the status of the body of water;***

***(b) the reasons for those modifications or alterations are specifically set out and explained in the river basin management plan required under Article 13 and the objectives are reviewed every six years;***

***(c) the reasons for those modifications or alterations are of overriding public interest and/or the benefits to the environment and to society of achieving the objectives set out in paragraph 1 are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to sustainable development; and***

***(d) the beneficial objectives served by those modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option.***

- 4.12. Actions within the Action Plan that are of an administrative nature were mainly categorised as 'green' meaning that they would not result in negative environmental effects. This applies to all of the actions relating to Objectives 1, 3, 5 and 6.
- 4.13. A small number of actions within the Action Plan were categorised as 'red' meaning that negative environmental effects are likely to occur which will require mitigation. This relates mainly to actions/projects for which sufficient information is available regarding what is planned to take place and where the information allows the identification of negative effects. Where this is the case, it has not always been possible to put forward mitigation measures because it is not within the remit of NCC to enforce the mitigation because either the action/project is the responsibility of another party, or mitigation will be put in place through other processes e.g. Environmental Impact Assessment and the planning consent process.
- 4.14. A number of recommendations and mitigation measures have been put forward through the SEA. The response to these measures by NCC is detailed in Table 4.4.

**Table 4.4 Response to Mitigation and Recommendations put forward in the Action Plan Assessment and Residual Effects**

Action/Projects	Assessment colour code (key in table 4.1)	Mitigation measure / enhancement measure	NCC response	Residual negative and uncertain effects
<b>Objective 4</b>				
Kings Sutton, Wales Street (Black Brook) Flood Alleviation Scheme		Mitigation: It is recommended that the options are reconsidered with regards to environmental effects and WFD compliance, as well as the preferred option being subject to archaeological assessment, a protected species survey and environmental assessment. An option which involves taking no action should also be considered.	Factor the environmental, WFD and heritage requirements into future investigations. The environmental assessment will cover the protected species survey and the historic assessments would cover archaeology.	
Chacombe Flood Alleviation Scheme Study		Mitigation: The study should consider the environmental and WFD impacts of different options, including taking no action.	Factor the environmental, WFD and heritage requirements into future investigations.	
<b>Objective 7</b>				
The LLFA will actively encourage Flood Risk Management activities by Riparian owners in highest priority wards		Mitigation: This action could consider different options or approaches which should consider the potential for environmental and WFD impacts and include taking no action.	Ensure that any correspondence with Riparian owners outlines the need for environmental, historic and WFD protection measures to be incorporated.	

### *Potential significant residual effects*

- 4.15. The LFRMS is likely to result in a number of significant positive effects as identified within the assessment tables within Appendix 1 and within tables 4.1, 4.2 and 4.4.
- 4.16. However, due to the uncertainty identified within the assessment of the Action Plan that cannot be mitigated at this stage, that there are a number of uncertain negative effects that could occur as a result of the LFRMS. The potential significant negative effects are listed below. These effects could potentially occur in both the long and short term:
- Uncertain negative effects on biodiversity, flora and fauna, including destruction and fragmentation of riparian habitats, alteration of bank structure and disturbance of related fauna species from projects which require consent and from actions/projects within the Action Plan. Such effects could be temporary and permanent. This could potentially be a Water Framework Directive compliance issue;
  - Uncertain temporary negative effects on water quality from engineering works, from increased sediment movement/turbidity. This could potentially be a Water Framework Directive compliance issue; and
  - Uncertain temporary or permanent effects on the condition and settings of historic assets at risk of flooding and in close proximity to ordinary watercourses from projects that require consent and from actions/projects within the Action Plan.
- 4.17. The project checklist was identified as a mitigation measure which would ensure that information is made available in order to assess whether actions within the Action Plan or considered for addition to the Action Plan, could have significant environmental effects, as listed above. The project checklist and its recommended application have not been amended through the update of the LFRMS. The checklist should be used when these actions are being undertaken and also when the actions are being progressed at project level. As noted previously, many of the actions are not the responsibility of NCC and it is therefore intended that this checklist be used to support the consideration of potential environmental and WFD effects.

## 5. PROPOSED MONITORING STRATEGY

- 5.1. There is a statutory requirement under the SEA Directive to monitor the significant environmental impacts of implementing the LFRMS. Specifically, the SEA Directive stipulates that “member states shall monitor the significant environmental effects of the implementation of plans and programmes...in order to identify at an early stage unforeseen adverse effects, and to be able to undertake appropriate remedial action” (Article 10.1). In addition to helping to identify unforeseen environmental problems, monitoring also provides important feedback on the success of the strategy and progress towards achieving its objectives. It can also be used to compile baseline information for future revisions of the strategy, and provide information for the SEA of other plans or strategies.
- 5.2. Responsibility for monitoring the LFRMS lies with the Council. The monitoring of the implementation of the measures identified for managing local flood risk in Northamptonshire will be undertaken on an annual basis and will be led by the Council's Local Flood Risk Operational Group. A report documenting the outcomes of this monitoring will be published as necessary.
- 5.3. Monitoring the objectives and actions is paramount as the LFRMS is a ‘living document’. The Action Plan contains indicators to ascertain if the actions have been successfully undertaken.
- 5.4. A number of actions remain outside the remit of NCC and therefore Officers will have to work closely with partners in order to keep up to date with these outputs. With regards to the potential negative effects identified within the Action Plan, NCC will take responsibility for the on-going monitoring of these effects and any other unforeseen effects as the schemes come forward through the Action Plan. NCC will also take responsibility for ensuring that any effects that are shown by the monitoring results to be of concern are addressed. The procedures for addressing adverse effects revealed by monitoring or for remedying at an early stage, unforeseen adverse effects caused by the plan are set out in the table below:

**Table 5.1 LFRMS Monitoring Framework**

SEA topic	Potential negative effect	Monitoring indicator (and period)	Authority Responsible for monitoring	Notes
Water	Reduction in water quality from engineering works relating to actions within the Action Plan Engineering works relating to the action plan also have the potential to impact WFD through the ecological status of water bodies. For example, destruction and fragmentation of riparian habitats, alteration of bank	Condition of water bodies in Northamptonshire (assessed on an annual basis). Ecological and chemical status of water bodies (assessed on a case-by case basis and reported on annually).	Environment Agency (EA)	All projects are coordinated through the NCC LFROG group. Each project will be assessed to ensure that appropriate safeguards are put in place and consents are secured in advance of any works. Adequate mitigation measures will be incorporated where considered

SEA topic	Potential negative effect	Monitoring indicator (and period)	Authority Responsible for monitoring	Notes
	structure and disturbance of related fauna species etc.			necessary. If unforeseen adverse effects do arise, compensation measures will be agreed and put in place.
Biodiversity, flora and fauna	Decrease in biodiversity from engineering works relating to actions within the Action Plan and projects requiring consent.	<p>Changes in condition of designated and recognised sites (assessed annually).</p> <p>Requirements for habitat compensation arising out of the LFRMS (developed as part of scheme development and then monitored on an annual basis through the Action Plan).</p> <p>Number of flood defence schemes implemented to protect designated and non-designated biodiversity rich sites, since the LFRMS was published (developed as part of scheme development and then monitored on an annual basis through the Action Plan).</p> <p>Ecological and chemical status of water bodies assessed on case-by-case basis and reported on annually.</p>	Natural England	<p>Ensure general safeguarding and conformity with Biodiversity Action Plan targets and objectives throughout the works and ensure that appropriate consent is provided.</p> <p>If unforeseen adverse effects do arise, compensation measures will be agreed and put in place.</p>
Cultural heritage	Increase in number of heritage assets (designated and non-designated) at risk of flooding due to climate change.	<p>Number of heritage assets at risk of flooding events (updated with flood mapping and then checked annually).</p> <p>Assessed on case-by-case basis and reported on annually.</p>	Historic England	<p>Ensure general safeguarding and conformity with Biodiversity Action Plan targets and objectives throughout the works and ensure that appropriate consent is provided.</p> <p>If unforeseen adverse effects do arise, compensation measures will be</p>

SEA topic	Potential negative effect	Monitoring indicator (and period)	Authority Responsible for monitoring	Notes
				agreed and put in place.

## 6. NEXT STEPS

- 6.1. This Environmental Report (of which this document forms a part) is the draft report, which accompanies the updated LFRMS. It is published and available to view and download on the NCC Flood Toolkit at <http://www.floodtoolkit.com/pdf-library/>.
- 6.2. The updated SEA Scoping Report and Environmental Report was consulted on for a 6 week period from 16<sup>th</sup> June 2016 to 28<sup>th</sup> July 2016, alongside the updated LFRMS. Consultation included the statutory SEA consultees, other key stakeholders and the public. All comments received have been given due consideration and amendments made where considered appropriate in preparing the final SEA and LFRMS documents.

## APPENDIX 1: ASSESSMENT TABLES

Table A1 Action Plan Assessment Table

(Note: New action items subject to assessment are marked in red text – all others have been subject to previous assessment through the SEA process with no further assessment required.)

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
<b>Objective 1</b>				
The Lead Local Flood Authority (LLFA) will explore opportunities for Flood Awareness Campaigns		Indirect environmental awareness raising. Potentially positive.	No specific alternatives are considered to be reasonable to this action.	None at this stage
The LLFA will continue to promote partnership working		Opportunities to achieve wider environmental benefits.	No specific alternatives are considered to be reasonable to this action.	None at this stage
The LLFA will train council staff in each of the call centres to enable advice to be given to the public in a flood incident		Population and human health benefits.	No specific alternatives are considered to be reasonable to this action.	None at this stage
The LLFA will investigate flooding incidents in accordance with Section 19 of the Flood & Water Management Act (2010)		Awareness raising. Protection of property, materials assets benefits.	No specific alternatives are considered to be reasonable to this action.	None at this stage
<b>Objective 2</b>				
Develop improved Geographic Information System (GIS) tools for the LLFA		Mapping. Can be used for WFD. Improves data set to inform and manage plan.	No specific alternatives are considered to be reasonable to this action.	None at this stage
The LLFA will continue to develop and implement actions in highest priority areas		Potentially very positive. Potential to designate flood assets. Opportunities exist for benefits to be achieved too.	No specific alternatives are considered to be reasonable to this action.	None at this stage
Corby Borough Council (CBC) will carry out a Flood Risk Management (FRM) Plan of Corby	Not applicable (NA)	Completed 2015	NA	NA
Kettering Borough Council (KBC) will carry out a SWMP for Kettering Borough		Potential for positive effects. Actions coming out of SWMP may need environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
NCC will carry out a SWMP for the Borough of Wellingborough		Potential for positive effects. Actions coming out of SWMP may need environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
NCC will carry out a SWMP of East Northamptonshire		Potential for positive effects. Actions coming out of SWMP may need environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
NCC will carry out a SWMP of South Northamptonshire		Potential for positive effects. Actions coming out of SWMP may need environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
NCC will carry out a SWMP of Daventry District		Potential for positive effects. Actions coming out of SWMP may need environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Anglian Water Services (AWS) will undertake a survey/ CCTV investigation of highest risk areas of surface water drainage network		Potential for positive effects. Actions coming out of study may need environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Severn Trent Water will continue to investigate and address flood risk issues		Indirect environmental awareness raising and opportunities to achieve wider environmental benefits. Protection of property, material assets benefit. Potential for positive effects.	No specific alternatives are considered to be reasonable to this action.	None at this stage
Investigation into Flooding at Kislingbury		Potential for positive effects. Actions coming out of investigation may need environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
<b>Objective 3</b>				
The LLFA will continue to inform new and update development plan policies		Potential benefits in relation to water resources, water quality, biodiversity, climate change and landscape. WFD compliance.	Other projects within the Action Plan may also result in environmental benefits and will also be in support of Objective 3. No specific alternatives are considered to be reasonable to these actions.	None
The LLFA will assess the potential impact of flooding on designated environmental sites	NA	Completed 2014	NA	NA
The LLFA will assess the potential impact of flooding on designated heritage sites	NA	Completed 2015	NA	NA
The LLFA will continue to promote the environmental actions outlined in Objective 3		Potential benefits for the environment.	No specific alternatives are considered to be reasonable to this action.	None
The LLFA to promote the actions resulting from WFD investigations for heavily modified water bodies		Potential benefits in relation to water resources, water quality, biodiversity, climate change and landscape. WFD compliance.	No specific alternatives are considered to be reasonable to this action.	None
Brampton Branch Integrated Water Framework Directive and Flood Risk Management catchment based approach		Potential benefits in relation to water resources, water quality, biodiversity, climate change and landscape.	No specific alternatives are considered to be reasonable to this action.	None
River Ise Integrated Water Framework Directive and Flood Risk Management catchment based approach		Potential benefits in relation to water resources, water quality, biodiversity, climate change and landscape.	No specific alternatives are considered to be reasonable to this action.	None
Middle Nene integrated Water Framework Directive and Flood Risk Management catchment based approach		Potential benefits in relation to water resources, water quality, biodiversity, climate change and landscape.	No specific alternatives are considered to be reasonable to this action.	None

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
Upper Nene Water Framework Directive and Flood Risk Management catchment based approach		Potential benefits in relation to water resources, water quality, biodiversity, climate change and landscape.	No specific alternatives are considered to be reasonable to this action.	None
Willow Brook Integrated Water Framework Directive and Flood Risk Management catchment based approach		Potential benefits in relation to water resources, water quality, biodiversity, climate change and landscape.	No specific alternatives are considered to be reasonable to this action.	None
River corridor habitat improvement for WFD compliance at Gretton		Potential benefits in relation to water resources, water quality, biodiversity, climate change and landscape.	No specific alternatives are considered to be reasonable to this action.	None
River Ise SSSI Improvements		Potential benefits in relation to water resources, water quality, biodiversity, climate change and landscape.	No specific alternatives are considered to be reasonable to this action.	None
<b>Objective 4</b>				
NCC will review and update the Multi Agency Flood Plan (MAFP)	NA	Completed 2015	NA	NA
The LLFA to undertake a Community Resilience Pathfinder project to develop community flood resilience	NA	Completed 2015	NA	NA
<b>The LLFA to take forward the findings of the Community Resilience Pathfinder project to 30 new prioritised communities</b>		Awareness raising. Protection of property, material assets benefit. Potential for positive effects.	No specific alternatives are considered to be reasonable to this action.	None at this stage
The LLFA to undertake a pilot project to 'package' the project appraisal process for flood alleviation schemes	NA	Completed 2016	NA	NA
The LLFA will explore flood warning opportunities	NA	Completed 2015	NA	NA

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
Undertake further Groundwater Flood Risk Assessment in highest priority wards to inform preparedness and mitigation (new)		Awareness raising. Potential for positive effects. Actions coming out of study may need environmental assessment.	No specific alternatives are considered to be reasonable to this action.	None at this stage
Development of Groundwater Flood Risk Forecasting (new)		Awareness raising. Protection of property, material assets benefit. Potential for positive effects.	No specific alternatives are considered to be reasonable to this action.	None at this stage
AWS and EA will undertake investigation into the maintenance and clearance of surface water outfalls on the River Nene		Risks and opportunities for environmental impacts and improvements. Would need consent. Indicates a wider catchment issue. Potential WFD compliance issue with works potentially involved. Need to look for opportunities to avoid silting up again e.g. sediment traps.	The investigation should consider the environmental and WFD impacts of different options, including taking no action. It should also consider identifying the sediment sources and reducing the input of sediment at source. This will bring wider benefits to water quality and the condition of water bodies as well as reducing the need to clear silt at the outfalls.	None at this stage
Skew Bridge, Rushden Refurbishment Project		Outputs of study may need environmental assessment. Water, biodiversity, climate change and landscape benefits.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Hog Dyke, Raunds Refurbishment Project		Outputs of study may need environmental assessment. Water, biodiversity, climate change and landscape benefits.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Nether Heyford Flood Alleviation Scheme		Depends on outcomes of study. May require environmental assessment. Possible opportunities relating to meadow and flood storage function in this area.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
Nene Lock Reversal and Nene Structure Refurbishment Study		There is potential for this project to have negative environmental impacts but the details of the project are not yet known and there are uncertainties. Depends on what comes out of study. May require environmental assessment. There may be potential for environmental opportunities, such as fish passes.	The environmental effects of options (including taking no action) should be considered as part of the study before a preferred option is identified.	None at this stage
Welland and Nene Property Level Protection (amended)		This would include the installation of devices such as air-brick covers and flood gates etc. and therefore this will have population and health benefits.	No specific alternatives are considered to be reasonable to this action.	None at this stage
Wootton Brook Flood Alleviation Scheme	NA	Completed 2015	NA	NA
Harpers Brook Flood Alleviation Scheme		Depends on outcomes of the initial study. May require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Harrowden Brook Flood Storage Reservoir Study		Depends on outcomes of study. May require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Swanspool Brook Flood Storage Reservoir Study		Depends on outcomes of study. May require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
Corby Culvert – Sewage Works additional storage and vegetation clearance		Works include replacement culvert and widening channel to provide additional channel capacity, plus vegetation clearance works at the STW. Needs detailed environmental assessment and mitigation to go ahead. Critical to growth of Corby. The HRA has also identified a potential likely significant effect in relation to water quality on the Upper Nene Gravel Pits SPA in combination with accompanying housing development.	The study should consider the environmental, Habitats Regulations and WFD impacts of different options, including taking no action.	None at this stage
Flood Attenuation Measures for development in Northampton		No capacity in drains. Not sure what impacts of actions might be. Outputs of study likely to need environmental assessment. The HRA has identified that there could be a potential likely significant effect in relation to water quality on the Upper Nene Valley Gravel Pits SPA in combination with accompanying housing development.	The study should consider the environmental, Habitats Regulations and WFD impacts of different options, including taking no action.	None at this stage
Flood Attenuation Measures for Sustainable Urban Extensions (SUEs) and Strategic Employment Sites (SESs)		Not known at this stage what this will entail, whether it will be on or off site. Attenuation measures to be proposed and mitigated by the developer/s.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None
West End, Silverstone Flood Alleviation Scheme	NA	Completed 2015	NA	NA

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
Kings Sutton, Wales Street (Black Brook) Flood Alleviation Scheme		Potential significant negative effects. This project will require planning permission and flood risk consent. It is currently going through the process of applying for planning permission. The scheme entails the building of a bund typically up to 1m high, running to the rear of the houses on the north side of Wales Street. Partial diversion of Black Brook would be required to make room for the bund. Once planning permission is secured, detailed design would be required. This would include rigorous environmental assessment of the scheme's impacts and benefits, and make recommendations to achieve environmental enhancement as far as possible, and mitigate any negative aspects of scheme.	Options have been considered in a feasibility study which has considered engineering and the cost implications of options. The proposed option is considered to be the most cost effective and would give the greatest reduction in flood levels when compared to alternatives. <b>Mitigation: It is recommended that the options are reconsidered with regards to environment effects and WFD compliance, as well as the preferred option being subject to archaeological assessment, a protected species survey and environmental assessment, where necessary. An option which involves taking no action should also be considered.</b>	Factor the environmental, WFD and heritage requirements into future investigations. The environmental assessment will cover the protected species survey and the historic assessments would cover archaeology.
Kings Sutton, Windsor Close Flood Alleviation Scheme	NA	Complete 2014	NA	NA

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
Chacombe Flood Alleviation Scheme Study		This project may require Planning Permission/flood defence consent but detail of scheme is unknown. The proposed study would involve a full topographical survey and modelling to seek to understand the flood mechanisms and determine options for flood alleviation. The study would include a full environmental assessment. A high level assessment has been made and there are no known environmental issues. This is not a Designated Site.	The proposed study would involve a full topographical survey and modelling to seek to understand the flood mechanisms and determine options for flood alleviation. The study would include a full environmental assessment. <b>Mitigation: The study should consider the environmental and WFD impacts of different options, including taking no action.</b>	Factor the environmental, WFD and heritage requirements into future investigations.
Surface Water Flood Risk Improvement Works at Berry Lane, Wootton		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Highway Improvements Investigation at Hall Yard, Kings Cliffe		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Surface Water Flood Risk Improvement Works at Cosgrove Road, Old Stratford		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Surface Water Flood Risk Improvement Works at East Street, Long Buckby		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
Surface Water Flood Risk Improvement Works at Main Road, Shutlanger		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Surface Water Flood Risk Improvement Works at Woodland Avenue & Grosvenor Road, Barton Seagrave	NA	Complete 2014	NA	NA
Flood Risk Improvement Works at Elmington A605		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvement Works at Duck End & Freeman's Lane, Denford		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Surface Water Flood Risk Improvement Works at Silver Street North, Chacombe	NA	Complete 2014	NA	NA
Flood Risk Improvement Works at High Street, Charwelton		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Blackmile Lane, Grendon Flood Risk Management Scheme (amended)		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
Sywell Flood Risk Management Scheme		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvement Works at Gainsborough Road, Corby	NA	Completed 2016	NA	NA
Flood Risk Improvement Works at Creaton Road, Hollowell		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvement Works at Bedford Road, Northampton		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvement Works at Weedon Bec		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvement Works at West End, West Haddon	NA	Completed 2015	NA	NA
Flood Risk Improvement Works at Woodford Halse		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
Flood Risk Improvement Works at Stanford Road, Cold Ashby (amended)	NA	Completed 2015	NA	NA
Flood Risk Improvement Works at Grimscote (amended)		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvement Works at Harpole		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvement Works at Harrington Road, Kelmarsh		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvement Works at Helmdon (amended)		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvement Works at Quinton (amended)		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
Flood Risk Improvement Works at Syresham (amended)		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvement Works at Port Road, Upper Harlestone		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvement Works at Chelveston		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Flood Risk Improvements Works at Cottingham Road, Corby		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
East Brook Culvert, Kettering - Condition Survey		A detailed investigation will be required to determine exact works. The potential impacts will depend on final solution, which may therefore require environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage
Kettering Rain Water Garden (SuDS) Schemes		Potential for positive effects. Actions coming out of study may need environmental assessment.	The study should consider the environmental and WFD impacts of different options, including taking no action.	None at this stage

Action	Assessment	Commentary	Alternatives commentary	NCC Action Required
<b>Objective 5</b>				
The LLFA will set up a Statutory Consultee service to the planning application process for Surface Water Drainage	NA	Completed 2015 - ongoing	NA	NA
The LLFA will create guidance leaflets in relation to flood risk	NA	Completed 2015	NA	NA
The LLFA will increase its knowledge and understanding of groundwater flood risk in the County and produce relevant guidance		Potential benefits through increased understanding of groundwater mechanisms.	No specific alternatives are considered to be reasonable to this action.	None at this stage
<b>Objective 6</b>				
Funding arrangements		Administrative activities. Potential to result in positive benefits through sourcing funding for works.	No specific alternatives are considered to be reasonable to this action.	None at this stage
Influence funding arrangements		Administrative activities. Potential to result in positive benefits through sourcing funding for works.	No specific alternatives are considered to be reasonable to this action.	None at this stage
<b>Objective 7</b>				
The LLFA will actively encourage Flood Risk Management activities by riparian owners in highest priority wards		Potential for both positive and negative impacts as more works within and adjacent to watercourses will be encouraged.	<b>Mitigation: This action could consider different options or approaches which should consider the potential for environmental and WFD impacts and include taking no action.</b>	Ensure that any correspondence with Riparian owners outlines the need for environmental and WFD protection measures to be incorporated.