

# Local Flood Risk Management Strategy

## Strategic Environmental Assessment Environmental Report

Warwickshire County Council

February 2016

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- C. Consultation Responses to Scoping Report

# Abbreviations

Abbreviation	Definition
DCLG	Department for Communities and Local Government
DEFRA	Department for Environment, Food and Rural Affairs
ER	Environmental Report.
FCERM	Flood and Coastal Erosion Risk Management
GIS	Geographical Information Systems
HRA	Habitat Regulations Assessment
LFRMS	Local Flood Risk Management Strategy
LNR	Local Nature Reserve
LBAP	Local Biodiversity Action Plan
PPP	Plans, Programmes and Policies
RMA	Risk Management Authority
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems
WCC	Warwickshire County Council

# Non-Technical Summary

## Overview of Process and Purpose of Strategic Environmental Assessment

Warwickshire County Council (WCC) is preparing a Local Flood Risk Management Strategy (LFRMS) for the County that will form the framework within which communities have a greater say in local flood risk management decisions.

This document is the Environmental Report (ER) for the WCC LFRMS. The purpose of this ER is to outline how the statutory requirements for Strategic Environmental Assessment (SEA) have informed the development of the LFRMS. It records all the environmental assessment work undertaken predicting and evaluating the effects of strategic options and the preferred strategy.

## The Process Followed

There are five stages (A to E) in the SEA process. Stages A to C, as described below, have been completed thus far:

### Stage A

- Identifying other plans, programmes and sustainability objectives that inform and influence the development of the LFRMS;
- Establishing an understanding of the social and environmental conditions of Warwickshire County (referred to as 'the baseline');
- Identifying key environmental sustainability issues in the County;
- Outlining SEA Objectives against which to later evaluate the LFRMS Measures;
- Gathering consultation feedback on the proposed breadth of coverage and level of detail for the SEA.

### Stage B

- Assessing the initial LFRMS Objectives against the SEA Objectives;
- Assessing a series of options for the development of measures;
- Completing an assessment of the LFRMS preferred measures and actions;
- Identifying the cumulative, synergistic and indirect effects likely to arise as a result of the implementation of the LFRMS measures;
- Identifying appropriate mitigation to avoid predicted negative effects and making recommendations to further enhance predicted beneficial effects, where appropriate; and
- Identifying a suitable monitoring programme.

### Stage C

- Preparation of Environmental Report to accompany the Draft LFRMS for consultation.

## Habitats Regulations Assessment

The EU Habitats (92/43/EEC) and Birds (2009/147/EEC) Directives aim to protect European birds and species and the habitats that support them. In the UK, the Directives are implemented through the Conservation of Habitats and Species Regulations 2010, as amended. These are known as the Habitats Regulations.

The legislation requires 'competent authorities' to undertake an 'appropriate assessment' of plans, projects and strategies that may have a significant effect on the site, if those plans, projects or strategies are not directly concerned with the management of the protected sites themselves. The process that includes the 'appropriate assessment' is known as a Habitats Regulations Assessment (HRA).

Paragraph 118 of the National Planning Policy Framework (NPPF) states that any 'sites identified, or required as compensatory measures for adverse effects on European sites Special Protection Areas (SPA) and Special Areas of Conservation (SAC), potential SPAs, possible SACs and listed or proposed Ramsar sites... should be given the same protection as European sites'.

The HRA Screening Assessment identified five European sites (all Special Areas of Conservation) that could potentially be affected by the LFRMS. These are:

- Ensor's Pool SAC
- Bredon Hill SAC
- Cannock Extension Canal SAC
- Lyppard Grange Ponds SAC
- River Mease SAC

The Draft LFRMS has been screened with the result that there are no Likely Significant Effects anticipated either alone or in combination with other plans or projects.

Although the requirements and process for HRA are separate from that for SEA, the two processes have been run in parallel for the LFRMS and the HRA has informed the SEA.

## Local Flood Risk Management Strategy

The Flood and Water Management Act 2010 (the Act) establishes that flood risk will be managed within the framework of National Strategies for England and Wales and Local Strategies for each Lead Local Flood Authority (LLFA) area. WCC is the LLFA for Warwickshire.

The Warwickshire LFRMS provides an overview and assessment of local flood risk, setting out objectives and measures for how WCC will manage and reduce local flood risk. It covers the county of Warwickshire comprising the five local authorities of North Warwickshire, Nuneaton and Bedworth, Rugby, Stratford-upon-Avon and Warwick. The Act also requires that the LFRMS must specify the following.

- The risk management authorities (RMAs) in the county.
- The flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the county.
- The assessment of local flood risk for the purpose of the Strategy.
- 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.
- How and when the Strategy is to be reviewed.
- How the Strategy contributes to the achievement of wider environmental objectives.

The LFRMS must be consistent with the national Flood and Coastal Erosion Risk Management (FCERM) strategy, produced by the Environment Agency in September 2011.

The Draft LFRMS sets five objectives and a number of measures and actions to fulfil the achievement of these objectives. The objectives are as follows.

- O1. To develop a better understanding of local flood risk in Warwickshire to better manage flood risk to people, property, infrastructure and the natural environment.
- O2. Seek to reduce local flood risk in Warwickshire in an economically, socially and environmentally sustainable way.
- O3. Adopt a collaborative approach to local flood risk management.
- O4. Promote community preparedness and resilience to local flood risk.
- O5. Enable planning decisions to take full account of local flood risk and seek to reduce local flood risk through development.

The measures proposed can be found under the Assessment of Preferred Strategy section below.

## Environmental Baseline and Key Issues

The baseline data provides an overview of the characteristics of the LFRMS area and how these compare to the region and the UK. The following topics have been considered:

- Population trends and demographics;
- Biodiversity, nature conservation and landscape including:
  - European designations for nature conservation
  - National designations for nature conservation
  - Local designations for nature conservation
  - Wildlife habitats
- Heritage assets including:
  - Listed buildings and buildings 'at risk'
  - Conservation areas
  - Registered Parks and Gardens
  - Archaeological sites
  - Scheduled Monuments
- Natural resources including:
  - Water Catchment Management Strategies
  - Water chemical and biological quality
  - Groundwater and Source Protection Zones
  - Climate Change
  - Flood risk and indicative flood risk areas
  - Geological Assets and Minerals in the County
- Health;
- Community Satisfaction and Cohesion; and
- The Key Characteristics of the Districts and Boroughs.



## Strategic Environmental Assessment Framework

The SEA Framework is a key tool in completing the SEA as it allows the assessment of the effects arising from the LFRMS proposals to be undertaken in a systematic way. The SEA Objectives were consulted upon through the SEA Scoping Report and are supported by a range of decision-making questions which have played a role in the assessment itself. The SEA Objectives that have been identified are as follows.

- 1 Reduce health inequalities and promote community health, social care and well-being.
- 2 Reduce the risk of surface, groundwater and sewer flooding taking account of climate change.
- 3 Conserve and enhance Warwickshire's biodiversity, geodiversity and green infrastructure network.
- 4 Conserve and enhance European sites (HRA specific objective).
- 5 Safeguard and strengthen landscape character and quality.
- 6 Conserve and enhance the historic environment, heritage assets and their settings.
- 7 Protect and enhance soil and soil function, and increase resilience to degradation.
- 8 Reduce the causes of climate change.
- 9 Protect and improve the water environment.
- 10 Encourage people and businesses to take action to manage the flood risks they face.

## Compatibility between LFRMS and SEA Objectives

An initial version of the LFRMS objectives prepared by WCC was tested early on in the SEA process for compatibility with the SEA objectives. This helped to consider to what degree the initial LFRMS objectives were in accordance with SEA objectives with a view to developing and refining the LFRMS objectives through an iterative process informed by SEA recommendations. Recommendations were put forward requiring LFRMS objective 1 to acknowledge that a better understanding of local flood risk needs to be developed in order to reduce flood risk to people, property, infrastructure and the natural environment and that two potentially incompatible aspects in terms of reducing flood risk – economics and environment - needed to be better addressed in LFRMS objective 2. Following discussions with the Council, the SEA recommendations were taken on board and the final draft LFRMS objectives are those listed below:

- O1. To develop a better understanding of local flood risk in Warwickshire to better manage flood risk to people, property, infrastructure and the natural environment.
- O2. Seek to reduce local flood risk in Warwickshire in an economically, socially and environmentally sustainable way.
- O3. Adopt a collaborative approach to local flood risk management.
- O4. Promote community preparedness and resilience to local flood risk.
- O5. Enable planning decisions to take full account of local flood risk and seek to reduce local flood risk through development.

## LFRMS Options

For each LFRMS objective, a series of alternative flood risk management measures were originally developed by WCC. These were based on the scenarios of 'do nothing' and 'do more'. Different degrees of compatibility with the SEA objectives have been identified for the alternative measures. Recommendations (as set below) were made in terms of additional measures to improve the compatibility with the SEA objectives.

- LFRMS Objective 1 - the creation of a register of flood defence assets would further improve local knowledge on localised flooding and ascertain where further investigations are required to assess whether the risk or impacts associated with flooding can be minimised.
- LFRMS Objective 2 - a measure promoting solutions which work with the natural environment and reduce environmental impacts should be sought.
- LFRMS Objective 4 - further measures that could be considered in the development of the preferred strategy include working with partners to improve communications during flood events and establish a co-ordinated approach to the provision of management measures during flood events.
- LFRMS Objective 5 - further measures that could be considered in the development of the preferred strategy include the development of further policy and guidance to control inappropriate development and the promotion of SuDS measures in new development.

The recommendations were taken on board by WCC in determining the Draft Preferred Strategy.

## Assessment of Draft Preferred Strategy

WCC developed a Draft LFRMS (May 2015) which included a number of measures and actions to achieve the LFRMS objectives which were the subject of a more detailed assessment. A number of 'No Regrets' Measures that WCC and partners have already undertaken, are currently doing, and should continue to do to effectively manage local flood risk in Warwickshire were also identified separately by WCC in the Draft LFRMS. These measures are considered to also contribute to the achievement of the LFRMS objectives and have been considered as part of the Draft Preferred Strategy for the purpose of the assessment. A list of the measures and actions assessed and a summary of the results of the assessment are reproduced below.

### Measures and Actions Proposed in Draft LFRMS (May 2015)

Measures	Actions
<b>Objective 1: Develop a better understanding of local flood risk in Warwickshire to better manage flood risk to people, property, infrastructure and the natural environment</b>	
1A: Further develop the Surface Water Management Plan for the county to gain a better understanding of key flooding hotspots, risks and associated consequences.	<ul style="list-style-type: none"> <li>• Undertake further assessment of surface water flood risk in key risk hotspots with detailed hydraulic modelling where appropriate.</li> <li>• Identification of areas where targeted maintenance and improvements to watercourses and drainage systems are required.</li> <li>• Prepare a Strategic Flood Map to present the SWMP results.</li> <li>• Communicate results of the SWMP with Local Authority planners to assist them in assessing flood risk in planning applications.</li> </ul>
1B: Work with partners to investigate locally significant flooding incidents and identify sources, pathways and receptors of flooding.	<ul style="list-style-type: none"> <li>• Undertake flood investigations.</li> <li>• Test and validate approach to prioritisation of flood investigations.</li> <li>• Test and review thresholds for when WCC will undertake Section 19 flood investigations.</li> <li>• Publish the results of flood investigations on the WCC website and to notify relevant risk management authorities of the outcomes.</li> </ul>

1C: Further develop and continue to maintain a register of flood risk management assets with a record of the significant structures with respect to flood risk, together with details of ownership and state of repair and where appropriate the designation of such structures or features, which may affect flood risk.	<ul style="list-style-type: none"> <li>• Develop a record of each structure, together with details of ownership, state of repair, and where appropriate, the designation of such structures or features which may affect flood risk.</li> <li>• Develop a procedure for the periodic review and update of the asset register.</li> </ul>
1D: Review the Preliminary Flood Risk Assessment as required by the EU Floods Directive and Flood Risk Regulations (2009).	<ul style="list-style-type: none"> <li>• Complete review of the Warwickshire PFRA by June 2017.</li> </ul>
'No Regrets' Measure: Solving minor drainage systems blockages during investigative work.	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>Objective 2: Seek to reduce local flood risk in Warwickshire in an economically, socially and environmentally sustainable way</b>	
2A: The actions of the emerging SWMP to be progressed, where suitable flood risk management schemes are identified and funding to be sought.	<ul style="list-style-type: none"> <li>• Develop a prioritised list of potential local flood risk management capital schemes to be taken forward for detailed analysis and development of options to reduce flood risk</li> <li>• Develop a supporting Investment Strategy for each of the sites on the prioritised list.</li> <li>• Develop business cases for potential capital schemes.</li> </ul>
2B: To work with partners to encourage flood management activities by riparian landowners on ordinary watercourses and flood defence structures as well as limiting the development of constrictions on ordinary watercourses through consenting and, if necessary, enforcement.	<ul style="list-style-type: none"> <li>• Produce a leaflet for riparian landowners regarding their rights and responsibilities with respect to ditches, watercourses, culverts and hedges.</li> <li>• Ensure all work undertaken is in line with the requirements of the Water Framework Directive, and in compliance with the recommendations of the River Basin Management Plan</li> <li>• Continue to consent work to ordinary watercourses.</li> <li>• Undertake enforcement to remove unapproved constrictions on ordinary watercourses.</li> </ul>
2C: To work with partners to encourage flood schemes by third parties, riparian landowners and stakeholders.	<ul style="list-style-type: none"> <li>• Make use of County Council funds to provide partnership contributions to flood alleviation schemes on a prioritised basis considering economic benefits.</li> <li>• Provide technical advice to third parties, riparian landowners and stakeholders.</li> </ul>
2D: To lead on the implementation of local flood risk management schemes and work with partners to best utilise funding obtained through a prioritised risk-based approach.	<ul style="list-style-type: none"> <li>• Make use of funding from County Council to provide partnership contributions to flood alleviation schemes on a prioritised basis considering economic benefits.</li> <li>• Identify schemes with multiple benefits beyond flood risk management including environmental enhancements, meeting WFD objectives and facilitating economic development and regeneration</li> </ul>
2E: To promote environmentally sustainable solutions including de-culverting, natural flood risk management, blue/green infrastructure, increased tree cover, catchment sensitive farming.	<ul style="list-style-type: none"> <li>• Explore the potential for use of environmentally sustainable solutions in all WCC led flood risk management schemes.</li> </ul>
2F: To ensure that Natura 2000 sites within Warwickshire are not adversely affected by flood risk	<ul style="list-style-type: none"> <li>• Ensure that any works or schemes within the 1:200 year surface water flood risk zone around Ensor's Pool SAC or within the catchment of the River Mease SAC</li> </ul>

management activities.	<p>undergo a HRA unless those works are part of a wider development for which a full HRA has already been undertaken.</p> <ul style="list-style-type: none"> <li>• Prevent works or schemes that will have an adverse effect on the integrity of a qualifying feature of a Natura 2000 site to be taken forward.</li> </ul>
2G: Aim to ensure a no net loss of biodiversity and where possible look to provide a net gain through habitat creation and enhancement, contributing to wider environmental objectives.	<ul style="list-style-type: none"> <li>• To conform with Warwickshire County Council's remit under the 'biodiversity duty' as per Section 40 of the Natural Environment and Rural Communities Act 2006 and the Warwickshire, Coventry and Solihull Green Infrastructure Strategy.</li> </ul>
'No Regrets' Measure: Leading on and assisting in the completion of flood alleviation schemes where there are clearly identified flood risk management issues (such as in Aston Cantlow, Weddington, Polesworth, etc.).	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
'No Regrets' Measure: Quick win small-scale flood risk management schemes such as minor highway works.	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
'No Regrets' Measure: Bidding for funding allocations for flood alleviation schemes (such as in Snitterfield, Fenny Compton, Ladbroke, Broadwell, Cherington, etc.).	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
<b>Objective 3: Adopt a collaborative approach to local flood risk management</b>	
3A: To continue to develop the Warwickshire Strategic Flood Forum (WSFF) and relations with other partners.	<ul style="list-style-type: none"> <li>• Develop tactical groups for north and south Warwickshire to allow greater focus on local issues.</li> <li>• Appoint a flood action group representative to the WSFF.</li> <li>• Appoint a representative from the Warwickshire Association of Local Councils to the WSFF.</li> </ul>
3B: To share knowledge and training opportunities with partners.	<ul style="list-style-type: none"> <li>• Continue to participate in national and regional LLFA best practice sharing groups.</li> <li>• Continue to work with partners in taking advantage of training opportunities, realising economies of scale.</li> <li>• Continue to offer training to partners where appropriate.</li> </ul>
3C: Continue to work with and support community flood action groups, Town and Parish Councils and other community groups.	<ul style="list-style-type: none"> <li>• Attend flood action group meetings to support their work.</li> <li>• Provide technical advice and guidance to flood action groups.</li> </ul>
3D: Continue to engage local communities building on the progress made by the Community Flood Resilience Pathfinder Project.	<ul style="list-style-type: none"> <li>• Promote the formation of new flood action groups where appropriate.</li> <li>• Develop a network of flood action groups for Warwickshire with a representative to sit on the WSFF.</li> </ul>
3E: To work with neighbouring Lead Local Flood Authorities to ensure a catchment-based approach to local flood risk management.	<ul style="list-style-type: none"> <li>• Attend regional partnership meetings with other LLFAs</li> </ul>
<b>Objective 4: Promote community preparedness and resilience to local flood risk</b>	

4A: To work with partners to reduce the impacts of flooding by enabling an efficient response to, and recovery from, flooding incidents by partners and stakeholders.	<ul style="list-style-type: none"> <li>Engage on updates to the Warwickshire Multi-Agency Flood Plan.</li> <li>Develop a countywide plan for flood recovery for householders and businesses as part of the ongoing Warwickshire Flood Resilience Community Pathfinder project.</li> </ul>
4B: To work with partners to reduce the harmful consequences of local flooding to communities and human health through pro-active actions, community activities and education programmes that enhance preparedness and resilience to local flood risk, thereby promoting community cohesion and minimising community disruption.	<ul style="list-style-type: none"> <li>Attend community led engagement and education meetings.</li> <li>Develop a network of flood action groups for Warwickshire with a representative to sit on the WSFF.</li> <li>Extend the existing flood warden scheme for Warwickshire.</li> </ul>
4C: Continue the work of the Warwickshire Flood Resilience Community Pathfinder project in supporting local groups to increase the resilience of their communities to flooding.	<ul style="list-style-type: none"> <li>Promote the recruitment of flood wardens where there are no existing local groups.</li> <li>To ensure local emergency action plans are joined up between flood action groups, town councils and parish councils.</li> </ul>
4D: Continue to work with partners to improve communications and advice given during flooding events.	<ul style="list-style-type: none"> <li>Improve County Council flood call management procedures.</li> <li>Enhance the Warwickshire County Council website to give clear guidance on whom to contact to report a flooding event.</li> </ul>
4E: To work with partners to establish a co-ordinated approach to the provision of temporary flood risk management measures.	<ul style="list-style-type: none"> <li>Develop a county wide sandbag policy to ensure consistent provision across the county.</li> <li>Explore the opportunities to promote the use of alternative temporary flood risk management techniques to sandbags.</li> </ul>
'No Regrets' Measure: Engagement with flooded communities, in particular through the Community Flood Resilience Pathfinder project.	<ul style="list-style-type: none"> <li>N/A</li> </ul>
<b>Objective 5: Enable planning decisions to take full account of local flood risk and seek to reduce local flood risk through development</b>	
5A: To work with partners to produce local policies and guidance and set standards to promote a positive impact on flood risk from new development, and to prevent any increase in flood risk, including the possible impacts of climate change.	<ul style="list-style-type: none"> <li>Engage where possible with developers at the earliest possible point in the planning process for major developments.</li> <li>Respond to strategic planning consultations including Local Plans and planning policy documents.</li> </ul>
5B: To maximise opportunities for contributions towards existing and proposed flood risk management from new development to address local flood risk.	<ul style="list-style-type: none"> <li>Explore the possibility for the use of Section 106 agreements and Community Infrastructure Levy with Local Planning Authorities.</li> </ul>
5C: Develop byelaws where beneficial to control development.	<ul style="list-style-type: none"> <li>Develop byelaws to control development in the vicinity of ordinary watercourses.</li> </ul>
5D: Work with relevant partners to promote SuDS measures for new developments through the LLPA's role as a statutory consultee on major planning applications.	<ul style="list-style-type: none"> <li>Respond to local planning authorities on 80% of major planning application consultations within 21 days.</li> </ul>

**Summary of Assessment of Measures and Actions Proposed in Draft LFRMS (May 2015)**

Measures/ Actions	SEA Objectives									
	1	2	3	4	5	6	7	8	9	10
1A	+	++	+	+	+	+	+	+	+	0
1B	+	++	0	0	0	0	0	0	0	++
1C	0	++	0	0	0	0	0	0	0	+
1D	0	+	0	0	0	0	0	0	0	0
No Regret	+	+	0	0	0	0	0	0	0	0
2A	++	+++	--	--	--	--	--	--	--	--
2B	++	+++	--	--	--	--	+	--	++	+++
2C	++	+++	--	--	--	--	--	--	--	+++
2D	++	+++	+	+	+	+	+	+	++	+++
2E	++	++	+	+	+	+	+	+	+	+
2F	0	0	+++	+++	+	0	0	0	+	0
2G	0	+	+++	+++	+	0	0	0	+	0
No Regret	++	+++	--	--	--	--	--	--	--	--
No Regret	+	+	-	-	-	-	-	-	-	-
No Regret	++	+++	--	--	--	--	--	--	--	--
3A	+	+	0	0	0	0	0	0	0	++
3B	0	+	0	0	0	0	0	0	0	+++
3C	+	+	0	0	0	0	0	0	0	+++
3D	+	+	0	0	0	0	0	0	0	+++

Measures/ Actions	SEA Objectives									
	1	2	3	4	5	6	7	8	9	10
3E	+	++	+	+	+	+	+	+	+	+
4A	++	0	0	0	0	0	0	0	0	++
4B	+++	++	0	0	0	0	0	0	0	+++
4C	+++	++	0	0	0	0	0	0	0	+++
4D	+	0	0	0	0	0	0	0	0	+
4E	+	+	0	0	0	0	0	0	0	+
No Regret	+++	++	0	0	0	0	0	0	0	+++
5A	+	++	0	0	0	0	0	0	0	0
5B	+	++	0	0	0	0	0	0	0	0
5C	+	++	+	0	0	0	0	0	+	0
5D	+	+++	+	0	+	0	+	0	++	0

**Key:**

Assessment Scale	Assessment Category	Significance of Effect
+++	Strongly positive	Significant
++	Moderately positive	
+	Slightly positive	Not Significant
0	Neutral or no obvious effect	
-	Slightly negative	
--	Moderately negative	Significant
---	Strongly negative	
?	Effect uncertain	

The summary results in the table above indicate that, in general, the Draft LFRMS (May 2015) proposals were likely to result in positive or neutral environmental effects, with the exception of some of the measures under LFRMS Objective 2.



Significant positive effects (shaded in green) are predicted with regards to the promotion of community health and wellbeing (SEA objective 1), reducing the risk of flooding (SEA objective 2), and encouraging people and businesses to take action (SEA objective 10). These significant effects arise out of the measures and actions proposed under LFRMS objectives 1, 3, 4 and 5 as they are likely to ensure that:

- critical areas requiring more urgent flood risk management prioritisation would be allocated funding;
- knowledge of flood risk issues is improved and the results of the flood risk investigations shared with partners;
- public participation in flood risk management activities is actively encouraged;
- the level of information known on local flood risk issues is improved and knowledge is shared and collaboration is achieved;
- information and discussion with property owners with regards flood resilience measures takes place;
- local policies, guidance and standards are produced to prevent flood risk arising from new development strengthening the basis for rejection of planning application decisions that could have an adverse impact on flood risk;
- opportunities for funding contributions are identified thus increasing the ability for implementation of flood risk schemes; and
- SuDS are implemented as necessary.

However, measures 2A, B and C proposed under LFRMS Objective 2 could lead to significant adverse negative effects (shaded red) on most SEA objectives (apart from SEA objectives 1, 2 and 10). They propose funding to be sought for flood risk management schemes emerging from the SWMP and encouragement of flood management activities by riparian landowners. Flood risk management schemes and activities have the potential to impact negatively on biodiversity (SEA objective 3) and European sites (SEA objective 4), landscape character and quality (SEA objective 5), heritage assets and their settings (SEA objective 6), soil and soil function (SEA objective 7), causes of climate change (SEA objective 8) and water environment (SEA objective 9). Similar effects were predicted for the 'No Regret' Measures under LFRMS Objective 2. It is thus important that strong counteracting measures are in place under LFRMS Objective 2 in order to reduce the significance of these negative effects.

Measures 2F and 2G under LFRMS Objective 2 would deliver significant positive effects and counteract the significant negative effects identified above for SEA objectives 3 and 4 through ensuring that European sites are not adversely affected by flood risk management actions and providing net biodiversity gain through habitat creation and enhancement where possible.

Measures 2D and 2E on the implementation of local flood risk management schemes to best utilise funding obtained (through a prioritised risk-based approach and promoting environmentally sustainable solutions including de-culverting, natural flood risk management, blue/green infrastructure, increased tree cover, catchment sensitive farming) could also counteract all other significant adverse effects from measures 2A, B and C, but the assessment undertaken indicated that they were not sufficiently counteracting effects as they stood and that they needed to be strengthened.

The following recommendations have been made to WCC in order to improve the environmental performance of the LFRMS. WCC's responses to the recommendations are also provided.

It has been recommended that the wording of Measure 1A is changed to recognise that the associated consequences can be economic, social and environmental. This is in line with the fact that an SEA will be necessary for the Surface Water Management Plan and that economic analysis will also be undertaken. WCC has taken on board the recommendation and the wording for Measure 1A has been revised as follows:

*'Further develop the Surface Water Management Plan for the county to gain a better understanding of key flooding hotspots, risks and associated economic, social and environmental consequences.'*



As Measures 2A, B and C proposed under LFRMS Objective 2 could lead to significant adverse environmental effects and other proposed measures (in particular Measures 2D and E) within the same objective were insufficient to counteract these effects, it has been recommended that for Measure 2D an additional action could indicate that schemes with the most multiple benefits will be implemented. WCC has taken on board the recommendation and the wording for Measure 2D has been revised in the latest Draft LFRMS as follows:

*‘To lead on the implementation of local flood risk management schemes and to work with partners to best utilise funding streams through a prioritised risk-based approach and through promoting schemes with the most multiple benefits.’*

For Measure 2E it has been recommended that the proposed action should read ‘Environmentally sustainable solutions will be fully considered in WCC led and in all other flood risk management measures, using a catchment based approach where applicable.’ WCC has taken on board the recommendation and the wording for Measure 2E has been revised in the latest Draft LFRMS as follows:

*‘Environmentally sustainable solutions will be fully considered in WCC led and in all other flood risk management measures, using a catchment based approach where applicable.’*

The table below shows the changes in the summary assessment for LFRMS Objective 2 as a result of the revised measures in the latest Draft LFRMS. Significant negative effects are no longer predicted although slight negative effects are likely to occur due to nature of the measures.

#### Summary of Assessment of LFRMS Objective 2 Revised Measures as Proposed in the latest Draft LFRMS

Measure Actions	SEA Objectives									
	1	2	3	4	5	6	7	8	9	10
2A	++	+++	-	-	-	-	-	-	-	-
2B	++	+++	-	-	-	-	+	-	++	+++
2C	++	+++	-	-	-	-	-	-	-	+++
2D	++	+++	+	+	+	+	+	+	++	+++
2E	++	++	+	+	+	+	+	+	+	+
2F	0	0	+++	+++	+	0	0	0	+	0
2G	0	+	+++	+++	+	0	0	0	+	0
No Regret	++	+++	-	-	-	-	-	-	-	-
No Regret	+	+	-	-	-	-	-	-	-	-
No Regret	++	+++	-	-	-	-	-	-	-	-

## Conclusions

Following the assessment of the May 2015 Draft LFRMS, a number of recommendations were made as set above and these have been taken into account by WCC in the preparation of the Draft LFRMS that is being consulted upon. As a result, the negative effects that were initially identified under LFRMS Objective 2 for SEA Objectives covering biodiversity, landscape character and quality, heritage assets and their settings, soil and soil function, causes of climate change and water environment have been reduced to non-significant.

It is therefore considered that the measures in the Draft LFRMS taken together will result the sustainable reduction in local flood risk over the strategy period and are generally considered to offer positive effects (some potentially significant) against the SEA Objectives, in particular improving health and wellbeing, minimising the risk of and from flooding, biodiversity gain, protecting soil and improving water quantity, quality and flow.

# 1. Introduction

## Background

- 1.1. An environmental assessment of the Warwickshire County Local Flood Risk Management Strategy (LFRMS) is required under European Directive 2001/42/EC 'on the assessment of certain plans and programmes on the environment' (the SEA Directive). In addition, under the Habitats Regulations 2010, it is necessary to assess whether the LFRMS is likely to have a significant effect upon European Sites.
- 1.2. Warwickshire County Council (WCC) is working in partnership with local authorities, local landowners, developers, the Woodland Trust, the Environment Agency and other agencies to produce a Local Flood Risk Management Strategy (LFRMS) to set out how local flood risk will be managed in Warwickshire. The LFRMS is a statutory requirement under Section 9 of the Flood and Water Management Act 2010 ('the Act').
- 1.3. Atkins Ltd. was commissioned in May 2015 by WCC to undertake Strategic Environmental Assessment (SEA) of the Warwickshire County LFRMS. The SEA is informed by the Habitats Regulations Assessment (HRA) being undertaken by WCC.
- 1.4. This document is the Environmental Report (ER) for the Warwickshire County LFRMS. The purpose of this ER is to outline how the statutory requirements for SEA have informed the development of the LFRMS. It records all the environmental assessment work undertaken predicting and evaluating the effects of strategic options and preferred strategy.

## Local Flood Risk Management Strategy

- 1.5. The Flood and Water Management Act 2010 (the Act) establishes that flood risk will be managed within the framework of National Strategies for England and Wales and Local Strategies for each Lead Local Flood Authority (LLFA) area. The responsibilities for each LLFA include the preparation and maintenance of a strategy for local flood risk management in their areas, co-ordinating views and activity with other bodies and communities through public consultation and scrutiny, and delivery planning. In the development of a LFRMS, LLFAs should balance the needs of communities, the economy and the environment.
- 1.6. The Warwickshire LFRMS provides an overview and assessment of local flood risk, setting out objectives and measures for how WCC will manage and reduce local flood risk. It covers the county of Warwickshire comprising the five local authorities of North Warwickshire, Nuneaton and Bedworth, Rugby, Stratford upon Avon and Warwick. The Act also requires that the LFRMS must specify the following.
  - The risk management authorities in the county.
  - The flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the county.
  - The assessment of local flood risk for the purpose of the Strategy.
  - 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.
  - How and when the Strategy is to be reviewed.
  - How the Strategy contributes to the achievement of wider environmental objectives
- 1.7. The LFRMS must be consistent with the national Flood and Coastal Erosion Risk Management (FCERM) strategy, produced by the Environment Agency in September 2011.
- 1.8. The LFRMS will form the framework within which communities have a greater say in local risk management decisions. In combination with the FCERM strategy, the LFRMS will encourage

more effective risk management by enabling people, communities, business and the public sector to work together to:

- ensure a clear understanding of the risks of flooding and erosion, nationally and locally, so that investment in risk management can be prioritised more effectively;
- set out clear and consistent plans for risk management so that communities and businesses can make informed decisions about the management of the residual risk;
- encourage innovative management of flood and coastal erosion risks, taking account of the needs of communities and the environment;
- form links between the local flood risk management strategy and local spatial planning;
- ensure that emergency plans and responses to flood incidents are effective and that communities are able to respond properly to flood warnings; and
- help communities to recover more quickly and effectively after incidents.

- 1.9. Local flood risk is defined by the Act as meaning flood risk derived from surface runoff, groundwater and ordinary watercourses. Ordinary watercourses are defined as those which do not form part of a main river. Flood risk from the sea, main rivers and large reservoirs is therefore not defined as local flood risk and is the concern of the Environment Agency. Such sources of flood risk do, however, need to be considered insofar as they may interact with those flood risks defined as local, in order to ensure that all joint risks of flooding are assessed at the local scale.

## Requirement for SEA

- 1.10. The EU Directive 2001/42/EC on assessment of effects of certain plans and programmes on the environment (the 'SEA Directive') came into force in the UK on 20 July 2004 through the Environmental Assessment of Plans and Programmes Regulations 2004. The Directive applies to a variety of plans and programmes including LFRMS.

- 1.11. The overarching objective of the SEA Directive is:

*"To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans...with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out of certain plans...which are likely to have significant effects on the environment."* (Article 1)

- 1.12. The SEA Directive and the SEA Regulations state that the SEA should consider the following topic areas:

- Biodiversity;
- Population;
- Human health;
- Flora and fauna;
- Soil;
- Water;
- Air;
- Climatic factors;
- Material assets;
- Cultural heritage, including archaeological and built heritage;
- Landscape; and
- the Interrelationship between these factors.

## The SEA Process

- 1.13. The SEA guidance recommends that SEA is undertaken in the following main stages.

- Stage A – Setting the context and objectives, establishing the baseline and deciding on scope.
  - Stage B – Developing and refining options and assessing effects.
  - Stage C – Preparing the Environmental Report.
  - Stage D – Consultation on the preferred options of the draft plan and the Environmental Report. and
  - Stage E – Monitoring implementation of the plan.
- 1.14. SEA is an iterative assessment process which plans and programmes are now required to undergo as they are being developed to ensure that potential significant environmental effects arising from the plan/programme are identified, assessed, mitigated and communicated to plan-makers. SEA also requires the monitoring of significant effects once the plan/programme is implemented. Through consultation and the involvement of stakeholders and specialist experts in the process, the resulting appraisal should be both robust and fully integrated.
- 1.15. The intention is that SEA is fully integrated into the strategy making process from the earliest stages, both informing and being informed by it. By identifying potential issues at an early stage it is then possible to amend the policies/plans to ensure that they are as sustainable as possible.
- 1.16. This ER will be published for information and consultation alongside the Draft LFRMS. A SEA Post Adoption Statement will then be published alongside the Final LFRMS, which will summarise how environmental issues were integrated into the LFRMS development process; the reasons for choosing the preferred options; the consultation results and the monitoring that is proposed.
- 1.17. Figure 1 sets out the relationship between the LFRMS and SEA processes and the SEA tasks, which are being applied to the SEA of the LFRMS.
- 1.18. The current guidance also sets out a requirement for the preparation of the following reports:
- Scoping Report (summarising Stage A work) which should be used for consultation on the scope of the SEA;
  - Draft Environmental Report (documenting Stages A , B and C) work which should be used in the public consultation on the Draft LFRMS;
  - Environmental Report (documenting Stages A, B, C and D work) which should accompany the LFRMS.
- 1.19. To date, Stages A - C of the process have been undertaken and this is fully documented under the Methodology in Chapter 3. This is the ER documenting the SEA work undertaken to inform the preparation of the Draft LFRMS.

**Figure 1 - LFRMS and SEA Processes Stages and Links**

LFRMS	Strategic Environmental Assessment	
	Stage	Tasks
Determining the scope of the LFRMS clarifying goals; specifying the problems or challenges the authority wants to solve	A. Setting the context and objectives, establishing the baseline and deciding on the scope	Identify related plans/programmes
		Identify environmental protection objectives
		Baseline data and likely future trends
		Identify sustainability issues
		Develop objectives, indicators and targets (Assessment Framework)
		Prepare SEA Scoping Report
		Consult on the scope of the SEA
Generating options to resolve these challenges; appraising the options and predicting their effects	B. Developing, refining and appraising strategic options	Assess LFRMS objectives against the Assessment Framework
		Develop, refine and appraise strategic options
		Evaluate/select preferred options.
Selecting preferred options for LFRMS and deciding priorities	B. Assessing the effects of the LFRMS Preferred Options	Predict and assess effects of options taken forward
Propose mitigation measures		
Propose monitoring programme		
Production of the draft LFRMS	C. Prepare Environmental Report	
Consultation on draft LFRMS	D. Consultation on the Environmental Report	
Production of final LFRMS	D. Take on board consultation comments	Assess significant changes
		Prepare supplementary or revised Environmental Report (if necessary)
Adoption of LFRMS	D. SEA Statement	

## Purpose of the Environmental Report

- 1.20. The ER is a requirement under the European Directive, and reports on the appraisal process, presenting information on the effects of the planning document for public consultation.

- 1.21. The overarching purpose of an ER is to report on the SEA process so far, and how it has informed the development of the LFRMS. This report has been informed and refined by the consultation at the Scoping Stage (A) (see Appendix B). This ER provides information on:
- other relevant plans, programmes and sustainability objectives;
  - baseline information;
  - environmental issues;
  - the framework for appraising likely significant environmental effects arising from the LFRMS;
  - compatibility between the LFRMS objectives and the SEA Objectives;
  - the development of the LFRMS options;
  - the assessment of the preferred measures of the LFRMS; and
  - the next stages of the SEA.

## Consultation

- 1.22. The aim of the consultation on the ER is to involve and engage with statutory consultees and other key stakeholders on the results of the appraisal.
- 1.23. The requirements for consultation during a SEA are as follows.
- Authorities which, because of their environmental responsibilities, are likely to be concerned by the effects of implementing the plan or programme, must be consulted on the scope and level of detail of the information to be included in the Strategic Environmental Assessment. These are termed the statutory Consultation Bodies, and in England comprise the Environment Agency, Natural England and Historic England. It is considered good practice to also consult with other appropriate consultees who would have a significant influence upon, or would be influenced by the LFRMS.
  - The public and Consultation Bodies must be consulted on LFRMS and the Environmental Report.
- 1.24. The following reports have been consulted upon as part of this SEA process:
- Strategic Environmental Assessment Scoping Report, February- March 2015.
- 1.25. The statutory and non-statutory bodies and organisations that have responded to consultation to date (Scoping Report) are presented in Appendix C.
- 1.26. This ER, to be subject to consultation, is a statutory part of the SEA process, to be used to further enable the integration of environmentally sustainable principles into the plan making process.

## Habitats Regulations Assessment

- 1.27. The EU Habitats (92/43/EEC) and Birds (2009/147/EEC) Directives aim to protect European birds and species and the habitats that support them. In the UK, the Directives are implemented through the Conservation of Habitats and Species Regulations 2010, as amended. These are known as the Habitats Regulations.
- 1.28. The legislation requires 'competent authorities' to undertake an 'appropriate assessment' of plans, projects and strategies that may have a significant effect on the site, if those plans, projects or strategies are not directly concerned with the management of the protected sites themselves. The process that includes the 'appropriate assessment' is known as a Habitats Regulations Assessment (HRA).
- 1.29. Paragraphs 109, 113, 118 and 119 of the National Planning Policy Framework (NPPF) are relevant to HRAs. Specifically, paragraph 118 states that any 'sites identified, or required as compensatory measures for adverse effects on European sites Special Protection Areas (SPA) and Special Areas of Conservation (SAC), potential SPAs, possible SACs and listed or proposed Ramsar sites... should be given the same protection as European sites'.

- 1.30. The HRA of the LFRMS is being undertaken by WCC as a separate exercise to this SEA and a HRA Stage Screening Report has been prepared by WCC for the Draft LFRMS.
- 1.31. A total of five European sites have been identified for inclusion within the HRA based on their geographic location (within Warwickshire or a 15km buffer) and their potential to be impacted by the LFRMS:
- Ensor's Pool SAC;
  - Bredon Hill SAC;
  - Cannock Extension Canal SAC;
  - Lyppard Grange Ponds SAC;
  - River Mease SAC.
- 1.32. The results of the HRA indicate that following the initial screening of the December 2014 version of the LFRMS, three measures: Measure 2B, Measure 5A and Measure 5C were scoped in as having the potential to lead to Likely Significant Effects to a European site. No in-combination effects were anticipated from the other plans and projects.
- 1.33. A number of 'incorporated mitigation measures' were added to the LFRMS. These comprised: additional text, changes to Objective 2 and two new measures. The updated LFRMS was then re-screened following these changes with the result that no were Likely Significant Effects anticipated either alone or in-combination with other plans or projects.
- 1.34. The findings of the HRA have been integrated into this SEA where appropriate.

## Equality Impact Assessment

- 1.35. In exercising its functions, Warwickshire County Council is bound by the public sector equality duty found in Section 149 of the Equality Act 2010. This means that regard must be had to the need to eliminate discrimination, harassment, victimisation and any other prohibited conduct; to advance equality of opportunity between persons who share a relevant protected characteristic and persons who do not share it; and to foster good relations between persons who share a relevant protected characteristic and persons who do not share it. In this context, 'protected characteristics' are age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, sex, and sexual orientation.
- 1.36. An Equality Impact Assessment screening exercise has been undertaken separately from this SEA which identified that no potential equality impacts were likely to arise as a result of the LFRMS.



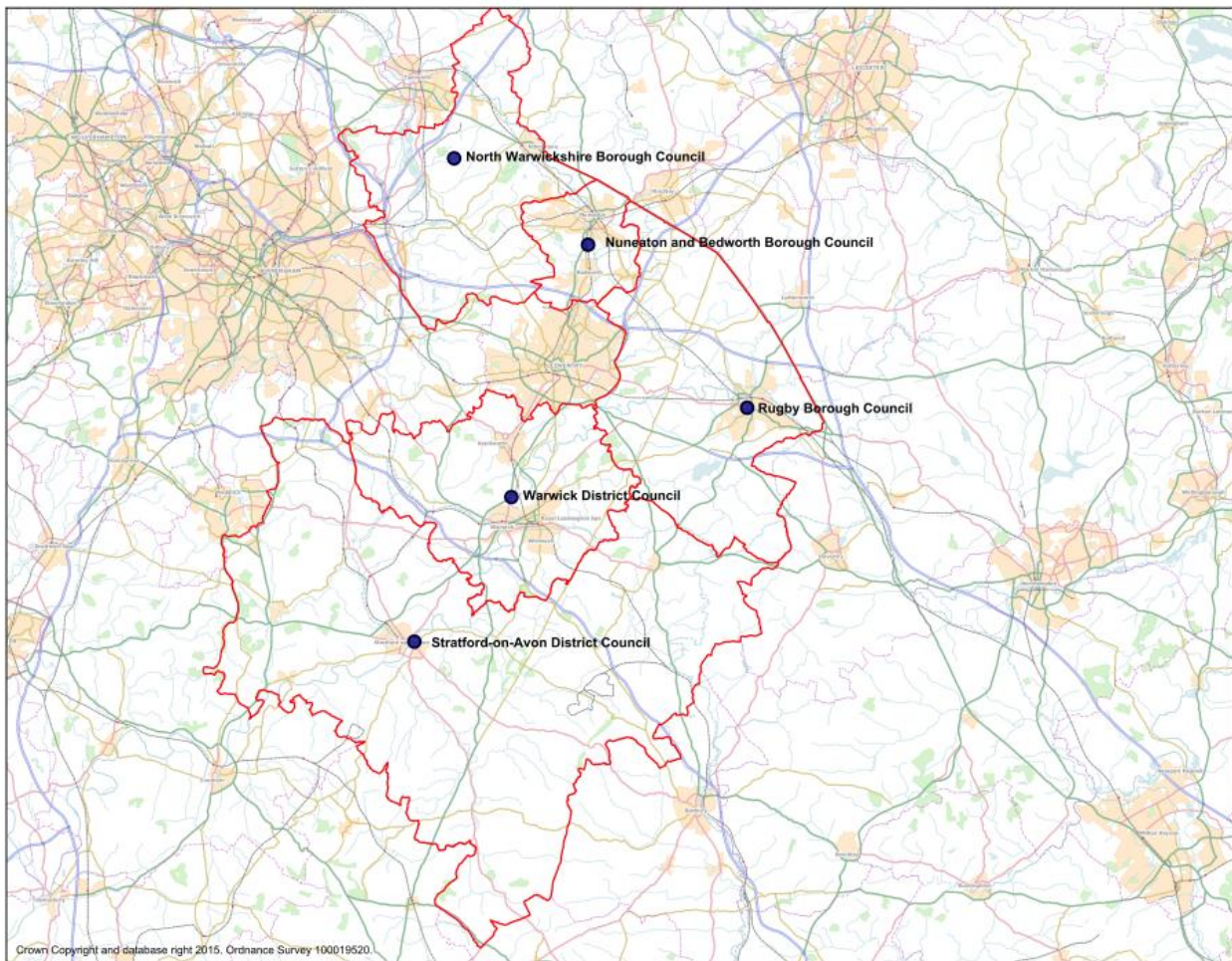
## 2. Setting the scope of the SEA

### Spatial Scope

#### Study Area

- 2.1. Warwickshire lies to the south and east of the West Midlands conurbation and has established strong links with the adjoining authorities of Coventry, Birmingham and Solihull in the West Midlands, but also with the South East.
- 2.2. Warwickshire is bounded to the North West by the West Midlands Metropolitan conurbation and Staffordshire, Leicestershire to the north east, Northamptonshire to the east, Worcestershire to the west, Oxfordshire to the south and Gloucestershire to the south west. Despite the focus of population within the main towns of the County, a significant part of Warwickshire is rural in nature with the majority of people living in the north and central areas of the County. Warwickshire lies at the heart of Britain's transport network and several key strategic routes pass through the County.
- 2.3. Warwickshire is a two-tier local authority comprising of five District/Borough areas:
- North Warwickshire Borough;
  - Nuneaton & Bedworth Borough;
  - Rugby Borough;
  - Stratford-on-Avon District;
  - Warwick District.
- 2.4. Warwickshire has a population of around 548,000, which is an increase of over 4,000 people from the mid-2011 population estimates. To the north of the County, Rugby and Nuneaton and Bedworth are traditional industrial towns, where established industries include (or included) coal mining, textiles, cement production and engineering. In the centre and south of Warwickshire, lie the more touristic towns of Royal Leamington Spa, Warwick, Kenilworth and Stratford-upon-Avon. Warwickshire's population has been growing for the past four decades with a key factor being the continued in-migration from the urban areas of Coventry and Birmingham.
- 2.5. The population of Warwickshire is projected to reach a total of 591,200 by 2021.
- 2.6. Figure 2 shows the study area considered in the SEA.

**Figure 2 - Warwickshire Study Area**



## Temporal scope

2.7. The LFRMS will remain a live document and an annual refresh will be provided. It will be reviewed after five years, or beforehand (if one of the below triggers takes place).

- Significant flood events that alter our understanding of flood risk in Warwickshire.
- Significant policy changes that affect the role of Flood Risk Management Authorities.
- Publication of significant new flood risk information and mapping.

## Technical scope

### Scope of environmental issues to be included

2.8. Annex I(f) of the SEA Directive lists thirteen factors (and the inter-relationships between these) which must be taken as a starting point when scoping issues in and out of an SEA. These factors are:

- Population;
- Human health;
- Biodiversity;
- Flora;
- Fauna;

- Soil;
- Water;
- Air;
- Climatic factors;
- Material assets;
- Cultural, architectural and archaeological heritage;
- Landscape; and
- Inter-relationships between the above factors.

## 3. Methodology

### Overview of Approach

- 3.1. SEA is a process that follows a number of sequential stages. This report has been structured to reflect the way in which work has been undertaken, presenting a logical progression through the various tasks that local authorities must complete in order to satisfy formal SEA requirements. This sequence of tasks is presented in Figure 1 in Chapter 1.
- 3.2. The work presented in this report represents the findings of Stage A and Stage B. This ER forms Stage C of the SEA process. Figure 1 can be used as a reference for the description of the subsequent stages (D&E) of the SEA process.
- 3.3. The approach used in the SEA of the Warwickshire LFRMS is based on the process set out in national guidance, to meet the requirements of the SEA Regulations<sup>1</sup>. Current guidance sets out a requirement for the preparation of the ER (documenting work in Stages A and B) which should be used in the public consultation on the Draft LFRMS.

### Stage A: Setting the Context and Objectives, Establishing the Baseline and Deciding on Scope

- 3.4. Scoping work was undertaken, consulted upon and revised in February and March 2015 to help ensure that the SEA covered the key environmental issues that are relevant to Warwickshire within the context of the LFRMS. Following consultation on the Scoping Report, the baseline, the Plans, Programmes and Policies (PPPs), key environmental issues and the SEA Framework were updated, in preparation for the assessment of the Draft LFRMS.

#### A1: Identifying other relevant policies, plans and programmes and SEA objectives

- 3.5. Both the LFRMS and the SEA should be set in the context of national, regional and local objectives along with strategic planning and environmental policies. This being the case, a comprehensive review of all relevant plans, policies and programmes (PPPs) was carried out as part of the SEA scoping process. This ensures that the objectives in the Environmental Report generally adhere to, and are not in conflict with, objectives found in other PPPs and also assists in the setting of objectives for the SEA. In addition to this, it can also be used to ascertain potential conflicts between objectives which may need to be addressed as part of the process.
- 3.6. The PPPs reviewed are outlined in Chapter 4 and further described in Appendix A.

#### A2: Collecting baseline information

- 3.7. To predict accurately how the LFRMS measures could affect environmental factors, it is first important to understand the current state of these factors and then examine their likely evolution without the implementation of the plan.
- 3.8. Baseline information is summarised in Chapter 5 and presented in Appendix B. The information has been extracted from a wide range of available publications and datasets. Sources have included, among others, national government and government agency websites. No primary research has been conducted.

#### A3: Identifying issues and opportunities

- 3.9. Analysis of key issues and opportunities relevant to the LFRMS was carried out. This work was based on the review of relevant PPPs and an analysis of the baseline data and is presented in Chapter 5.

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<sup>1</sup> Environmental Assessment of Plans and Programmes Regulations July 2004, which transposed EU Directive 2001/42/EC on assessment of effects of certain plans and programmes on the environment (the 'SEA Directive') into UK law.

## A4: Developing the SEA Framework

- 3.10. A framework of objectives and decision making questions, against which the measures in the LFRMS can be assessed, was drawn up. These were developed using an iterative process, based on the review of relevant PPPs, the evolving baseline and developing analysis of key sustainability issues. This is presented in Chapter 6.

## A5: Consulting on the scope of SEA





- 3.11. At this stage the Council sought the views of the consultation bodies and others on the scope and level of detail of the ensuing SEA Report. A SEA Scoping Report was prepared to support the process. The consultation results have been taken into account in this report (see Appendix C).

## Stage B: Developing and Defining Options

### B1: Testing the plan objectives against the SEA objectives

- 3.12. A compatibility matrix was developed to identify to what extent the objectives of the LFRMS are compatible with the SEA Objectives as set out in the SEA framework. When testing compatibility, the following scale was used: The results are presented in Chapter 7.

**Table 1. Key to Compatibility of Objectives**


	Broadly Compatible
	Potential Conflict
	Uncertain/Dependent on Nature of Implementation Measures
	Not Relevant



### B2: Developing the plan options

#### Assessment of Strategic Options

- 3.13. A high level assessment of options for the measures developed for the LFRMS was then conducted. The assessment used a broad-brush and qualitative approach, which is generally accepted as good practice by the SEA guidance for the earlier strategic stages of the appraisal.
- 3.14. Potential sustainability effects for each of the options were assessed in terms of progress towards achieving the relevant SEA objective using the scoring system presented in Table 2.
- 3.15. The high level assessment of the options allowed the most and least sustainable options to be identified, with the aim of, where necessary, amending them in order to promote their likely sustainable effects and reduce their likely unsustainable effects. This assessment also informed the selection of options to be taken forward as preferred options within the LFRMS. The results of the assessment are presented in Chapter 8.

**Table 2. Scoring of Options Assessment**

	conflict with SEA objectives - action is likely to have a negative effect on the SEA objective
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	may / may not be compatible with SEA objectives - action may have a positive nor negative effect on the SEA objective depending on implementation
	compatible with SEA objectives - action is likely to have a positive effect on the SEA objective
n/a	not applicable or not relevant to the SEA objective
neutral	no effect

### B3 & B4: Predicting & Evaluating the effects of the Preferred Strategy

- 3.16. This assessment stage forms the statutory assessment of the preferred LFRMS.
- 3.17. The assessment of the preferred strategy has been broken down into ‘assessment’ of effects and ‘mitigation’ of effects.
- 3.18. The prediction of effects was undertaken for each measure being implemented through the LFRMS against the SEA Framework.
- 3.19. The next stage of the assessment involved the evaluation of the significant effects. The evaluation involved forming a judgement on whether or not the predicted effects will be environmentally significant. The technique that has primarily been used to assess the significance of effects in this assessment is qualitative and largely based on expert judgement. Other techniques included consultation with stakeholders involved in the SEA process, geographical information systems (GIS) and reference to key legislation, primarily the Strategic Environmental Assessment of Plans and Programmes Regulations 2004.
- 3.20. As with the prediction of the effects, the criteria for assessing the significance of a specific effect used in this assessment, as outlined in Annex II of the SEA Directive, has been based on the following parameters to determine the significance:
- scale;
  - permanence;
  - nature and sensitivity;
  - cumulative effects.
- 3.21. In general, this assessment has adopted the scale set in Table 3 to assess the effects (and their significance) of the LFRMS proposals.



**Table 3. Criteria for Assessing Significance of Effects**

Assessment Scale	Assessment Category	Significance of Effect
+++	Strongly positive	Significant
++	Moderately positive	
+	Slightly positive	Not Significant
0	Neutral or no obvious effect	
-	Slightly negative	
--	Moderately negative	Significant
---	Strongly negative	
?	Effect uncertain	

- 3.21.1. Moderately and strongly positive and negative effects have been considered of significance whereas neutral and slightly positive and negative effects have been considered non-significant; noting that there may be mixed beneficial and adverse effects.
- 3.21.2. Where significant negative effects have been identified recommendations in the form of mitigation measures have been made in order to reduce the significance of the effects. Further information is provided in Chapters 9, 10 and 11 on the methodology used to undertake this assessment. Essentially this involved using information obtained from the scoping stage alongside strategy proposals to predict and evaluate the nature of effects and identify potential improvements and mitigation solutions.

## Secondary and Cumulative Effects Assessments

- 3.22. Annex I of the SEA Directive requires that the assessment of effects include secondary, cumulative and synergistic effects.
- 3.23. Secondary or indirect effects are effects that are not a direct result of the plan, but occur away from the original effect or as a result of the complex pathway e.g. a development that changes a water table and thus affects the ecology of a nearby wetland. These effects are not cumulative and have been identified and assessed primarily through the examination of the relationship between various objectives during the assessment of environmental effects.
- 3.24. Cumulative effects arise where several proposals individually may or may not have a significant effect, but in combination have a significant effect due to spatial crowding or temporal overlap between plans, proposals and actions and repeated removal or addition of resources due to proposals and actions. Cumulative effects can be:
- additive - the simple sum of all the effects;
  - neutralising - where effects counteract each other to reduce the overall effect; and
  - synergistic – is the effect of two or more effects acting together which is greater than the simple sum of the effects when acting alone (for instance, a wildlife habitat can become progressively fragmented with limited effects on a particular species until the last fragmentation makes the areas too small to support the species at all).
- 3.25. Many environmental problems result from cumulative effects. These effects are very hard to deal with on a project by project basis through Environmental Impact Assessment. It is at the strategic level that they are most effectively identified and addressed.

- 3.26. Cumulative effects assessment is a systematic procedure for identifying and evaluating the significance of effects from multiple activities. The analysis of the causes, pathways and consequences of these effects is an essential part of the process.
- 3.27. Cumulative (including additive, neutralising and synergistic) effects have been considered throughout the entire SEA process, as described below.
- As part of the review of relevant strategies, plans and programmes and the derivation of draft SEA Objectives, key receptors have been identified which may be subject to cumulative effects.
  - In the process of collecting baseline information cumulative effects have been considered by identifying key receptors (e.g. specific wildlife habitats) and information on how these have changed with time, and how they are likely to change without the implementation of the LFRMS.
  - Through the analysis of environmental issues and problems, receptors have been identified that are particularly sensitive, in decline or near to their threshold (where such information is available).
  - The development of the SEA Objectives and decision-making Questions has been influenced by cumulative effects identified through the process above and the SEA Objectives that consider cumulative effects have been identified.
  - The likely cumulative effects of the LFRMS policies have been identified.
- 3.28. The results are presented in Chapter 10.

## **B5: Consider ways of mitigating adverse effects and maximising beneficial effects**

- 3.29. Mitigation measures have been identified during the evaluation process to reduce the scale/importance of significant negative effects.

## **B6: Proposing measures to monitor the significant effects of the plan's implementation**

- 3.30. Monitoring involves measuring indicators which will enable the establishment of a causal link between the implementation of the plan and the likely significant effect (positive or negative) being monitored. It thus helps to ensure that any adverse effects which arise during implementation, whether or not they were foreseen, can be identified and that action can be taken by WCC to deal with them (see Chapter 11).

## **Stage C: Preparing the Environmental Report**

- 3.31. The ER is the outcome of Stage C in the SEA Process and informs the LFRMS Preferred Strategy consultation.

## **Stage D: Consulting on the Draft Plan and the Environmental Report**

- 3.32. Stage D will be undertaken once the LFRMS Preferred Strategy and ER consultation has taken place.

## **Assessing significant changes and the SEA Statement**

- 3.33. The results of the formal public consultation exercise on the Draft Strategy and Environmental Report to be undertaken by WCC may well result in changes to the Draft Strategy, and these may have implications for the Environmental Report. In addition, the consultation exercise may



result in direct changes to the contents of the Environmental Report, such as revisions to mitigation or monitoring measures.

- 3.34. The SEA Directive requires that information on the changes to the Environmental Report resulting from the formal consultation is recorded in the SEA statement of how the SEA findings have been taken into account in the final strategy, which should be made available to stakeholders.

## **Meeting the requirements of the SEA Directive**

- 3.35. The SEA is primarily focused on environmental effects and the methodology addresses a number of topic areas namely Biodiversity, Population, Human Health, Flora and Fauna, Soil, Water, Air, Climatic Factors, Material Assets, Cultural Heritage and Landscape and the interrelationship between these topics. Table 4 sets out where the specific SEA requirements have been met in this ER. Where they have not yet been completed, this is made clear.

**Table 4. Schedule of SEA Requirements**

Requirements of the Directive	Where Covered in Report
Preparation of an environmental report in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme, are identified, described and evaluated. The information to be given is:	
a) An outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes	Chapters 1 and 4 and Appendix A
b) The relevant aspects of the current state of the environment and the likely evolution without implementation of the plan or programme	Chapter 5, Appendix B
c) The environmental characteristics of areas likely to be significantly affected	Chapter 5, Appendix B
d) Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directive 2009/147/EEC and 92/43/EEC	Chapter 5, Appendix B
e) The environmental protection objectives established at international, community or national level which are relevant to the programme and the way those objectives and any environmental considerations have been taken into account during its preparation	Chapters 4 and 6
f) The likely significant effects on the environment, including: short, medium and long term; permanent and temporary; positive and negative; secondary, cumulative and synergistic effects on issues such as: biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.	Chapters 8, 9 and 10
g) The measures envisaged to prevent, reduce and, as fully as possible, offset any significant adverse effects on the environment of implementing the plan or programme.	Chapters 10 and 11
h) An outline of the reasons for selecting the alternatives dealt with and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information	Chapters 3, 5 and 7
i) A description of measures envisaged concerning monitoring (in accordance with regulation 17)	Chapter 12
j) A non-technical summary of the information provided under the above headings	Non-Technical summary

## 4. Identifying Other Plans and Programmes and Environmental Objectives

- 4.1. The first task of the SEA is the identification of other relevant plans, programmes and environmental objectives. A plan may be influenced in many ways by other plans and programmes and by external environmental objectives, such as those laid down in policies and legislation. This task is carried out in response to the requirements of the SEA Directive, which specifically states that the Environmental Report should provide information on:

*“The plan’s relationship with other relevant plans and programmes” and “the environmental protection objectives, established at international, [European] Community or national level, which are relevant to the plan... and the way those objectives and any environmental considerations have been taken into account during its preparation” (Annex 1 (a), (e))*

- 4.2. This task helps establish a clear context for the SEA and is important because these programmes, plans and objectives may influence the preparation of the LFRMS. The constraints or challenges these other documents pose for the LFRMS will need to be considered and summarised by setting out how they may be incorporated into the SEA.

### Methodology

- 4.3. A wide range of plans, programmes and policies (PPPs) relevant to the Warwickshire area were identified. The review of plans, programmes and environmental protection objectives is a dynamic process and as new objectives emerge or are revised, they will be reviewed and any conflicts or inconsistencies will be recorded. Policy context continually shifts as new plans are adopted and/or take the place of former plans. The full list of reviewed plans, programmes and environmental protection objectives, with hyperlinks to each document, can be found in Appendix A and Table 5 lists the PPPs that have been considered.
- 4.4. The purpose of the review has not been to highlight every detail from every document selected, but to identify the key implications for the SEA. For each document reviewed the table sets out the name of the document, its date of publication/period of validity, key objectives/targets, and potential implications for the LFRMS.

**Table 5. Relevant Plans, Policies or Programmes**

Plan, Policy or Programme
<b>European</b>
Habitats Directive (92/43/EEC)
Birds Directive (2009/147/EC)
Water Framework Directive (2000/60/EC)
Groundwater Directive (2006/118/EC)
Air Quality Directive (2008/50/EC)
Floods Directive (2007/60/EC)
European Landscape Convention (2000)

<b>National</b>
Wildlife and Countryside Act 1981
Natural Environment and Rural Communities Act 2006
Guidance for Local Authorities on Implementing the Biodiversity Duty, DEFRA (2007)
Climate Change Act 2008
Localism Act 2011
Flood and Water Management Act 2010
Natural Environment White Paper (2011)
Making Space for Water: Taking forward a new Government strategy for flood and coastal erosion risk management in England (March 2005)
House of Commons Environment, Food and Rural Affairs Committee: Managing Flood Risk, Third Report of Session 2013–14, Volume I (2 July 2013)
Environment Agency: National Flood and Coastal Erosion Risk Management Strategy
Spatial Planning for Sport and Active Recreation: Guidance on Sport England's Aspirations and Experience (2005)
Strategic Environmental Assessment, Sustainability Appraisal and the Historic Environment, English Heritage (2010)
Planning (Listed Buildings and Conservation Areas) Act 1990
Ancient Monuments and Archaeological Areas Act 1979
National Planning Policy Framework, DCLG (2012)
Technical Guidance to the National Planning Policy Framework (2012)
Securing the Future: UK Sustainable Development Strategy (2005)
The national flood and coastal erosion risk management strategy for England: Understanding the risks, empowering communities, building resilience (Defra, 2011)
A Strategy for England's Trees, Woods and Forests, DEFRA (2007)
Flooding and Historic Buildings, English Heritage (2010)
Developing the evidence base to describe the flood risk to agricultural land in England and Wales Joint Defra/EA Flood and Coastal Erosion Risk Management R&D Programme (August 2011)
<b>Regional</b>
West Midlands Historic Environment Strategy (2009)
Regional Sustainable Development Framework (2006)
Warwickshire Preliminary Flood Risk Assessment Report (2011)
Warwickshire Surface Water Management Plan Methodology Report (2014)
A Sustainable Community Strategy for Warwickshire (2009 - 2026)
Warwickshire Climate Change Strategy (2006)
Warwickshire Landscape Character Guidelines (1987)

Warwickshire Coventry and Solihull Green Infrastructure Strategy (2014)
Warwickshire County Council: Biodiversity Strategy (2008)
<b>Other</b>
River Basin Management Plan Severn River Basin District, DEFRA/EA (2009)
River Severn Catchment Flood Management Plan, Summary Report December 2009
River Trent Catchment Flood Management Plan: Summary Report (December 2010)
Humber River Basin District: flood risk management plan (EA 2014)
The Avon Warwickshire Management Catchment: A summary of information about the water environment in the Avon Warwickshire management catchment (EA, 2014)
The Tame, Anker and Mease Management Catchment: A summary of information about the water environment in the Tame, Anker and Mease management catchment (EA, 2014)
Cotswolds AONB Management Plan 2013-18
Cotswolds Conservation Board Position Statement: Development in the setting of the Cotswolds AONB

## Results

4.5. The key points emerging from the review that the LFRMS may be able to positively influence (either directly or indirectly) are outlined below.

- The need for humans to live and operate within Planetary Boundaries of sustainability.
- There is a need to conserve and enhance biodiversity, and avoid any significant impacts on Natura 2000 sites, Sites of Special Scientific Interest and of County importance. In delivering flood risk management account should be taken of the particular sensitivities of these sites that could potentially be affected.
- There is a need to conserve protected, notable, rare and endangered species. In delivering flood risk management, account should be taken of particular sensitivities of these species that could potentially be affected.
- Strict requirements should be in place to prevent water pollution and to contribute to meeting Water Framework Directive objectives.
- Air quality should be protected.
- Noise from developments, including transport noise, should be minimised.
- Landscape should be protected from harmful development, whilst recognising that some operations will be temporary and could result in landscape benefits in the longer term. This will be especially crucial in designated landscapes (the Cotswolds Area of Outstanding Natural Beauty). Development in protected areas should be guided by the overarching aim of conserving and enhancing the natural beauty of these areas. Full consideration should be given to the Warwickshire Landscape Character Guidelines and to the AONB Management Plan.
- Heritage assets (designated and undesignated) and the wider historic environment should be conserved and enhanced. This includes avoiding adverse impacts through location and design, and protecting vulnerable heritage. Policy should be informed by an understanding of the significance of a heritage asset, including its setting. Where loss of significance is unavoidable, assessment and recording should be required where appropriate.
- All public bodies have a duty to have regard to biodiversity conservation when carrying out their functions (the 'biodiversity duty'). The conservation of biodiversity should become properly embedded in all relevant policies and decisions. Consideration should be given to how biodiversity enhancement can be used to bring about more sustainable development,

through integration with other policy objectives and other land uses, for example housing and economic development, health, education and social inclusion.

- Carbon emissions should be minimised through directing development to sustainable locations where possible and encouraging lower-carbon practices in construction, operation and transport. Strategies should help the transition towards a low-carbon economy. Across Warwickshire the local target is to reduce total countywide carbon emissions by 30% from 2005 levels by 2020 and put in place measures to enable reduction by 80% by 2050.
- Opportunities to contribute to a linked green infrastructure network should be maximised and contribute to the formation of woodland, grassland and wetland core area.
- To ensure that the implementation of the LFRMS results in a net gain to biodiversity.
- The value of trees should be recognised, and loss of trees should be avoided where practicable through location and design policies. The potential contribution of trees in schemes should be explored and maximized.
- The most significant pressures which need to be dealt with in the river basin district are: abstraction and other artificial flow regulation; non-native species; nitrates; pesticides; phosphates; physical modification; sediment; and urban and transport pollution.

- 4.6. The above points, coupled with consideration of baseline data (discussed in the next chapter of this report), enabled the initial identification of the key environmental issues and opportunities that have been addressed in the Environmental Report.

## 5. Baseline Characteristics and Key Issues and Opportunities for the LFRMS

- 5.1. The next tasks in the SEA cover the collection of baseline information and identification of key issues and opportunities. The review of other plans and programmes provided a considerable amount of baseline information which has been complemented by collection of data relating to the SEA topic areas.
- 5.2. More specifically, the SEA Directive says that the Environmental Report should provide information on:
- “relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan” and the “environmental characteristics of the areas likely to be significantly affected” (Annex I (b) (c)) and*
- “any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC (Birds Directive) and 92/43/EEC (Habitats Directive)” (Annex I (d)).*
- 5.3. The aim of the baseline data collation is to give an overview of the environmental characteristics of the strategy area. This enables informed judgements to be made with regard to the likely evolution of the strategy area in the future, which in turn enables judgements to be made about the emerging LFRMS.
- 5.4. The identification of environmental issues provides an opportunity to help define key issues for the LFRMS and to improve the LFRMS objectives and options. The analysis of environmental issues both influences and is influenced by the development of the baseline and the SEA Framework, in particular in identifying and selecting indicators and targets.

### Methodology

- 5.5. SEA guidance emphasises that the collection of baseline data and the development of the SEA Framework should inform each other. Baseline data have been extracted from a wide range of available publications and datasets. Sources have included national government and government agency websites, the census, data held within the Warwickshire Observatory and wider professional partnerships and the review of plans and policies carried out as outlined in Chapter 4. No primary research has been conducted.
- 5.6. Detailed baseline data have been provided in Appendix B. Data have been collated and analysed for the following indicators:
- Population trends and demographics;
  - Biodiversity, nature conservation and landscape including:
    - European designations for nature conservation
    - National designations for nature conservation
    - Local designations for nature conservation

- Wildlife habitats
- Heritage assets including:
  - Listed buildings and buildings 'at risk'
  - Conservation areas
  - Registered Parks and Gardens
  - Archaeological sites
  - Scheduled Monuments
- Natural resources including:
  - Water Catchment Management Strategies
  - Water chemical and biological quality
  - Groundwater and Source Protection Zones
  - Climate Change
  - Flood risk and indicative flood risk areas
  - Geological Assets and Minerals in the County
- Health;
- Community Satisfaction and Cohesion; and
- The Key Characteristics of the Districts and Boroughs.

## Data Analysis

5.7. A series of environmental issues and opportunities have emerged from the analysis of the baseline data, which can be summarised as follows.

- Warwickshire's population has been increasing for the past four decades. It is projected to reach a total of 591,200 by 2021 (an 8.2% increase from 2011). The highest increases are projected to be in the groups aged 65 and over.
- Warwickshire's landscape characters are highly valued by local communities and enhancement zones have been identified.
- Warwickshire's only Special Area of Conservation designated for White-clawed crayfish (Ensor's Pool) has lost its White-clawed crayfish population in 2014, but is still under designation.
- There are 1308 potential Local Wildlife Sites (pLWS) awaiting surveying in the wider Warwickshire, Coventry and Solihull region.
- Single Data Set 600 reporting to Defra identified an increase in the number of Local Sites where positive management has been or is being implemented over the last 5 years.
- Warwickshire is one of the two worst hit counties in the country in terms of loss of unimproved grassland, hedgerows and traditionally managed woodland.
- The overwhelming majority (99%) of Sites of Special Scientific Interest in the County are now in 'favourable' or 'unfavourable recovering' condition.
- The ongoing Warwickshire Historic Landscape Characterisation Project (in association with English Heritage) will contribute to an understanding of the County's landscape to inform sustainable management.



- Warwickshire has a relatively large resource of high-quality agricultural land, but there is a risk that an increasing national focus on economic growth could increase the chance of such land being lost to development.
- Two Groundwater Management Units (Coventry and Warwick) are considered to be over-abstracted, whereas one (Kenilworth) is classed as 'no water available'.
- Draycote Reservoir and the River Learn are protected for drinking water abstraction, but are currently not compliant with those standards due to contamination from pesticides originating within the Avon Warwickshire Catchment. A Safeguard Zone Approach is being developed by Severn Trent Water in response.
- The most common causes of flooding in Warwickshire are river flooding, surface water flooding and sewer flooding.
- Warwickshire County Council has identified a number of areas in which flood alleviation schemes are considered beneficial to local communities.
- Air quality has been identified as an issue for all five boroughs and districts in Warwickshire, with the primary contributing factor being pollution from congested roads.

## 6. SEA Framework

- 6.1. The SEA Framework is a key component in completing the SEA and comprises a bespoke series of objectives. The purpose of the SEA Framework is to provide a set of criteria against which the performance of the LFRMS can be predicted and evaluated. It is developed by synthesising the baseline information and sustainability issues into a systematic and easily understood tool that allows the assessment of effects arising from the implementation of the LFRMS in key areas.
- 6.2. A framework of 10 objectives and associated decision-making questions has been drawn up, developed through the analysis of baseline information and identification of key environmental issues and opportunities, as well as the PPP review. The Scoping Report consultation results were a key consideration and amendments have been made to the overall framework since the publication of the Scoping Report in February 2015. These reflect the comments received from consultees, as detailed in Appendix C, and further amendments deemed necessary to align it with the nature of the strategy being assessed.
- 6.3. The scope of the SEA Framework excludes certain topic areas as the LFRMS will not have a direct influence on issues or opportunities relating to these. Significant effects on air quality and waste are unlikely as a result of the LFRMS and therefore these topics were scoped out. However, the need for assessment of these issues should be considered in the environmental assessment of physical interventions for particular localities. Equally, the Objective: *To improve the quality of, and equitable access to, local services and facilities, regardless of age, gender, ethnicity, disability, socio-economic status or educational attainment* originally identified in the Scoping Report has been scoped out. The LFRMS is not about promoting accessibility to local services and facilities, but about protecting these services and facilities against flooding. On this basis, the objective originally identified in the Scoping Report has been removed from the SEA Framework.
- 6.4. The 10 identified objectives (Table 6) have been worded so that they reflect one single desired direction of change for the theme concerned and do not overlap with other objectives. They include both externally imposed environmental objectives and others devised specifically in relation to the context of the LFRMS being prepared and they are distinct from the LFRMS objectives. Decision-making criteria have been identified for each objective to aid in the assessment.

**Table 6. SEA Framework**

No	SEA Objective (* denotes potential for cumulative effects)	Decision-making questions Will the LFRMS ...	SEA Topics
1	Promote community health and well-being of the population and reduce health inequalities*	Increase the proportion of people who understand the consequences of flood risk and how to live with it?	Population Human Health Climatic Factors
		Decrease the proportion of the population at risk of flooding?	
		Decrease the proportion of elderly/disabled/long term illness people at risk of flooding?	
		Improve people's ability to access green spaces for recreation and amenity?	
2	Reduce the risk of surface, groundwater and sewer flooding taking account of climate change *	Reduce the risk of flooding in existing developed areas, including homes, businesses and critical infrastructure?	Water, Human Health, Population, Material Assets, Climatic Factors
		Prevent inadequate development on the floodplain (Flood zones 2 and 3) and protect overland flow paths?	
		Work with natural processes through encouraging Sustainable Urban Drainage Systems and source control measures?	
		Promote patterns of spatial development that are adaptable to climate change?	
		Allow for the consideration of flooding issues at catchment level?	

No	SEA Objective (* denotes potential for cumulative effects)	Decision-making questions Will the LFRMS ...	SEA Topics
3	Conserve and enhance Warwickshire's biodiversity, geodiversity and green infrastructure network *	Avoid damage to designated wildlife and geological sites, protected species and their habitats?	Biodiversity Flora and Fauna Landscape
		Support the key objectives of Warwickshire's and other planning authorities' Biodiversity Action Plans?	
		Protect and enhance undesignated but locally important nature conservation sites?	
		Protect and enhance green infrastructure avoiding severance of habitats' links and providing wildlife corridors?	
		Explore opportunities for new habitat creation and enhancement through creation of or intervention in green infrastructure?	
		Promote good design to secure biodiversity benefits?	
		Promote and deliver net biodiversity gain objectives?	
4	Conserve and enhance European sites (HRA specific objective)	Affect the European sites identified as part of the HRA Screening process (including both positive and negative effects)?	Biodiversity Flora and Fauna
		Take on board the HRA findings and recommendations?	
5	Safeguard and strengthen landscape character and quality *	Safeguard the Cotswolds Area of Outstanding Natural Beauty?	Landscape, Cultural Heritage
		Protect Public Rights of Way?	
		Promote measures which enhance the landscape character and quality?	
		Preserve the openness of the Green Belt?	
		Create multi-functional green spaces and improve linkages to green infrastructure?	

No	SEA Objective (* denotes potential for cumulative effects)	Decision-making questions Will the LFRMS ...	SEA Topics
6	Conserve and enhance the historic environment, heritage assets and their settings	Contribute to better management of heritage assets?	Cultural Heritage Landscape Material Assets
		Lead to the repair and adaptive reuse of a heritage asset?	
		Respect, maintain and strengthen historical character and distinctiveness?	
		Alter the hydrological conditions of water-dependent heritage assets?	
7	Protect and enhance soil and soil function, and increase resilience to degradation *	Ensure the efficient use of land?	Soil, Material Assets
		Safeguard mineral reserves?	
		Protect best and most productive agricultural land?	
		Maximise the use of previously-developed land and reuse of vacant buildings?	
8	Reduce the causes of climate change	Reduce greenhouse gas emissions, in particular carbon dioxide emissions?	Climatic Factors Human Health Population Material Assets
9	Protect and improve the water environment *	Compromise surface water or groundwater quality or flow characteristics?	Water, Climatic Factors
		Encourage compliance with the Water Framework Directive?	
		Work with natural processes to protect or improve water quality?	
		Allow for the consideration of water quality or flow issues at catchment level?	

No	SEA Objective (* denotes potential for cumulative effects)	Decision-making questions Will the LFRMS ...	SEA Topics
10	Encourage people and businesses to take action to manage the flood risks they face	Will local people and businesses be involved in flood risk management decisions?	Population
		Will local people and businesses be able to take practical steps to protect themselves and others?	
		Will local flood risk groups be created?	

## 7. Testing the LFRMS Objectives against the SEA Objectives

- 7.1. This chapter sets out the iterative process of assessment that has been completed in respect of the LFRMS objectives (Stage B1). The initial assessment of the first iteration of LFRMS objectives is described, followed by the changes made based on the recommendations, resulting in the version that appears in the Draft LFRMS. A commentary on the latest version of the LFRMS Objectives and their overall compatibility with the SEA Objectives completes the chapter.
- 7.2. The LFRMS initially identified the following draft objectives.
- O1. To develop a better understanding of local flood risk in Warwickshire.
- O2. Adopt an economically and environmentally sustainable approach to management of local flood risk in Warwickshire.
- O3. Adopt a collaborative approach to local flood risk management.
- O4. Promote community preparedness and resilience to local flood risk.
- O5. Enable planning decisions to take full account of local flood risk and seek to reduce local flood risk through development.
- 7.3. These draft LFRMS objectives were tested for compatibility with the SEA Objectives (see Table 7). This helped to consider to what degree they are in accordance with the SEA objectives, with a view to developing and refining the LFRMS objectives.

### Compatibility Assessment Outcomes

- 7.4. Specific points that emerged from the assessment in Table 7 were as follows:
- **Objective O1** to develop a better understanding of local flood risk in Warwickshire is a very vague objective as it doesn't provide any pointers as to why a better understanding of local flood risk needs to be developed. This results in uncertain compatibility against all SEA objectives. In order to improve the compatibility of this objective, it is recommended that the objective is re-worded as follows:  
*'Develop a better understanding of local flood risk in Warwickshire in order to reduce flood risk to people, property, infrastructure and the natural environment'*
  - **Objective O2** encompasses two potentially incompatible aspects – economics and environment - in terms of sustainability. In addition, given that a definition for 'sustainable' hasn't been provided it is unclear what the sustainable approach that is advocated could entail. This results in potential conflicts with all but SEA objective 2 on reducing the risk of flooding.  
  
In order to resolve these potential conflicts, it is recommended that this objective is split into two clearer objectives:
    - *'Adopt a cost effective approach to reducing the consequences of flooding in Warwickshire'*.
    - *'Ensure that environmental opportunities and constraints are fully considered in any proposed flood risk management measures and interventions in Warwickshire'*.



- **Objective O3** on the adoption of a collaborative approach to local flood risk management could lead to beneficial effects against the SEA Objectives relating to health, flood risk and encouragement to take action and neutral effects for all other SEA objectives. No recommendations are made.
- **Objective O4** on promoting community preparedness and resilience to local flood risk could lead to beneficial effects against the SEA Objectives relating to health and encouragement to take action and neutral effects for all other SEA objectives. No recommendations are made.
- **Objective O5** by ensuring that planning decisions take full account of local flood risk and seek to reduce local flood risk could be compatible with SEA Objectives 1 and 2 on health and flood risk but it is unclear how wider environmental considerations will be taken into account in such decisions.

This uncertainty associated with Objective O5 reinforces the recommendation made previously for the inclusion of a new strategy objective covering environmental benefits and constraints in any proposed flood risk management measures and interventions (see recommendations for Objective O2 above), as this new objective would also provide further clarity as far as the application of this strategy objective.

**Table 7. Compatibility Assessment between initial LFRM Objectives and SEA Objectives**

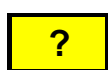
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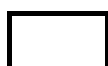
Broadly Compatible



Potential Conflict



Uncertain/Dependent on  
Nature of Implementation  
Measures



Not Relevant

		SEA Objectives									
Initial LFRM Objectives		1	2	3	4	5	6	7	8	9	10
O1	To develop a better understanding of local flood risk in Warwickshire	?	?	?	?	?	?	?	?	?	?
O2	Adopt an economically and environmentally sustainable approach to management of local flood risk in Warwickshire	x	✓	x	x	x	x	x	x	x	x
O3	Adopt a collaborative approach to local flood risk management	✓	✓								✓
O4	Promote community preparedness and resilience to local flood risk	✓									✓
O5	Enable planning decisions to take full account of local flood risk and seek to reduce local flood risk through development	✓	✓	?	?	?	?	?	?	?	

### SEA Objectives

- 1 Reduce health inequalities and promote community health, social care and well-being
- 2 Reduce the risk of surface, groundwater and sewer flooding taking account of climate change
- 3 Conserve and enhance Warwickshire's biodiversity, geodiversity and green infrastructure network
- 4 Conserve and enhance European sites (*HRA specific objective*)
- 5 Safeguard and strengthen landscape character and quality
- 6 Conserve and enhance the historic environment, heritage assets and their settings
- 7 Protect and enhance soil and soil function, and increase resilience to degradation
- 8 Reduce the causes of climate change
- 9 Protect and improve the water environment
- 10 Encourage people and businesses to take action to manage the flood risks they face

## Changes to the LFRMS Objectives based on the SEA recommendations

- 7.5. Following discussions with WCC and taking into account the SEA recommendations above, the final LFRMS Objectives are shown below together with commentary concerning the changes that have been made to some of the LFRMS objectives.
- 7.6. It is considered that the final LFRMS Objectives represent an improvement on the previous objectives from the perspective of environmentally sustainable development, largely taking into account the SEA recommendations.

**Table 8. Final LFRMS Objectives**

Objective		Comments
O1	Develop a better understanding of local flood risk in Warwickshire to better manage flood risk to people, property, infrastructure and the natural environment	SEA recommendation has been taken on board by WCC.
O2	Seek to reduce local flood risk in Warwickshire in an economically, socially and environmentally sustainable way	SEA recommendation not fully taken on board but revised objective clarifies that the approach to be taken must cover simultaneously the three dimensions of sustainable development (social, environmental and economic) which will require the satisfactory resolution of the potential conflicts between the economic and environmental dimensions previously identified.
O3	Adopt a collaborative approach to local flood risk management	No SEA recommendation. Objective remains the same.
O4	Promote community preparedness and resilience to local flood risk	No SEA recommendation. Objective remains the same.
O5	Enable planning decisions to take full account of local flood risk and seek to reduce local flood risk through development	SEA recommendation made linked to Objective O2 which has been changed.

## 8. Options Appraisal

- 8.1. Stage B2 of the SEA process normally involves the generation and assessment of plan options. This exercise is undertaken in part to fulfil the requirements of the SEA Directive, which requires that the Environmental Report should consider:

*'reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme' and give 'an outline of the reasons for selecting the alternatives dealt with' (Article 5.1 and Annex I (h)).*

### Development of Options

- 8.2. It is normal practice when developing a strategy to propose different ways (options) of fulfilling its objectives. The approach adopted by WCC in the formulation of the LFRMS must respond to the key objectives, high level principles and measures set out in the National Flood and Coastal Erosion Risk Management Strategy for England (FCERM). In addition, guidance from DEFRA and DCLG specifies particular approaches which the Council must follow.
- 8.3. This leaves little flexibility to develop 'real' strategic options for the LFRMS as the overall strategy has already been defined nationally. In reality, the LFRMS is a case of pursuing a series of alternative measures in parallel with the national measures. Some of these will be pursued to a greater extent, others to a lesser extent, depending on local priorities for each of the identified LFRMS objectives.
- 8.4. As part of the LFRMS development process, WCC initially identified a number of alternative measures for each LFRMS's objectives. The assessment considered two possible options ('Do Nothing' and 'Do-More') to each alternative measure; the 'Do More' option being the proposed alternative measure and 'Do Nothing' being the non-adoption of the proposed alternative measure. The assessment of these measures against the SEA objectives is presented in Table 9.

### Working Towards a Preferred Option

- 8.5. A high level assessment methodology has been used in order to give an indication of the most sustainable options. This approach assumes that all SEA Objectives are equally important and thus option(s) with the most compatibility overall are noted as being most sustainable, whilst those option(s) with less compatibility are noted as being less sustainable. This assessment has been undertaken using expert and professional judgement and based on the following assumptions.
- The options will be realised through the concurrent implementation of the LFRMS objectives, as outlined in Chapter 7.
  - The HRA findings will be incorporated, which will aim to lead to the avoidance of deterioration to the most important sites for biodiversity and incorporation of appropriate mitigation where necessary.

### Identification of Preferred Options

- 8.6. Table 9 identifies a preferred option for each of the measures and this is invariably the 'Do More' option, as the 'Do Nothing' option may not be compatible with the SEA objectives in most cases. A range of positive and negative effects have been identified for the options as discussed in Table 9. Recommendations for additional measures in order to enhance the

environmental sustainability performance of the LFRMS are also provided in Table 9 and can be summarised as follows.




- LFRMS Objective 1 - In addition to the measures identified, the creation of a register of flood defence assets would further improve local knowledge on localised flooding and ascertain where further investigations are required to assess whether the risk or impacts associated with flooding can be minimised.
- LFRMS Objective 2 - In addition to the measures identified, it is recommended that a measure promoting solutions which work with the natural environment and reduce environmental impacts should be sought. This would result in increased compatibility with wider environmental sustainability objectives.
- LFRMS Objective 3 – No recommendations
- LFRMS Objective 4 - Further measures that could be considered in the development of the preferred strategy include working with partners to improve communications during flood events and establish a co-ordinated approach to the provision of management measures during flood events. This would strengthen the compatibility with the SEA objectives already identified.
- LFRMS Objective 5 - Further measures that could be considered in the development of the preferred strategy include the development of further policy and guidance to control inappropriate development and the promotion of SuDS measures in new development. This would improve the contribution of this objective to wider environmental objectives.

8.7. It should be noted that it is not the role of the SEA to determine which of the options should be chosen as the basis for the LFRMS Preferred Option – that responsibility falls to the LFRMS team preparing the plan. The SEA should, however, help to identify the most environmentally sustainable option overall, or different options that promote the different dimensions of environmental sustainability.

8.8. WCC has developed a LFRMS Preferred Option which has fully taken on board the SEA recommendations above. The assessment of the LFRMS Preferred Options is discussed in Chapter 9.

**Table 9. Options Appraisal**

Key:

	conflict with SEA objectives - Measure is likely to have a negative effect on the SEA objective
	may / may not be compatible with SEA objectives - Measure may have a positive or negative effect on the SEA objective depending on implementation
	compatible with SEA objectives - Measure is likely to have a positive effect on the SEA objective
n/a	not applicable or not relevant to the SEA objective
neutral	no effect

**SEA Objectives**

- 1 Reduce health inequalities and promote community health, social care and well-being
- 2 Reduce the risk of surface, groundwater and sewer flooding taking account of climate change
- 3 Conserve and enhance Warwickshire's biodiversity, geodiversity and green infrastructure network
- 4 Conserve and enhance European sites (HRA specific objective)
- 5 Safeguard and strengthen landscape character and quality
- 6 Conserve and enhance the historic environment, heritage assets and their settings
- 7 Protect and enhance soil and soil function, and increase resilience to degradation
- 8 Reduce the causes of climate change
- 9 Protect and improve the water environment
- 10 Encourage people and businesses to take action to manage the flood risks they face

### Objective 1: Develop a better understanding of local flood risk in Warwickshire

Measure	Option	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	Assessment/Recommendations
1A: Further develop the Surface Water Management Plan for the county to gain a better understanding of key flooding hotspots, risks and associated consequences.	Do Nothing	☹️	☹️	☹️	☹️	☹️	☹️	☹️	☹️	☹️	☹️	<p>Compared with Do Nothing option, the Do-More option Measure 1A would lead to an improved understanding of flooding issues and prioritisation of areas in most need of flood risk management measures. This would improve the health and well-being of the local population and the participation of local people and businesses.</p>
	Do-More	😊	😊	☹️	☹️	☹️	☹️	☹️	☹️	☹️	😊	
1B: Work with partners to investigate locally significant flooding incidents and identify sources, pathways and receptors of flooding.	Do Nothing	☹️	☹️	☹️	☹️	☹️	☹️	☹️	☹️	☹️	☹️	<p>Do-More Measure 1B would involve collaboration with partners, sharing of knowledge and improved decision making with regards flood risk management bringing environmental benefits.</p> <p><u>Recommendation</u></p> <p>In addition to the measures above, the creation of a register of flood defence assets would further improve local knowledge on localised flooding and ascertain where further investigations are required to assess whether the risk or impacts associated with flooding can be minimised.</p>
	Do-More	😊	😊	☹️	☹️	☹️	☹️	☹️	☹️	☹️	😊	

## Objective 2: Adopt an economically and environmentally sustainable approach to management of local flood risk in Warwickshire

Measure	Option	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	Summary of Assessment
2A: The actions of the emerging SWMP to be progressed, where suitable flood risk management schemes are identified and funding to be sought.	Do Nothing	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	<p>Compared with Do Nothing option, the Do-More option Measure 2A is wide-ranging and would have some of environmental benefits as a result. The Measure would result in the development of a prioritised list of schemes, promote collaboration with riparian owners and manage funding for priority schemes. It may however conflict with a number of SEA objectives (covering biodiversity and green infrastructure, European sites, landscape, heritage, soil, climate change and water environment) depending on the nature of the schemes that may be implemented.</p> <p>Do-More Measures 2B &amp; 2C would require engagement and involvement with riparian owners and would encourage people to take ownership of local flood risk issues and enabling practitioners to share technical knowledge. The strengthening of consenting procedures to manage new development would be a significant step in controlling potentially adverse impacts of flood risk from new developments. However, flood management activities may not be fully compatible with a number of SEA objectives</p> <p><u>Recommendation</u></p> <p>In addition to the measures identified, it is recommended that a Measure promoting solutions which work with the natural environment and reduce environmental impacts should be sought. This would result in increased compatibility with wider environmental sustainability objectives.</p>
	Do-More	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	
2B: To work with partners to encourage flood management activities by riparian landowners on ordinary watercourses and flood defence structures as well as limiting the development of constrictions on ordinary watercourses through consenting and, if necessary, enforcement.	Do Nothing	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	
	Do-More	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	
2C: To work with partners to encourage flood schemes by third parties, riparian landowners and stakeholders.	Do Nothing	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	
	Do-More	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	



### Objective 3: Adopt a collaborative approach to local flood risk management

Measure	Option	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	Assessment/Recommendations
3A: To continue to develop the Warwickshire Strategic Flood Forum (WSFF) and relations with other partners.	Do Nothing	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	Compared with Do Nothing the Do-More option Measures 3A & B would strengthen the level of information known on local flood risk issues and ensure knowledge is shared and collaboration is achieved.
	Do-More	☺	☺	neutral	neutral	neutral	neutral	neutral	neutral	neutral	☺	
3B: To share knowledge and training opportunities with partners.	Do Nothing	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	Do-More Measure 3C would strongly engage with all members of the public and involve them with decisions and raising awareness. Proactively engaging with communities would have a positive impact on flood risk management.
	Do-More	☺	☺	neutral	neutral	neutral	neutral	neutral	neutral	neutral	☺	
3C: Continue to work with and support community flood action groups, Town and Parish Councils and other community groups.	Do Nothing	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	Do-More Measure 3D enables scope for wider environmental benefits by adopting a catchment-wide approach which would provide greater opportunities for wider environmental benefits.
	Do-More	☺	☺	neutral	neutral	neutral	neutral	neutral	neutral	neutral	☺	
3D: To work with neighbouring Lead Local Flood Authorities to ensure a catchment-based approach to local flood risk management.	Do Nothing	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	No recommendations.
	Do-More	☺	☺	☺	☺	☺	☺	☺	☺	☺	☺	

#### Objective 4: Promote community preparedness and resilience to local flood risk

Measure	Option	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	Assessment and Recommendations
4A: To work with partners to reduce the impacts of flooding by enabling an efficient response to, and recovery from, flooding incidents by partners and stakeholders.	Do Nothing	☹️	☹️	n/a	n/a	n/a	n/a	n/a	n/a	n/a	☹️	Compared with Do Nothing option, the Do-More Measure 4A would provide a clearly defined approach to responding to impacts following flood events and would work collaboratively to achieve this. However, the measure would not reduce or manage flood risk, rather it would address the consequences following a flood event.
	Do-More	☺️	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	☺️	
4B: To work with partners to reduce the harmful consequences of local flooding to communities and human health through pro-active actions, community activities and education programmes that enhance preparedness and resilience to local flood risk, thereby promoting community cohesion and minimising community disruption.	Do Nothing	☹️	☹️	n/a	n/a	n/a	n/a	n/a	n/a	n/a	☹️	<p>Information and discussion with property owners with regards flood resilience measures in the Do-More Measure 4B will reduce flood risk to properties and will thereby have directly positive impacts on human health and wellbeing. As more properties adopt such measures the likelihood of flooding may be reduced further in the long term.</p> <p><u>Recommendations</u></p> <p>Further measures that could be considered in the development of the preferred strategy include working with partners to improve communications during flood events and establish a co-ordinated approach to the provision of management measures during flood events. This would strengthen the compatibility with the SEA objectives already identified.</p>
	Do-More	☺️	☺️	n/a	n/a	n/a	n/a	n/a	n/a	n/a	☺️	

**Objective 5: Enable planning decisions to take full account of local flood risk and seek to reduce local flood risk through development**

Measure	Option	SEA1	SEA2	SEA3	SEA4	SEA5	SEA6	SEA7	SEA8	SEA9	SEA10	Assessment/Recommendations
5A: To work with partners to produce local policies and guidance and set standards to promote a positive impact on flood risk from new development, and to prevent any increase in flood risk, including the possible impacts of climate change.	Do Nothing	☹️	☹️	☹️	☹️	☹️	☹️	☹️	☹️	☹️	☹️	<p>Compared with Do Nothing the Do-More option Measure 5A strengthens planning policy and would strengthen the basis for planning application decisions that could have an adverse impact on flood risk. Reducing the impacts of new development would be compatible with reducing flood risk and promoting health and well being. Measure 5A could be strengthened by including provision for policies and planning control to include wider environmental benefit.</p> <p>Under the Do-More option Measure 5B promotes opportunities for funding contributions that would increase the ability for implementation of flood risk schemes. Opportunities to use Section 106 and local levies would strengthen the ability to achieve this.</p> <p><u>Recommendations</u></p> <p>Further measures that could be considered in the development of the preferred strategy include the development of further policy and guidance to control inappropriate development and the promotion of SUDS measures in new development. This would improve the contribution of this objective to wider environmental objectives.</p>
	Do-More	☺️	☺️	neutral	neutral	neutral	neutral	neutral	neutral	neutral	neutral	
5B: To maximise opportunities for contributions towards existing and proposed flood risk management from new development to address local flood risk.	Do Nothing	☹️	☹️	n/a	n/a	n/a	n/a	n/a	n/a	n/a	☹️	
	Do-More	☺️	☺️	n/a	n/a	n/a	n/a	n/a	n/a	n/a	☺️	

## 9. Assessment of Preferred Strategy

### Introduction

- 9.1. The SEA Directive states that in the Environmental Report, *'the likely significant effects on the environment of implementing the plan or programme....and reasonable alternatives....are [to be] identified, described and evaluated'* (Article 5.1). The Environmental Report should include information that may *'reasonably be required taking into account current knowledge and methods of assessment, the contents and level of detail in the plan or programme [and] its stage in the decision-making process'* (Article 5.2).
- 9.2. In addition, the SEA Directive requires the Environmental Report to outline measures to prevent, reduce and, as fully as possible, offset any significant adverse effects on the environment of implementing the plan or programme (Annex I (g)).
- 9.3. Existing SEA guidance recognises that the most familiar form of SEA prediction and evaluation is generally broad-brush and qualitative. It is recognised that quantitative predictions are not always practicable and qualitative predictions can be equally valid and appropriate. Examples of the prediction and evaluation techniques for assessing significance of effects are expert judgement, dialogue with stakeholders and public participation, geographical information systems (GIS), reference to legislation and regulations and environmental capacity.
- 9.4. Chapter 8 details how the SEA influenced the development of the Preferred Option. This chapter outlines the Preferred Option (henceforth referred to as Draft LFRMS) and provides a qualitative assessment of the proposals. The proposals that have been considered are those set in Section 2 and Appendix D of the Local Flood Risk Management Strategy document that was produced by WCC in May 2015.
- 9.5. The measures (and associated actions) to achieve strategy objectives that have been assessed are listed in Tables 11-13 and the assessment results are provided in the same Tables. Chapter 3 provides the methodology used in this assessment.
- 9.6. It should be noted that 'No Regrets' measures identified in the Draft LFRMS comprising actions that WCC and partners have already undertaken, are currently doing, and should continue to do to effectively manage local flood risk in Warwickshire, have also been considered in the assessment of the Draft LFRMS. These measures have been prioritised by WCC on the basis of the number of properties at risk of flooding and the likelihood of a scheme receiving funding.
- 9.7. An analysis of the 'No Regrets' measures indicates that they also contribute to the achievement of the LFRMS objectives and for the purpose of the assessment these measures have been assessed according to their relationship with the LFRMS Objectives as set in the Table 10 below.

**Table 10. 'No Regrets' Measures**

'No Regrets' Measure	Relationship with LFRMS Objective
Leading on and assisting in the completion of flood alleviation schemes where there are clearly identified flood risk management issues (such as in Aston Cantlow, Weddington, Polesworth, etc.).	Objective 2
Managing flood risk through the development process through supporting local authorities in reviewing planning applications and consenting work that impacts on ordinary watercourses.	Objective 5
Continuing to improve knowledge on local flood risk through flood investigations and development of a Surface Water Management Plan (SWMP).	Repeated under Objective 1
Delivering? quick win small-scale flood risk management schemes such as minor highway works.	Objective 2
Bidding for funding allocations for flood risk management schemes (such as in Snitterfield, Fenny Compton, Ladbroke, Broadwell, Cherington, etc.).	Objective 2
Engagement with flooded communities, in particular through the Community Flood Resilience Pathfinder project.	Objective 4
Solving minor drainage systems blockages during investigative work.	Objective 1

## Assessment Results

9.8. The assessments in Tables 11-15 indicate that, in general, the May 2015 Draft LFRMS proposals are likely to result in positive or neutral environmental effects, with the exception of some of the measures under LFRMS Objective 2.

9.9. Significant positive effects are predicted with regards to the promotion of community health and wellbeing (SEA objective 1), reducing the risk of flooding (SEA objective 2), and encouraging people and businesses to take action (SEA objective 10). These significant effects arise out of the measures and actions proposed under LFRMS objectives 1, 3, 4 and 5 as they are likely to ensure that:

- critical areas requiring more urgent prioritisation would be allocated funding;
- knowledge of local flood risk is improved and the results of the flood risk investigations shared with partners;
- public participation in flood risk management activities is actively encouraged;
- the level of information on local flood risk issues is improved and knowledge is shared and collaboration is achieved;
- information is shared and discussion with property owners with regards flood resilience measures takes place;
- local policies, guidance and standards are produced to prevent flood risk arising from new development; these will strengthen the basis for rejection of planning applications that could have an adverse impact on flood risk;

- opportunities for funding contributions are identified thus increasing the ability for implementation of flood risk schemes; and
- SuDS are implemented as necessary.

- 9.10. However, measures 2A, B and C proposed under LFRMS Objective 2 could lead to significant adverse effects on most SEA objectives (apart from SEA objectives 1, 2 and 10) as they propose funding to be sought for flood risk management schemes emerging from the SWMP and encouragement of flood management activities by riparian landowners. Flood risk management schemes and activities have the potential to impact on biodiversity (SEA objective 3) and European sites (SEA objective 4), landscape character and quality (SEA objective 5), heritage assets and their settings (SEA objective 6), soil and soil function (SEA objective 7), causes of climate change (SEA objective 8) and water environment (SEA objective 9). Similar effects are predicted for the 'No Regret' Measures under LFRMS Objective 2.
- 9.11. Measures 2F and 2G under LFRMS Objective 2 would deliver significant positive effects and counteract the significant negative effects identified above for SEA objectives 3 and 4 through ensuring that European biodiversity sites are not adversely affected by flood risk management actions and providing net biodiversity gain through habitat creation and enhancement where possible.
- 9.12. Measures 2D and 2E on the implementation of local flood risk management schemes to best utilise funding obtained (through a prioritised risk-based approach and promoting environmentally sustainable solutions including de-culverting, natural flood risk management, blue/green infrastructure, increased tree cover, catchment sensitive farming) could also counteract all other significant adverse effects from measures 2A, B and C. However, the assessment undertaken indicates that these measures are not sufficiently robust to counteract potentially significant adverse effects as they stand and that they need to be strengthened.
- 9.13. The following recommendations have been made to WCC in order to improve the environmental performance of the LFRMS. WCC's responses to the recommendations are also provided.
- 9.14. As the recommendation for the change of wording of LFRMS Objective 1 has been accepted (see Chapter 7) by WCC, it is further recommended that the wording of Measure 1A is changed to recognise that the associated consequences of the LFRMS can be economic, social and environmental. This is in line with the fact that an SEA will be necessary for the Surface Water Management Plan and that economic analysis will also be undertaken.

#### WCC's response

The recommendation has been taken on board and the wording for Measure 1A has been revised as follows:

*'Further develop the Surface Water Management Plan for the county to gain a better understanding of key flooding hotspots, risks and associated economic, social and environmental consequences.'*

- 9.15. As Measures 2A, B and C proposed under LFRMS Objective 2 could lead to significant adverse environmental effects and other proposed measures (in particular Measures 2D and E) within the same objective are not considered sufficiently robust to counteract adverse effects it is recommended that the measures are altered as follows:

- Measure 2D: An additional action could indicate that schemes with the most multiple benefits will be implemented; and

#### WCC's response

The recommendation has been taken on board and the wording for Measure 2D has been revised as follows:

*'To lead on the implementation of local flood risk management schemes and to work with partners to best utilise funding streams through a prioritised risk-based approach and through promoting schemes with the most multiple benefits.'*

- Measure 2E: The proposed action should read 'Environmentally sustainable solutions will be fully considered in WCC led and in all other flood risk management measures, using a catchment based approach where applicable.'

WCC's response

The recommendation has been taken on board and the wording for Measure 2E has been revised as follows:

*'Environmentally sustainable solutions will be fully considered in WCC led and in all other flood risk management measures, using a catchment based approach where applicable.'*

- 9.16. There are no recommendations for additional measures or actions under LFRMS Objectives 3, 4 and 5 as these result in positive or neutral environmental effects.

**Table 11. May 2015 Draft LFRMS Assessment (Objective 1)**

Key:

Assessment Scale	Assessment Category	Significance of Effect
+++	Strongly positive	Significant
++	Moderately positive	
+	Slightly positive	Not Significant
0	Neutral or no obvious effect	
-	Slightly negative	
--	Moderately negative	Significant
---	Strongly negative	
?	Effect uncertain	

Measures	Actions	SEA 1	SEA 2	SEA 3	SEA 4	SEA 5	SEA 6	SEA 7	SEA 8	SEA 9	SEA 10	Comments/ Recommendations
<b>Objective 1: To develop a better understanding of local flood risk in Warwickshire</b>												
1A: Further develop the Surface Water Management Plan for the county to gain a better understanding of key flooding hotspots, risks and associated consequences.	<ul style="list-style-type: none"> <li>Undertake further assessment of surface water flood risk in key risk hotspots with detailed hydraulic modelling where appropriate.</li> <li>Identification of areas where targeted maintenance and improvements to</li> </ul>	+	++	+	+	+	+	+	+	+	0	An improved understanding of flooding issues and areas requiring more urgent prioritisation would ensure the allocation of funding to deal with these more critical areas thereby having a potential moderate positive effect on improving flood risk management (SEA Objective 2). Furthermore, communication of the results



	<p>watercourses and drainage systems are required.</p> <ul style="list-style-type: none"><li>• Prepare a Strategic Flood Map to present the SWMP results.</li><li>• Communicate results of the SWMP with Local Authority planners to assist them in assessing flood risk in planning applications.</li></ul>											<p>to decision makers in Local Authorities would share knowledge and assist in making more effective decisions with regards flood risk management, further contributing to the achievement of SEA Objective 2.</p> <p>Slight positive effects on wider environmental objectives have been identified on the assumption that the associated consequences considered in the measure will include environmental consequences.</p>
1B: Work with partners to investigate locally significant flooding incidents and identify sources, pathways and receptors of flooding.	<ul style="list-style-type: none"><li>• Undertake flood investigations.</li><li>• Test and validate approach to prioritisation of flood investigations.</li><li>• Test and review thresholds for when WCC will undertake Section 19 flood investigations.</li><li>• Publish the results of flood investigations on the WCC website and to notify relevant risk management authorities of the</li></ul>	+	++	0	0	0	0	0	0	0	++	Similar to Measure1A above, Measure 1B would improve knowledge of flood risk issues and prioritise areas for management and funding to support scheme implementation and share the results of the investigations with partners, thereby having a potential moderate positive effect on improving flood risk management (SEA Objective 1) and slight positive effects on the health and well-being of the local population (SEA objective 2) through decreasing the proportion of the population at risk of flooding.

	outcomes.											Importantly, this measure involves working with partners which include flood action groups, residents and businesses and riparian landowners thus ensuring that local people and businesses get involved in flood risk management decisions (SEA objective 10).
1C: Further develop and continue to maintain a register of flood risk management assets with a record of the significant structures with respect to flood risk, together with details of ownership and state of repair and where appropriate the designation of such structures or features, which may affect flood risk.	<ul style="list-style-type: none"> <li>Develop a record of each structure, together with details of ownership, state of repair, and where appropriate, the designation of such structures or features which may affect flood risk.</li> <li>Develop a procedure for the periodic review and update of the asset register.</li> </ul>	0	++	0	0	0	0	0	0	0	+	A register of flood defence assets would lead to improved local knowledge on localised flooding and ascertain where further investigations are required to assess whether the risk or impacts associated with flooding can be minimised. Review of this record would ensure information is kept up to date, reflecting changes associated with development and climate change. The designation of structures which perform a flood management function but are not currently formerly recognised as such would safeguard these features and appropriate consent would be required for any alteration of them. This would have benefits for flood risk management and people at risk in these areas.
1D: Review the Preliminary Flood Risk Assessment as required by the EU Floods Directive and	<ul style="list-style-type: none"> <li>Complete review of the Warwickshire PFRA by June 2017.</li> </ul>	0	+	0	0	0	0	0	0	0	0	Measure 1D would ensure that high level information provided in the PFRA is current contributing to the achievement of SEA Objective 2.

Flood Risk Regulations (2009).												
'No Regrets' Measure: Solving minor drainage systems blockages during investigative work.	N/A	+	+	0	0	0	0	0	0	0	0	This measure ensures that minor drainage systems blockages identified are dealt with immediately contributing to a reduction in flood risk locally (SEA Objective 2).

**Table 12. May 2015 Draft LFRMS Assessment (Objectives 2 & 3)**

Key:

Assessment Scale	Assessment Category	Significance of Effect
+++	Strongly positive	Significant
++	Moderately positive	
+	Slightly positive	Not Significant
0	Neutral or no obvious effect	
-	Slightly negative	
--	Moderately negative	Significant
---	Strongly negative	
?	Effect uncertain	

Measures	Actions	SEA 1	SEA 2	SEA 3	SEA 4	SEA 5	SEA 6	SEA 7	SEA 8	SEA 9	SEA 10	Comments/ Recommendations
<b>Objective 2: Adopt an economically and environmentally sustainable approach to management of local flood risk in Warwickshire</b>												
2A: The actions of the emerging SWMP to be progressed, where suitable flood risk management schemes are identified and funding to be sought.	<ul style="list-style-type: none"> <li>Develop a prioritised list of potential local flood risk management capital schemes to be taken forward for detailed analysis and development of options to reduce flood risk</li> </ul>	++	+++	--	--	--	--	--	--	--	--	The development of a prioritised list of schemes would have strong beneficial effects in the management of flood risk (SEA objective 2) through identifying the most urgent areas for scheme development, but would also provide a strategy through which funding for those schemes could be achieved.

	<ul style="list-style-type: none"> <li>• Develop a supporting Investment Strategy for each of the sites on the prioritised list.</li> <li>• Develop business cases for potential capital schemes.</li> </ul>											<p>Together, this would ensure that recommendations are realised and investment appropriately allocated resulting in a decrease in the proportion of the population at risk of flooding and in beneficial effects on health and well being (SEA objective 1).</p> <p>However, there is no guarantee that the proposed schemes will not lead to significant adverse environmental effects.</p>
2B: To work with partners to encourage flood management activities by riparian landowners on ordinary watercourses and flood defence structures as well as limiting the development of constrictions on ordinary watercourses through consenting and, if necessary, enforcement.	<ul style="list-style-type: none"> <li>• Produce a leaflet for riparian landowners regarding their rights and responsibilities with respect to ditches, watercourses, culverts and hedges.</li> <li>• Ensure all work undertaken is in line with the requirements of the Water Framework Directive, and in compliance with the recommendations of the River Basin Management Plan</li> <li>• Continue to consent work to ordinary watercourses.</li> <li>• Undertake enforcement to remove unapproved</li> </ul>	++	+++	--	--	--	--	+	--	++	+++	<p>This strategy measure aims to reduce flood risk through actively encouraging public participation in flood risk management activities. This approach would not only ensure that local landowners are included in flood risk management of their assets, but would allow very specific local flooding issues to be addressed through the local knowledge held by riparian owners hence strong beneficial effects predicted on SEA objective 10. In turn, flood management practitioners would be able to share knowledge about flood risk management, further supporting SEA objective 2.</p> <p>The measure would also strengthen the management of development and risks associated with</p>

	constrictions on ordinary watercourses.											inappropriate development on or near watercourses through consenting and will ensure that all work meets the requirements of the WFD and RBMP, potentially resulting in a moderate positive effect on SEA objective 9 (Protect and improve the water environment).  However, there is no guarantee that the activities and structures will not lead to significant adverse environmental effects.
2C: To work with partners to encourage flood schemes by third parties, riparian landowners and stakeholders.	<ul style="list-style-type: none"> <li>Make use of County Council funds to provide partnership contributions to flood alleviation schemes on a prioritised basis considering economic benefits.</li> <li>Provide technical advice to third parties, riparian landowners and stakeholders.</li> </ul>	++	+++	--	--	--	--	--	--	--	+++	<p>This measure is very similar to measure 2B but would ensure that funding and technical support is provided to allow riparian owners to more effectively manage local flood risk and be supported in this role by practitioners.</p> <p>However, there is no guarantee that the flood schemes will not lead to significant adverse environmental effects.</p>
2D: To lead on the implementation of local flood risk management schemes and work with partners to best utilise funding obtained through a prioritised risk-	<ul style="list-style-type: none"> <li>Make use of funding from County Council to provide partnership contributions to flood alleviation schemes on a prioritised basis considering economic benefits.</li> <li>Identify schemes with</li> </ul>	++	+++	+	+	+	+	+	+	++	+++	<p>Similar to Measure 2B and 2C, this measure would involve community participation in flood risk management and would aim to support partnership approaches through funding contributions from the County Council.</p> <p>This measure would go</p>

based approach.	multiple benefits beyond flood risk management including environmental enhancements, meeting WFD objectives and facilitating economic development and regeneration											beyond by looking to identifying schemes that would have wider multiple benefits in addition to flood risk management and this may result in beneficial effects against the remaining SEA objectives.  Wider environmental objectives could also be achieved but a significantly positive assessment cannot be made as the measure does not provide certainty that the schemes will be implemented, only that they will be identified.  <i>Recommendation: An additional action could indicate that schemes with the most multiple benefits will be implemented.</i>
2E: To promote environmentally sustainable solutions including de-culverting, natural flood risk management, blue/green infrastructure, increased tree cover, catchment sensitive farming.	<ul style="list-style-type: none"> <li>Explore the potential for use of environmentally sustainable solutions in all WCC led flood risk management schemes.</li> </ul>	++	++	+	+	+	+	+	+	+	+	<p>This measure meets a large number of the SEA objectives through implementing environmentally sustainable solutions which would have the potential for wide ranging environmental benefits in addition to flood risk management.</p> <p>However, a significantly positive assessment cannot be made across the SEA Framework (apart from SEA objectives 1 and 2) as the measure does not provide certainty that such solutions will be implemented, only</p>

												the their potential will be explored.  <i>Recommendation: The proposed action should read 'Environmentally sustainable solutions will be fully considered in WCC led and all other flood risk management measures using a catchment based approach.'</i>
2F: To ensure that Natura 2000 sites within Warwickshire are not adversely affected by flood risk management activities.	<ul style="list-style-type: none"> <li>Ensure that any works or schemes within the 1:200 year surface water flood risk zone around Ensor's Pool SAC or within the catchment of the River Mease SAC undergo a HRA unless those works are part of a wider development for which a full HRA has already been undertaken.</li> <li>Prevent works or schemes that will have an adverse effect on the integrity of a qualifying feature of a Natura 2000 site being taken forward.</li> </ul>	0	0	+++	+++	+	0	0	0	+	0	This measure would have positive benefits for European sites and biodiversity in general. Generally, reducing impacts on habitat and wildlife sites could have benefits for maintaining landscape character which is often associated with wildlife sites (SEA objective 5). Protecting habitats from adverse effects of schemes could contribute to protection and improving the water environment (SEA objective 9).



2G: Aim to ensure a no net loss of biodiversity and where possible look to provide a net gain through habitat creation and enhancement, contributing to wider environmental objectives.	<ul style="list-style-type: none"> <li>To conform with Warwickshire County Council's remit under the 'biodiversity duty' as per Section 40 of the Natural Environment and Rural Communities Act 2006 and the Warwickshire, Coventry and Solihull Green Infrastructure Strategy.</li> </ul>	0	+	+++	+++	+	0	0	0	+	0	In addition to protecting biodiversity, this measure aims to enhance biodiversity through habitat creation, creating environmental benefit and contributing to climate change management. It would also align with a number of higher level environmental protection strategies and legislation.
'No Regrets' Measure: Leading on and assisting in the completion of flood alleviation schemes where there are clearly identified flood risk management issues (such as in Aston Cantlow, Weddington, Polesworth, etc.).	N/A	++	+++	--	--	--	--	--	--	--	--	<p>This measure would have strong beneficial effects in the management of flood risk (SEA objective 2) through dealing with the most urgent issues. This would ensure that these schemes are completed swiftly resulting in a decrease in the proportion of the population at risk of flooding and in beneficial effects on health and well being (SEA objective 1).</p> <p>However, there is no guarantee that the proposed schemes will not lead to significant adverse environmental effects, in particular given that they are being implemented in advance of the LFRMS.</p>

<p>'No Regrets' Measure: Quick win small-scale flood risk management schemes such as minor highway works.</p>	<p>N/A</p>	<p>+</p>	<p>+</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>-</p>	<p>Quick win small-scale flood risk management schemes would have beneficial effects in the management of flood risk (SEA objective 2). This would ensure that these schemes are completed swiftly resulting in a decrease in the proportion of the population at risk of flooding and in beneficial effects on health and well being (SEA objective 1).</p> <p>However, there is no guarantee that the proposed schemes will not lead to negative environmental effects, in particular given that they are being implemented in advance of the LFRMS. However, given that these schemes are minor they are unlikely to give rise to significant effects.</p>
<p>'No Regrets' Measure: Bidding for funding allocations for flood alleviation schemes (such as in Snitterfield, Fenny Compton, Ladbroke, Broadwell, Cherington, etc.).</p>	<p>N/A</p>	<p>++</p>	<p>+++</p>	<p>--</p>	<p>--</p>	<p>--</p>	<p>--</p>	<p>--</p>	<p>--</p>	<p>--</p>	<p>--</p>	<p>Bidding for funding for priority flood alleviation schemes would have strong beneficial effects in the management of flood risk (SEA objective 2) through dealing with the most urgent issues. This would ensure that these schemes are completed swiftly resulting in a decrease in the proportion of the population at risk of flooding and in beneficial effects on health and well being (SEA objective 1).</p> <p>However, there is no</p>

												guarantee that the proposed schemes will not lead to significant adverse environmental effects, in particular given that they are being implemented in advance of the LFRMS.
Measures	Actions	SEA 1	SEA 2	SEA 3	SEA 4	SEA 5	SEA 6	SEA 7	SEA 8	SEA 9	SEA 10	Comments/ Recommendations
<b>Objective 3: Adopt a collaborative approach to local flood risk management</b>												
3A: To continue to develop the Warwickshire Strategic Flood Forum (WSFF) and relations with other partners.	<ul style="list-style-type: none"> <li>Develop ?groups for north and south Warwickshire to allow greater focus on local issues.</li> <li>Appoint a flood action group representative to the WSFF.</li> <li>Appoint a representative from the Warwickshire Association of Local Councils to the WSFF.</li> </ul>	+	+	0	0	0	0	0	0	0	++	This measure would strengthen the level of information known on local flood risk issues and ensure knowledge is shared and collaboration is achieved, thus having slight beneficial effects on SEA objectives 1 (health and well being), SEA objective 2 (flood risk) and moderate beneficial effects on SEA objective 10 (people and business to take action).
3B: To share knowledge and training opportunities with partners.	<ul style="list-style-type: none"> <li>Continue to participate in national and regional LLFA best practice sharing groups.</li> <li>Continue to work with partners in taking advantage of training opportunities, realising economies of</li> </ul>	0	+	0	0	0	0	0	0	0	+++	Understanding local level flood risk would assist in minimising the impacts of flooding (SEA objective 2) by enabling more informed decision making and the sharing of knowledge. This measure would also look towards improving knowledge through training opportunities which could strongly encourage people

	<p>scale.</p> <ul style="list-style-type: none"><li>Continue to offer training to partners where appropriate.</li></ul>												and businesses to get more involved in flood risk management decisions and take practical steps to protect themselves and others (SEA objective 10).
3C: Continue to work with and support community flood action groups, Town and Parish Councils and other community groups.	<ul style="list-style-type: none"><li>Attend flood action group meetings to support their work.</li><li>Provide technical advice and guidance to flood action groups.</li></ul>	+	+	0	0	0	0	0	0	0	+++		This measure would strongly engage with all members of the public and involve them with decisions and raise awareness. Public engagement can also reduce the impacts of flooding on a localised level by allowing individuals to safeguard their property from flooding (SEA objective 10). Proactively engaging with communities would have a beneficial effect on flood risk management (SEA objective 10) and on population health and well being (SEA objective 1).
3D: Continue to engage local communities building on the progress made by the Community Flood Resilience Pathfinder Project.	<ul style="list-style-type: none"><li>Promote the formation of new flood action groups where appropriate.</li><li>Develop a network of flood action groups for Warwickshire with a representative to sit on the WSFF.</li></ul>	+	+	0	0	0	0	0	0	0	+++		This measure takes measure 3C further and promotes new flood action groups and networks, which would enable a wider range of people to be involved and communicated with.
3E: To work with neighbouring Lead Local Flood Authorities to ensure a catchment-based approach to local	<ul style="list-style-type: none"><li>Attend regional partnership meetings with other LLFAs</li></ul>	+	++	+	+	+	+	+	+	+	+		The advantages of partnership working are that it would allow the Lead Local Flood Authority to share knowledge and data, leading to a more efficient co-ordination of information and

flood risk management.												to develop a more clearly defined approach of how flood risk is to be managed. This measure has a more targeted audience at Local Authority level rather than the wider public. The development of a catchment-wide approach would provide greater opportunities for wider environmental benefits.
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**Table 13. May 2015 Draft LFRMS Assessment (Objectives 4 & 5)**

Key:

Assessment Scale	Assessment Category	Significance of Effect
+++	Strongly positive	Significant
++	Moderately positive	
+	Slightly positive	Not Significant
0	Neutral or no obvious effect	
-	Slightly negative	
--	Moderately negative	Significant
---	Strongly negative	
?	Effect uncertain	

Measures	Actions	SEA 1	SEA 2	SEA 3	SEA 4	SEA 5	SEA 6	SEA 7	SEA 8	SEA 9	SEA 10	Comments
<b>Objective 4: Promote community preparedness and resilience to local flood risk</b>												
4A: To work with partners to reduce the impacts of flooding by enabling an efficient response to, and recovery from, flooding	<ul style="list-style-type: none"> <li>Engage on updates to the Warwickshire Multi-Agency Flood Plan.</li> <li>Develop a countywide plan for flood recovery for householders and</li> </ul>	++	0	0	0	0	0	0	0	0	++	This measure would provide a clearly defined approach to responding to impacts following flood events and would require collaborative work to achieve this. This would result in beneficial effects on health and wellbeing (SEA objective 1)

incidents by partners and stakeholders.	businesses as part of the ongoing Warwickshire Flood Resilience Community Pathfinder project.											and encourage people and businesses to take action (SEA objective 10).
4B: To work with partners to reduce the harmful consequences of local flooding to communities and human health through pro-active actions, community activities and education programmes that enhance preparedness and resilience to local flood risk, thereby promoting community cohesion and minimising community disruption.	<ul style="list-style-type: none"> <li>Attend community led engagement and education meetings.</li> <li>Develop a network of flood action groups for Warwickshire with a representative to sit on the WSFF.</li> <li>Extend the existing flood warden scheme for Warwickshire.</li> </ul>	+++	++	0	0	0	0	0	0	0	+++	Information and discussion with property owners with regards flood resilience measures, will reduce flood risk to properties (SEA objective 2) and will thereby have directly positive impacts on human health and wellbeing (SEA objective 1). As more properties adopt such measures the likelihood of flooding may be reduced further in the long term.
4C: Continue the work of the Warwickshire Flood Resilience Community Pathfinder project in supporting local groups to increase the resilience of their	<ul style="list-style-type: none"> <li>Promote the recruitment of flood wardens where there are no existing local groups.</li> <li>To ensure local emergency action plans are joined up</li> </ul>	+++	++	0	0	0	0	0	0	0	+++	Similar to measure 4B, this measure would reduce flood risk to properties (SEA Objective 2) through supporting flood resilience measures, having positive impacts on human health and wellbeing (SEA Objective 1). The establishment of flood

communities to flooding.	between flood action groups, town councils and parish councils.											wardens and collaboration between local flood action groups and councils would ensure sharing of knowledge and best practice to further strengthen local flood risk measures.
4D: Continue to work with partners to improve communications and advice given during flooding events.	<ul style="list-style-type: none"> <li>• Improve County Council flood call management procedures.</li> <li>• Enhance the Warwickshire County Council website to give clear guidance on whom to contact to report a flooding event.</li> </ul>	+	0	0	0	0	0	0	0	0	+	Improvements in flood warnings would potentially reduce the consequences of flooding including risk of harm to local people, but would not reduce the risk of flooding itself. Flooding would still cause distress.
4E: To work with partners to establish a co-ordinated approach to the provision of temporary flood risk management measures.	<ul style="list-style-type: none"> <li>• Develop a county wide sandbag policy to ensure consistent provision across the county.</li> <li>• Explore the opportunities to promote the use of alternative temporary flood risk management techniques to sandbags.</li> </ul>	+	+	0	0	0	0	0	0	0	+	The identification of measures to manage flood risks during a flood event could reduce the degree to which a property is flooded and any harm to property owners. However, these measures are temporary and would not work in the long term.



'No Regrets' Measure: Engagement with flooded communities, in particular through the Community Flood Resilience Pathfinder project.	N/A	+++	++	0	0	0	0	0	0	0	+++	Similar to measure 4C, this 'Non Regrets' Measure would reduce flood risk to properties (SEA Objective 2) through supporting flood resilience measures, having positive impacts on human health and wellbeing (SEA Objective 1).
Measures	Actions	SEA 1	SEA 2	SEA 3	SEA 4	SEA 5	SEA 6	SEA 7	SEA 8	SEA 9	SEA 10	Comments/ Recommendations
<b>Objective 5: Enable planning decisions to take full account of local flood risk and seek to reduce local flood risk through development</b>												
5A: To work with partners to produce local policies and guidance and set standards to promote a positive impact on flood risk from new development, and to prevent any increase in flood risk, including the possible impacts of climate change.	<ul style="list-style-type: none"> <li>Engage where possible with developers at the earliest possible point in the planning process for major developments.</li> <li>Respond to strategic planning consultations including Local Plans and planning policy documents.</li> </ul>	+	++	0	0	0	0	0	0	0	0	This measure strengthens planning policy and would strengthen the basis for rejection of planning application decisions that could have an adverse impact on flood risk. Reducing the impacts of new development could reduce flood risk overall.
5B: To maximise opportunities for contributions towards existing and proposed flood risk management from new development to address local	<ul style="list-style-type: none"> <li>Explore the possibility for the use of Section 106 agreements and Community Infrastructure Levy with Local Planning Authorities.</li> </ul>	+	++	0	0	0	0	0	0	0	0	Identifying opportunities for funding contributions would increase the ability for implementation of flood risk schemes. Opportunities to use Section 106 and local levies would strengthen the ability to achieve this.

flood risk.												
5C: Develop byelaws where beneficial to control development.	<ul style="list-style-type: none"> <li>Develop byelaws to control development in the vicinity of ordinary watercourses.</li> </ul>	+	++	+	0	0	0	0	0	+	0	This measure would reduce the risk of increasing surface water flooding and would also reduce the risk of introducing more people at flood risk through restricting new development in flood risk areas. Provision of clear guidance would reduce the risk of new developments increasing flood risk.
5D: Work with relevant partners to promote SuDS measures for new developments through the LLPA's role as a statutory consultee on major planning applications.	<ul style="list-style-type: none"> <li>Respond to local planning authorities on 80% of major planning application consultations within 21 days.</li> </ul>	+	+++	+	0	+	0	+	0	++	0	The implementation of SuDS would have positive effects across many of the SEA objectives. Introduction of SuDS would help to reduce flood risk and aid in adapting new and existing development to the impacts of climate change. (SEA objective 2), as well as preserve water quality (SEA objective 9).

## 10. Cumulative, Synergistic and Indirect Effects

- 10.1. The results of the assessment of the Draft LFRMS are presented in Chapter 9. The assessments primarily focused on direct and indirect (secondary) effects, acting in isolation. As required by the SEA Regulations, cumulative, synergistic and indirect effects have also been recorded and analysed during the appraisal. More details about the methodology utilised can be found in Chapter 3. Table 14 lists the results of the cumulative, synergistic and indirect effects analysis.

**Table 14. Summary of Cumulative, Synergistic and Indirect Effects**

Effects	Causes	Significance
Synergistic effects on improving health and wellbeing	When taken together, the measures proposed could lead to cumulative positive effects through the reduction of overall flood risk to both people and property. Direct measures such as the creation of flood action groups and increased flood warning systems could improve community awareness and resilience and help to reduce overall stress levels, in addition to reducing the potential for people to be negatively affected by flooding. In addition to this, community activities and education programmes could help to improve community cohesion, therefore creating an improved sense of wellbeing in the local community. This could further compound the beneficial effects when reacting to flood events, through the potential for increased resilience through mutual community support networks. Indirect benefits that could also add to overall community wellbeing could stem from an improvement in biodiversity and landscape measures. These measures could increase the areas of accessible open space available for recreation, which could lead to mental and physical health benefits.	Potentially significant positive effects likely over the medium and long term as proposals are delivered.
Cumulative effect on minimising the risk of and from flooding	Overall the measures within the LFRMS seek to reduce the risk of flooding. Should the majority of the measures be implemented and recommendations taken into account, it is likely that the risk from flooding to people and property, including infrastructure and heritage assets should reduce. The risk of/from flooding should also reduce, through the implementation of measures such as SuDS, changes to planning guidance, improved design and other measures taken in collaboration with other plans and strategies.	Potential medium to long term benefits as measures are implemented.

Effects	Causes	Significance
Cumulative effects on biodiversity	The measures create the potential for long term positive effects through the active management of flood risk, whilst enhancing assets in the natural environment. The measures should ensure that flood risk management measures do not lead to the loss of biodiversity assets. The effect should be enhanced through the particular importance placed on designated sites and protected habitats, as identified locally.	Potential long term positive effects as measures are implemented.
Cumulative effect on protecting soil	Overall, the LFRMS should enable a reduction in overall flood risk. Taken together, the measures should therefore lead to an overall reduction in surface water run off which, in turn, should lead to an increased resilience to degradation.	Positive effects in the medium to long term as measures are implemented.
Cumulative effects on improving water quantity, quality and flow	Overall the measures contained within the LFRMS seek to reduce flood risk, which may act as a pathway for pollutants to enter the water environment.	Potentially significant positive effects over the medium to longer term as measures are implemented.

## 11. Mitigation

- 11.1. The term ‘mitigation’ encompasses any approach, which is aimed at preventing, reducing or offsetting significant adverse environmental effects that have been identified. In practice, a range of measures applying one or more of these approaches is likely to be considered in mitigating any significant adverse effects predicted as a result of implementing the LFRMS. In addition, it is also important to consider measures aimed at enhancing positive effects. All such measures are generally referred to as mitigation measures.
- 11.2. However, the emphasis should, in the first instance, be on proactive avoidance of adverse effects. Only once all alternative options or approaches to avoiding an effect have been examined should mitigation then examine ways of reducing the scale/importance of the effect.
- 11.3. Mitigation can take a wide range of forms, including:
- changes to the preferred measures, including bringing forward new options to address specific elements that cause adverse effects, or adding or deleting options;
  - refining options in order to improve the likelihood of positive effects and to minimise adverse effects;
  - technical measures (such as setting guidelines) to be applied during the implementation stage;
  - identifying issues to be addressed in project environmental impact assessments for certain projects or classes of projects;
  - proposals for changing other plans and programmes; and
  - contingency arrangements for dealing with possible adverse effects.
- 11.4. Mitigation measures in the form of recommendations were identified in the individual assessments throughout the SEA process and are highlighted in the specific recommendations in Chapter 9.

## 12. Monitoring

- 12.1. The SEA Directive states that *'member states shall monitor the significant environmental effects of the implementation of plans and programmes.....in order, inter alia, to identify at an early stage unforeseen adverse effects, and to be able to undertake appropriate remedial action' (Article 10.1). In addition, the Environmental Report should provide information on a 'description of the measures envisaged concerning monitoring' (Annex I (i)) (Stage E).*
- 12.2. SEA monitoring will cover significant environmental effects and it involves measuring indicators which will enable the establishment of a causal link between the implementation of the plan and the likely effects (both positive and negative) being monitored. In line with the SEA Directive, these positive and negative effects should be monitored with the implementation of the LFRMS.
- 12.3. Existing guidance recommends monitoring to be incorporated into Local Authority's existing monitoring arrangements. It is therefore recommended that the monitoring of the SEA of the LFRMS is undertaken alongside other regular monitoring programmes.
- 12.4. WCC will monitor the progress of the LFRMS against its aims and objectives on an annual basis as part of the annual review.
- 12.5. The proposed Monitoring Programme in Table 15 contains indicators which have been identified taking the requirement for post-implementation monitoring into consideration and which should be considered by WCC when devising the LFRMS's Monitoring Programme.
- 12.6. There will be a need for careful consideration of the practicalities of monitoring to be taken into account when shaping the Monitoring Programme for the LFRMS, especially in the context of limited resources. The emphasis must be on creating a balanced, effective, yet achievable set of monitoring criteria.

**Table 15. Monitoring Programme**

No	Predicted Effect	Potential Indicators to Monitor Change	Target	Responsibility /frequency of monitoring
1	Promote community health and well-being of the population and reduce health inequalities	Number of elderly people at risk of the adverse consequences of flooding	Reduce	WCC/Annual
		Number of flood risk management schemes that reduce people's ability to access green spaces	Nil	WCC/Annual
		Number of disabled people at risk of flooding	Reduce	WCC/Annual
		Number of households and businesses registered for flood warnings as a percentage of total number of households and businesses at risk of flooding	Reduce	WCC/Annual
2	Reduce the risk of surface, groundwater and sewer flooding taking account of climate change	Number of residential properties within flood risk areas	Reduce	WCC/Annual
		Number of non-residential properties within flood risk areas	Reduce	WCC/Annual
3/4	Conserve and enhance Warwickshire's biodiversity, geodiversity and green infrastructure	Number of flood risk management interventions which have an adverse effect on European Sites (through increased flood risk or flood management interventions)	Nil	WCC/Annual
		Area of SSSI lost to flood risk management interventions	Nil	WCC/Annual
	Conserve and enhance European	Area of protected woodland and trees lost through flood risk management interventions	Nil	WCC/Annual

	sites (HRA specific objective)	Area of LNR lost to flood risk management interventions	Nil	WCC/Annual
		Number of new flood risk management interventions delivering habitat creation or enhancement	Increase	WCC/Annual
		Number of flood risk management interventions that work with natural processes	Increase	WCC/Annual
		Area of green space important for wildlife corridors identified and safeguarded or enhanced as part of flood management	Increase	WCC/Annual
		Number of flood risk management interventions that improve land stability	Increase	WCC/Annual
9	Protect and improve the water environment	Length of improved watercourse as part of flood risk management interventions	Increase	WCC/Annual
		Number of new developments generating an increase in surface water runoff	Nil	Local Authorities/Annual
		Number of new developments incorporating Sustainable Urban Drainage	Increase	Local Authorities/Annual
10	Encourage people and businesses to take action to manage the flood risks they face	Number of people who understand the consequences of flood risk and how to live with it (informed through action groups etc)	Increase	WCC/Annual



## 13. Conclusions

- 13.1. This document provides the Strategic Environmental Assessment (SEA) which accompanies the Warwickshire Draft Local Flood Risk Management Strategy (LFRMS) on consultation. It provides a summary of the baseline conditions and key issues which exist within Warwickshire. A comprehensive review of the key plans, programmes and strategies is also included which seeks to consider the wider context within which the LFRMS will function.
- 13.2. After developing an understanding of the plan area, the overall LFRMS document was appraised against a set of SEA objectives and decision-making questions. These have been used consistently throughout the successive assessments of the LFRMS proposals at different stages of preparation in order to determine and influence its sustainability.
- 13.3. The process of the SEA throughout the LFRMS's preparation has been thorough and comprehensive. Iterations of assessment have been employed, with continuous dialogue between the LFRMS team and the SEA team.
- 13.4. Following the assessment of the May 2015 Draft LFRMS, a number of recommendations were made as set in Chapter 11 and these have been taken into account by WCC in the preparation of the Draft LFRMS that is being consulted upon. As a result, the negative effects that were initially identified under LFRMS Objective 2 for SEA Objectives covering biodiversity, landscape character and quality, heritage assets and their settings, soil and soil function, causes of climate change and water environment have been reduced to non-significant.
- 13.5. It is therefore considered that the measures in the Draft LFRMS taken together will result the sustainable reduction in local flood risk over the strategy period and are generally considered to offer positive effects overall (some potentially significant) against the SEA Objectives, in particular improving health and wellbeing, minimising the risk of and from flooding, biodiversity gain, protecting soil and improving water quantity, quality and flow.



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