Cumbria County Council

Local Flood Risk Management Strategy

Strategic Environmental Assessment (SEA) Scoping Report

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Glossary of Acronyms

AONB	Area of Outstanding Natural Beauty
AWB	Artificial Water Bodies
CFMP	Catchment Flood Management Plan
CBEB	Cumbria Biodiversity Evident Base
EU	European Union
GCS	Good Chemical Status
GES	Good Ecological Status
GHG	Greenhouse Gasses
HAPs	Habitat Action Plans
HRA	Habitat Regulations Assessment
HMWB	Heavily Modified Water Bodies
LDNP	Lake District National Park
LLFA	Lead Local Flood Authorities
LAQM	Local Air Quality Management
LBAP	Local Biodiversity Action Plan
FTE	Full Time Equivalent
LFRMS	Local Flood Risk Management Strategy
FWMA	Flood and Water Management Act 2010
NAQS	National Air Quality Standards
RBMP	River Basin Management Plans
SSSI	Sites of Special Scientific Interest
SAC	Special Areas of Conservation
SPA	Special Protection Areas
SEA	Strategic Environmental Assessment
SAPs	Species Action Plans
SuDS	Sustainable Drainage Systems
WFD	Water Framework Directive

Invitation to Comment on this Report

This report is the Scoping Report for the Strategic Environmental Assessment (SEA) of the Cumbria Local Flood Risk Management Strategy (LFRMS).

The Flood and Water Management Act (FWMA) 2010 places a responsibility upon Local Authorities, to: develop, maintain, apply and monitor a strategy for local flood risk management (Local Strategy). Under the FWMA, Local Authorities are designated as Lead Local Flood Authorities (LLFAs).

The purpose of this Scoping Report is to identify, through consultation, any plans and programmes of relevance to the area to describe the environmental, economic, and social baseline, and to highlight the key environmental issues and environmental objectives for the LFRMS. The issues and objectives identified at this scoping stage will form the basis for the subsequent SEA assessment of the LFRMS.

This report is open to consultation for 5 weeks, from 19 May to 23 June 2014. The following questions are posed as part of the consultation:

Q1 Have all plans relevant to the Cumbria LFRMS and the ways that they are relevant been identified?

Q2 Are there any significant gaps or errors in the baseline data that has been identified?

Q3 Are there any other key environmental issues, opportunities or constraints that have not been identified, and need to be considered, as part of the SEA for the Cumbria LFRMS? Please consider Cumbria County Council's assessment of the significance of potential impacts located within Appendix A.

Q4 Are there any major development proposals within the study area that need to be considered as part of the SEA for the Cumbria LFRMS?

Q5 Are the proposed SEA objectives and indicators suitable in the context of the Cumbria LFRMS, and are there any objectives or indicators that should be removed or added?

Q6 Do you have any further comments on the proposed approach and scope of the SEA?

Please send responses or comments on this consultation to:

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1.0 Introduction

This report is the Scoping Report for the Strategic Environmental Assessment (SEA) of the Cumbria Local Flood Risk Management Strategy (LFRMS).

Strategic Environmental Assessment (SEA) is the systematic appraisal of the possible effects of decisions taken at a high level (such as those in strategies, policies and plans) on the built, natural and historic environments.

1.1. Purpose of a Local Flood Risk Management Strategy

The Flood and Water Management Act (FWMA) 2010 places a responsibility upon Local Authorities, to develop, maintain, apply and monitor a strategy for local flood risk management (Local Strategy). Under the FWMA Local Authorities are designated as Lead Local Flood Authorities (LLFAs).

The Cumbria LFRMS will form the framework within which communities have a greater say in local flood risk management decisions. In combination with the National Strategy, the Local Strategy will encourage more effective risk management by enabling people, communities, business and the public sector to work together to:

- Ensure there is 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 remaining, 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.

A “local flood risk” is defined within the Flood and Water Management Act as a flood risk from:

- Surface runoff;
- Groundwater; and
- Ordinary watercourses – this includes any lake, pond or other area of water that flows into an ordinary watercourse.

Flood risk management responsibilities lie with a range of authorities covering the wider scope of flooding, including river and coastal flooding; roles and responsibilities will be defined in the LFRMS. Close partnership working to share these interests will be central to the strategy.

1.2. Requirement for a Strategic Environmental Assessment (SEA)

European Directive 2001/42/EC "on the assessment of certain plans and programmes on the environment" is commonly referred to as the Strategic Environmental Assessment (SEA) Directive. The SEA Directive is transposed into law in England and Wales by the Environmental Assessment of Plans and Programmes Regulations 2004 (SI 1633).

The SEA Directive requires that certain plans and programmes are assessed as they are developed to determine that any potentially significant environmental effects are properly considered; and that the possible effects are taken into account before decisions on the final plan or programme are made. It also requires that significant effects are monitored once the plan or programme is in place.

The SEA Directive applies to a range of plans and programmes. It applies in this case because there is a legal requirement for Cumbria County Council to develop an LFRMS as it has the potential to have a significant effect on the environment.

1.3 The SEA Process

Undertaking an SEA is not a "one-off" action. The SEA legislation requires that certain actions are taken (e.g. early and on-going stakeholder engagement) and that certain outputs are produced (e.g. an environmental report).

The SEA Directive sets out the procedure for carrying out the assessment, what information should be included and that it should take account of the following topic areas:

- Population;
- Human Health;
- Biodiversity;
- Flora and Fauna;
- Soil;
- Water;
- Air;
- Climatic Factors;
- Material assets;
- Cultural heritage, including archaeological and built heritage;
- Landscape; and
- The interrelationship between these areas.

The assessment should consider the likely positive, negative, short, medium, long-term, temporary, permanent, cumulative and synergistic effects on these areas. These topic areas may also be referred to as "factors" or "receptors".

Scoping is an important part of the SEA process. It is the stage that identifies the potentially significant environmental effects of the plan or programme being developed (the Cumbria LFRMS) and outlines how these effects will be assessed. It includes:

- Identifying potential activities associated with the Cumbria LFRMS that may have significant environmental effects;
- Determining the geographic area and time scale of the assessment - in most cases these will be defined by the plan area, although environmental effects outside of this area may need to be considered as well;
- Identifying key environmental issues in the Cumbria LFRMS study area;
- Identifying who should be involved in the process; and
- Identifying strategic options to be considered.

If an issue does not occur within the study area or is unlikely to be significantly affected by the Cumbria LFRMS then it may be "scoped out" and excluded from further assessment. Other issues can be added, either during the scoping stage or later on, if it seems likely that Cumbria LFRMS may have a significant effect on them.

The main principles of scoping are set out below. They have been considered throughout this report to ensure that the scoping exercise achieves its purpose.

- Identify significant environmental effects likely to result from implementing the Cumbria LFRMS;
- Identify major constraints;
- Ensure compliance with legislation;
- Ensure that the level of detail is appropriate to the stage of the Cumbria LFRMS in the decision-making process – for example, it may be more appropriate to consider some things in more detail at a later stage;
- Engage with consultees; and
- Identify any uncertainty or gaps in knowledge so that they can be addressed in later stages of the SEA process.

The scoping exercise helps target the SEA to meet the requirements of stakeholders and the SEA Directive. The legislation states that the scope and level of detail of the information to be included in an SEA should be agreed with consultation bodies. The scoping report sets out the results of the scoping exercise and provides a document on which consultees can comment.

1.4 Links to other Environmental Assessments

As well as the SEA, the Cumbria LFRMS must also undergo other environmental assessments to comply with other legislation. How the LFRMS and the SEA link to these other assessments is described in the following sections.

Habitats Regulations Assessment (HRA)

The EU Habitats (92/43/EEC) and Birds (79/409/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. 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).

In the UK, it is also policy to carry out a similar assessment for sites designated under the Ramsar Convention (known as Ramsar sites).

There are a number of EU protected sites in or near to the area covered by the Cumbria LFRMS. The "competent authority" (in this case, Cumbria County Council) needs to carry out an HRA to ensure that damage to the sites does not take place when the actions in the LFRMS are followed. If it is not possible to eliminate all damage to the sites, measures must be taken to compensate for any damage or loss.

The actions and objectives developed for the LFRMS will be assessed based on the specific requirements of the HRA process. The HRA will be carried out at a later stage of the LFRMS development as proposals for measures within the Cumbria LFRMS start to become clearer. Some of the information collected as part of the SEA will be relevant to the HRA as well.

Water Framework Directive (WFD) Assessment

The European Union (EU) Council Directive 2000/60/EC "establishing a framework for the Community action in the field of water policy" is designed to improve and integrate the way bodies of water are managed throughout Europe. It is commonly known as the Water Framework Directive (WFD). The WFD was transposed into law in England and Wales by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.

The aim of the WFD is for all inland and coastal waters in the EU to be in "good" condition by 2015. This is achieved in part by creating a system of management plans, called River Basin Management Plans (RBMPs).

The Cumbria LFRMS is within the North West and Solway Tweed RBMP area and next to the Northumbria RBMP area.

Many of the aims of the WFD are relevant to the preparation of the LFRMS and the LFRMS has the potential to help deliver some of the actions identified in the RBMPs. In order to ensure that the LFRMS does not conflict with the RBMPs or undermine the aims of the WFD, a WFD assessment of the proposed policies and actions under the LFRMS will be carried out in consultation with the Environment Agency, as the LFRMS develops and proposals for measures within the Cumbria LFRMS start to become clearer. Some of the information collected as part of the SEA will be relevant to the WFD assessment as well.

2.0 The Study Area

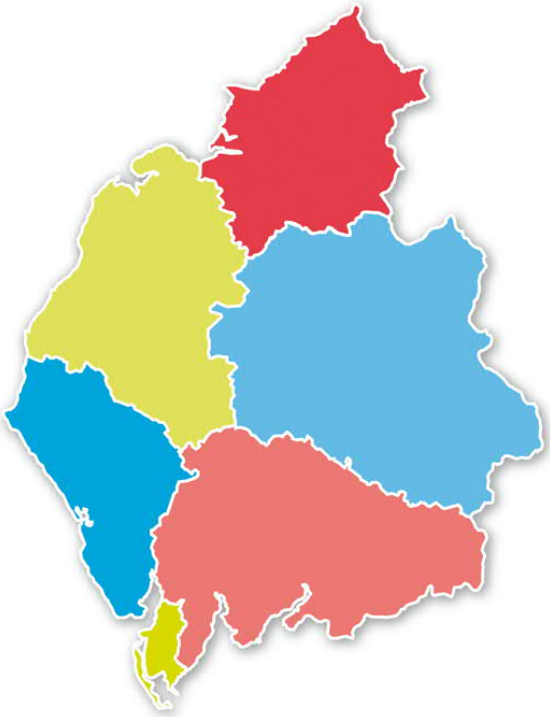
2.1 Overview of the study area

The county of Cumbria consists of six districts (Allerdale, Barrow-in-Furness, Carlisle, Copeland, Eden and South Lakeland), and in 2012 had a population of 499,100. The county's population is largely rural and sparsely populated. It has the second lowest population density among English counties at 73.4 people per km^2, and has only five towns with a population of over 20,000 (Carlisle, Kendal, Workington, Whitehaven and Barrow-in-Furness).

Cumbria contains the Lake District and Lake District National Park (LDNP), considered one of England's most outstanding areas of natural beauty. Much of Cumbria is mountainous, and it contains every peak in England over 3,000 feet (910m) above sea level, with Scafell Pike at 3,209 feet (978m) being the highest point of England.

Cumbria's largest settlement and only city is Carlisle, in the north of the county and with a population of 107,500 in 2012. Barrow-in-Furness is the largest town in Cumbria and has a significantly smaller population of 69,100.

Figure 1: Cumbria County Council administrative area (CCC, 2014)



District	Key:
Allerdale	
Barrow-in-Furness	
Carlisle	
Copeland	
Eden	
South Lakeland	

2.2 Timescale

The Cumbria LFRMS that is being developed is the first such plan to address local sources of flooding in a strategic manner. The legislation that requires the LFRMS is new and is driven by the EU Floods Directive. The Cumbria LFRMS will cover a six year period, although it look further ahead than this, considering short term, medium term and long term issues over 100 years. This is a common timeframe over which to consider flood and erosion risk management and changes that may take place as a result of climate change.

2.3 LFRM Policy Objectives

The SEA seeks to determine that any potentially significant environmental effects of a Plan or Strategy are properly considered. Assessing the viability of alternatives can provide valuable support to this process.

As a key requirement of the Flood and water Management Act 2010, Cumbria County has a duty to produce a Local Flood Risk Management Strategy. Consequently, there is no alternative available to the LFRMS approach. But in developing the Policy Objectives of the LFRMS, a number of alternatives were considered. These have been summarised in Figure 2 along with the reasons why they have not been taken forward, justifying the 5 policy Objectives currently proposed for adoption. These are presented here to support the SEA scoping process.

Figure 2: LFRM Policy Objectives

Policy Objective	Alternative	Reason for not taking this alternative forward
P1. Reduction in flood risk to the people of Cumbria.	Encourage the maintenance of privately owned flood defences and ordinary watercourses, and minimise unnecessary constrictions in watercourses.	Although important, this represents only one element of a potentially wide range of measures to reduce local flood risk. It is already a statutory requirement. Options to reduce local flood risk are site specific and are considerably variable.
	To prevent an increase in flood risk as a result of development by preventing additional water entering the existing drainage systems wherever possible.	Although important, this represents only one element of a potentially wide range of measures to reduce local flood risk. It is a consideration under SuDS approvals which will be undertaken by the LLFA as part of new duties under the Flood & Water Management Act.
P2. Increased knowledge and awareness of the factors affecting flood risk across Cumbria.	Providing clear information and guidance on the role of the public sector, private sector and individuals in flood risk management, how these roles will be delivered and how authorities will work together to manage flood risk	Most of these objectives are covered wi thin the legislative requirements for the LFRMS. Information provision to achieve increased knowledge and awareness on flood risk needs to be more extensive than promotion by organisations and individuals. There needs to an emphasis on partnership working as identified in P4.
	To share information and best ideas for local flood risk management	This objective is limited and needs to suggest a wider scope of what is already good practice.

P3. Ensure that flood risk management is integrated within the planning process in Cumbria	No alternative.	Partners made it quite clear to the Cumbria LLFA that this is essential for improved local flood risk management.
P4. Facilitate close partnership working between all risk management authorities	No alternative.	Many organisations and individuals have interests in local flood risk management. To effectively respond to new duties under the Flood and Water Management Act, Cumbria LLFA needs to lead on partnership working with these organisations and individuals.
P5. Improve Community Resilience through awareness of flood risk	Implementing effective emergency plans and responses to flood incidents and that communities understand their role in an emergency	Community involvement is a dynamic process that is continuous beyond the aftermath of a flood event. Cumbria LLFA seeks full partnership working with all organisations with interests in flood risk to build flood resilience at community level.
Other alternatives considered	Enhance the natural and historic environment	Although important, this objective should be a consideration across all areas of local flood risk management. Furthermore, it is supported by a wide range of legislation.
	Adopt an economically sustainable approach	This has been set-out in Section 6 of the LFRMS and describes the principles of the Cumbria LLFA approach to economically sustainable local flood risk management funding. This may be tackled through adopting a variety of funding streams, timescales, partnership working and priorities. It is integrated into all 5 Policy Objectives.

3.0 Other Relevant Plans and Programmes

The interaction of the Cumbria LFRMS with other relevant plans and policies, where there might be conflicts, inconsistencies or potential for them to work together (synergies), is an important part of the SEA.

The LFRMS must comply with existing policies, plans and programmes at international, national and regional levels and strengthen and support local plans and strategies. It is therefore important to identify and review those policies, plans and programmes and environmental protection objectives which are relevant to both the LFRMS and the SEA at an early stage. This allows any inconsistencies or constraints within the LFRMS to be addressed and also to help develop the SEA framework.

The Sea Directive states that the Environmental Report shall include information on:

- 'the relationship [of the plan or programme] with other relevant plans and programmes' – Annex 1(a)

  And

- 'the environmental protection objectives established at international community or national level, which are relevant to the plan or programme and the way those objectives and environmental considerations have been taken into account during its preparation' – Annex 1(e)

It is possible, for example, that a LFRMS could lead to an action which inhibits or counteracts the achievement of other planned activities or their aims. This could be a project which is proposed to use the same area of land as another proposed by somebody else, or it could be a policy which leads to changes opposite to the policy or aim of another plan.

It is recognised that no list of plans or programmes can be definitive and as a result, this report describes only the key documents which influence the LFRMS. Figure 3 outlines the key documents. These documents will be used throughout the preparation of the LFRMS and to inform the SEA process.

Consultation Question - Have all plans relevant to the Cumbria LFRMS and the ways that they are relevant been identified??

Figure 3: Relevant legislation, plans, policies and programmes identified

International legislation, plans, policies and programmes
European Commission (EC) Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora – 92/43/EEC (1992)
EC Directive 2009/147/EC on the conservation of Wild Birds (2009)
EU Floods Directive – Directive 2007/60/EC on the assessment and management of flood risks (2007)
EU Water Framework Directive – Directive 2000/60/EC on the European Parliament and of the Council establishing a framework for the community action in the field of water policy (2000)
The European Convention on the Protection of Archaeological Heritage (Valetta Convention)

National legislation, plans, policies and programmes
Air quality strategy for England
Biodiversity Action Plan 2020
Civil Contingencies Act (2004)
Countryside Rights of Way Act (2000) and the Conservation of Habitats and Species Regulations 2010 (as amended)
Directing the Flow: Priorities for Future Water Policy (2002)
Environment Agency Policy: Sustainable Urban Drainage Systems (2002)
Flood and Water Management Act (2011)
Flood Risk Regulations (2009)
Future Water: The Government's Water Strategy (2008)
Guidelines for landscape and visual impact assessment produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3 rd edition)
Land Drainage Act (1991) (as amended 2004)
Making Space for Water (2005)
National Heritage Protection Plan
National Planning Policy Framework (2012)
Natural Environment and Rural Communities Act (2006)
Regional Spatial strategy (2008)
The Air Quality Regulations (2000)
The Impact of Flooding on Urban and Rural Communities (2005)
The National Flood and Coastal Erosion Risk Management Strategy for England (2011)
The Wildlife and Countryside Act 1981 (as amended)
UK Biodiversity Action Plan
Water Act (2003)

Local legislation, plans, policies and programmes
Allerdale Local Plan
Barrow-in-Furness Local Plan
Carlisle Local Plan
Copeland Local Plan
Cumbria Biodiversity Action Plan
Cumbria Climate Change Action Plan 2009-2014
Cumbria Countryside Access Strategy
Cumbria County Council – Council Plan 2011-2014
Cumbria Minerals and waste local plan
Cumbria Rights of Way Improvement Plan
Cumbria's Economic Ambition (2012)
Eden Core strategy (2010)
Improving Coastal Access Strategy (2007)
Lake District National Park Core Strategy (2010)
Northumbria River Basin Management Plan
North West England Shoreline Management Plan
North West Plan
North West River Basin Management Plan
Regional Planning Guidance for the North West (RPG13)
River Derwent Catchment Flood Management Plan
River Eden Catchment Flood Management Plan
River Kent and Leven Catchment Flood Management Plan
River Tees Catchment Flood Management Plan
River Tyne Catchment Flood Management Plan
Solway Tweed River Basin Management Plan
South Lakeland Core strategy (2010)
South West Lakes Catchment Flood Management Plan
The Cumbria and Lake County Joint Structure Plan

The main themes and objectives identified through the review of the key documents can be broadly summarised as:

- Ensuring no harm is brought to nature conservation sites designated at national and international level.
- Protecting and enhancing open spaces, recreational opportunities and improving access to the countryside.
- Protecting and enhancing the natural and historic environment.
- Sustainable consumption and use of natural resources including waste prevention and recycling.
- Promoting safer and sustainable development.
- Achieving economic prosperity.

In addition to the general themes, more specific messages for flood risk management in Cumbria is:

- Reducing the vulnerability of flood events and impacts to Cumbria's residents.
- Reducing the impact of flooding on economic activity throughout the county.
- Ensure flood management proposals do not have a detrimental effect on the environment.

4.0 Baseline Environmental Information

Baseline data is used to define the current and likely future state of the environment. It provides the basis for the prediction of the potential and likely significant environmental effects of a plan or programme before it has been implemented. Identification of any possible environmental impacts during the early ages of strategy preparation allows time for alternative measures to be developed and assessed in order to avoid adverse effects, before the strategy is implemented.

To allow for a more informed judgement of the current environmental situation, where possible, data should be collected where it shows either a spatial or temporal trend.

The SEA Directive states that the baseline data collected must include:

- Annex 1(b) - 'relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme'
- Annex 1(c) - 'the environmental characteristics of areas likely to be significantly affected'
- Annex 1(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 Directives 79/409/EEC and 92/43/EEC'

The SEA directive offers a list of environmental receptors which should be initially considered during the collection of the baseline data. Receptors include:

- Population and human health
- Biodiversity, including flora and fauna
- Water
- Air
- Climate factors
- Cultural heritage, archaeological and built heritage
- Landscape, Land Use and Soil

The above list serves as a starting point for the collection of baseline data. During the scoping stage, data is to be collected to determine the significance of the potential impacts arising as a result of the implementation of the proposed plan. This stage also allowed for topics to be scoped in or out of the Environmental Report, depending on the significance of the impacts, providing the reason for doing so is justified (please see Cumbria County Council's assessment of the significance of potential impacts located within appendix A).

Consultation Question – are there any significant gaps or errors in the baseline data that has been identified?

4.1 Population and Human Health

Population

In Mid 2012 Cumbria's population was estimated to be 499,100. When comparing this to the rest of England & Wales, Cumbria has lower proportions of residents in the three youngest age groups (0-44 years) and higher proportions of residents in the four oldest age groups (aged 45+).

Since Mid 2002 until 2012, the population of Cumbria has increased by 10,400 people (+2.1%), with the greatest percentage increase occurring in the 85+ age group (+31.6%) and the greatest percentage decrease occurring in the 30-44 age group (-16.9%).

Since Mid 2002, there have been more deaths than births in Cumbria. This 'natural change' has accounted for a decrease of 5,200 persons across the county. However, during the same time, 15,600 more people have migrated into Cumbria (from other parts of the UK and overseas) than have migrated out from Cumbria.

Figure 4: Population statistics for Cumbria

Age (years)	Population		No Change	% Change
	Mid 2002	Mid 2012	Mid 2002 – Mid 2012	Mid 2002 – Mid 2012
All ages	488,700	499,100	10,400	2.1
0 – 14	84,600	76,700	-7,900	-9.4
15 – 29	76,400	81,600	5,200	6.8
30 – 44	105,800	87,900	-17,900	-16.9
45 – 59	103,00	109,700	6,700	6.5
60 – 74	76,700	94,500	17,800	23.3
75 – 84	31,700	34,900	3,200	10.0
85+	10,500	13,900	3,300	31.6

Cumbria has an older population profile than England & Wales, with lower proportions of residents in younger age groups and higher a proportions of residents in older age groups. Since 2001 the number of residents aged over 65 years in Cumbria has increased by 15% which is a faster increase than the national average (+11%).

Within Cumbria 21,900 people reported they had a second address, this equates to 44 persons per 1,000 usual residents of the county: much higher than the England & Wales average (28 per 1,000).

Housing statistics

Thirty nine percent of households in Cumbria are owned outright, while 32% are owned with a mortgage or loan (in 2001 these proportions were 35% and 37% respectively). The proportion of households that are owned outright is much higher within the county than the national average within England & Wales at 31%.

Of all local authorities in England & Wales, Barrow ranks lowest for shared ownership households and Copeland ranks 4th lowest for households renting from private landlord or letting agencies. The average household size in Cumbria is 2.2 persons per household: the joint lowest average household size of any county in England and Wales.

Human Health

Cumbria has the 2nd highest proportion (23.9%) of households with 'one person with a long-term health problem or disability: with no dependent children. Nine point Seven percent of people in Cumbria say their 'Day-to-day activities are limited a lot'. This is above the national average of 8.5% and is the 2nd joint highest county ranking in England & Wales.

Fourteen point four percent of people living in Cumbria have residency in a care home with nursing, which is similar to the national average of 14.9%; and 23.2% are in a care home without nursing, this is slightly above the national average of 21.4%.

Cultural Parameters

Cumbria has the highest proportion of White British residents of any English county (96.5% compared to 80.5% in England & Wales). However the county has seen an increase in ethnic diversity as the proportion of White British residents in 2001 was 98.0%.

Of the minority groups, 4,557 (0.9% of Cumbria's population) come from the countries that joined the EU in the first part of the last decade, compared to 2.0% for England & Wales. This ranks Cumbria as the third-lowest county for the proportion of EU-accession migrants in the population.

Cumbria has the highest level of Christian residents of any county in England & Wales (71.9% compared with 59.3% in England & Wales). The figure has fallen, however, since 2001 when the rate for Cumbria stood at 82.2%.

Cumbria ranks as the second county for residents speaking English as their main language (98.3%, compared to 91.2% in England & Wales).

Deprivation

In terms of relative deprivation, Cumbria continues on an upward trend improving one place in the national rankings since 2007 to 85th (out of 149, where 1 is the most deprived). There has been an improvement in terms of relative employment deprivation also: since 2004 Cumbria has risen 7 places nationally to 25th. Cumbria has improved 4 places since 2004 in terms of income deprivation, to 44th nationally. Overall since 2004, all districts within Cumbria have become relatively less deprived, except Copeland which remains in the same position on the national scale.

The rank percentile for each district where 1 – 10 equals the most deprived 10% of districts nationwide, 1 – 20 the most deprived 20% etc..

Figure 5: Deprivation statistics for Cumbria

District	2004	2007	2010	Change since 2004
Allerdale	30	34	34	+4
Barrow-in-Furness	8	8	10	+2
Carlisle	31	31	33	+2
Copeland	24	22	24	0
Eden	56	62	65	+9
South Lakeland	73	75	74	+1

There remains a big difference between the levels of deprivation in each district.

- Barrow-in-Furness is the 32nd most deprived district in England and falls in the bottom 10% nationwide. It is the 3rd most deprived district in England in terms of health, the 5th most deprived in terms of housing quality and the 14th most deprived in terms of employment.
- Eden is the most deprived district in England in terms of the geographical barrier sub domain, which measures road distance to a GP, shop, primary school and post office.
- South Lakeland however is the least deprived district in Cumbria, coming in the top 30% nationwide. South Lakeland is the 7th least deprived district nationwide in terms of crime and 11th in terms of air quality and road traffic collisions (outdoors sub domain).
- Another notable result includes Eden which is the 3rd least deprived district nationwide in terms of crime.

Economic activity

The March 2014 claimant count figures were released by the Office for National Statistics on 16th April 2014. The count was taken on 13th March 2014.

The JSA non-seasonally adjusted claimant count in Cumbria fell by 289 between Feb and Mar 2014 to 6,514 a fall of 4.1% from last month. The count is 2,347 lower than it was a year ago and has fallen more than nationally (-26.5% v -24.5%). The count fell in all districts with the biggest fall being in Carlisle where there were 89 fewer JSA claimants.

The JSA claimant rate in Cumbria in March 2014 was down 0.1 to 2.1%. The rate was also down 0.1 nationally (to 2.9%) and regionally (to 3.2%). The claimant rate in Cumbria is down 0.8 from a year ago. Barrow is the only district which has a claimant rate above the national rate (3.4% v 2.9%).
There are 2,880 people in Cumbria who've been claiming JSA for more than 6 months, up 45 from last month but down 995 from a year ago. This represents almost half of all claimants in Cumbria (44%). The number claiming JSA for over a year fell last month (by 45) and is 380 lower than a year ago.

During the month, 1,265 people started claiming JSA, 235 fewer last month and 1,557 ceased claiming, 225 more than last month. Of those who gave a reason for signing off, 81.1% (705) said it was because they had found employment (UK 76.7%).

The jobless total for the UK for (claimants and non-claimants looking for work) fell by 77,000 in Dec 2013-Feb 2014 compared to Sep-Nov 2013 and stood at 2.24 million. The jobless rate for Dec 2013-Feb 2014 was down 0.2 from Sep-~Nov at 6.9%. Comparable figures using this definition of wider joblessness including non-claimants are not available at local level. The seasonally adjusted JSA claimant count for the UK was 1.142m in Mar 2014, down by 30,400 from last month giving a claimant rate of 2.8% (down 0.1). Seasonally adjusted figures are not available at local level.

In the period Jan-Mar 2014, there were 4,453 job postings placed in Cumbria which is 657 fewer than were placed in the previous quarter (Oct-Dec 2013). There was a peak in postings in the summer period last year before the number fell sharply in the run up to Christmas. Levels in March this year are very similar to a year ago. Geographically the highest number of postings was for opportunities in Carlisle where there were 1,243 postings in the quarter, 40% of all the postings in Cumbria. The second highest number of postings was in South Lakeland (567) with 18% of the total.

The highest number of postings was in the human health sector (397 postings) which represented a quarter of all postings where a sector could be identified. This was followed by the retail sector (216) and rubber/plastics (187). The most common occupations specified in job postings were nurses (215), mechanical engineers (98) and sales supervisors (92).

The NHS placed the highest number of job postings with more than 200 placed in the quarter and there were several other care-related agencies which featured in the top 20.

The most common baseline skills mentioned in the quarter were communication (517 mentions, 30% of all postings with skills specified) and management skills (355) whilst the most commonly mentioned detailed skills were contract management (152), sales (129) and building effective relationships (83).

Tourism

In 2012 Cumbria received 38 million visitors made up of 32.8m million day trippers and 5.2 million overnight visitors. Between them, day and staying visitors combined to produce 51m tourist days. These visitors brought in £2.1 billion to the region's economy and provided employment for 31,235 full time equivalent (FTE) posts. As many tourism jobs are actually part time, or seasonal, the total number of people in tourism jobs is estimated at 53,710.

Figure 6 highlights tourism revenue, tourist days, tourist numbers and tourism employment during 2012 for each of Cumbria's districts, and the county as a whole. (Please note that the Lake District National Park Authority sub-area spans parts of Allerdale, Copeland, Eden and South Lakeland districts rather than being an additional component of the Cumbria total).

Figure 6: Tourism statistics for Cumbria in 2012

	Allerdale	Barrow	Carlisle	Copeland	Eden	South Lakeland	LDNP	Cumbria
Tourism Revenue (£m)	348.7	88.2	332.7	140.8	240.0	955.1	993.9	2105.5
Tourist Days (m)	9.10	2.92	7.71	3.97	6.41	20.354	21.76	50.64
Tourist Numbers (m)	6.33	2.57	7.05	3.00	4.13	14.89	14.84	37.97
Employment (FTEs)	5,674	1,354	4,756	2,106	3,760	13,585	14,919	31,235

4.2 Biodiversity, Flora and Fauna

The study area includes a variety of habitats, flora and fauna, including locally, nationally and internationally important conservation sites.

Protected Conservation sites

There are 26 Special Areas of Conservation (SACs), 4 Special Protection Areas (SPAs), 4 Ramsar sites and 263 Sites of Special Scientific Interest (SSSIs) in the area covered by the Cumbria LFRMS. Two SSSIs lie on the Scottish side of the River Esk which are adjacent to the Cumbria County boundary. Figure 7 lists the SAC, SPA and Ramsar sites within the Cumbria County Council area.

Sites that are designated under the EU Habitats and Birds Directives or Ramsar Convention will be subject to Habitats Regulation Assessment to determine if the proposals under the Cumbria LFRMS might affect species, birds or habitat features for which these sites have been designated.

Figure 7: Environmental Designations in Cumbria

Nature Conservation Sites:	Designation:	Nature Conservation Sites:	Designation:
Border Mires, Kielder-Butterburn	SAC	North Pennine Dales Meadows	SAC
Clints Quarry	SAC	Helbeck & Swindale Woods	SAC
Cumbrian Marsh Fritillary Site	SAC	South Solway Mosses	SAC
Asby Complex	SAC	Tarn Moss	SAC
Bolton Fell Moss	SAC	River Derwent & Bassenthwaite Lake	SAC
Borrowdale Woodland Complex	SAC	River Eden	SAC
Lake District High Fells	SAC	Tyne & Nent	SAC
Naddle Forest	SAC	Ullswater Oakwoods	SAC
River Kent	SAC	Walton Moss	SAC
Roudsea Wood & Mosses	SAC	Wast Water	SAC
Witherslack Mosses	SAC	Morecambe Bay Pavements	SAC
Yewbarrow Woods	SAC	Drigg Coast	SAC
Duddon Estuary	SPA	Duddon Mosses	SAC
Morecambe Bay	SPA	Subberthwaite, Blawith & Torver Low Commons	SAC
Upper Solway Flats & Marshes	SPA	North Pennine Moors	SPA
Irthinghead Mires	RAMSAR	Esthwaite Water	RAMSAR
Duddon Estuary	RAMSAR	Morecambe Bay	RAMSAR

Green Spaces and local biodiversity

Parks and green spaces contribute to the biodiversity and habitats within Cumbria as a whole. They also contribute significantly to the landscape and cultural assets of the city and county and to the flood risk management within Cumbria, providing flood storage areas and slowing the rate at which water runs off into the drainage and river systems.

Cumbria County Council holds a database of flora and fauna recorded in Cumbria - the Cumbria Biodiversity Evidence Base (CBEB). The Cumbria Biodiversity Evidence Base (CBEB) is a collection of data and advice for planners and public authorities on the species and habitats of Cumbria which should be considered while carrying out their functions, a requirement of the Natural Environment and Rural Communities (NERC Act 2006).

Species, habitats and sites may be afforded varying degrees of protection relating to their conservation status, rarity and wider ecological value. Those species and habitats of greatest conservation concern are protected through legislation at European and/or national level. The UK and Local Biodiversity Action Plans list 'Priority' Species and Habitats which are noted to be endangered or at risk. These are also listed as Species and Habitats of Principal Importance in England under the NERC Act 2006. In any local area there is also a network of local wildlife sites, reserves and other features identified as being of value and note to the area.

Planning policies and guidance relating to nature conservation and Green Infrastructure are central to spatial planning and development control from regional to local policy levels. Since species, habitats and sites, at various levels of protection, are all considered to be material considerations in planning, both planners and developers need to be aware and take account of these in the application and determination processes

The Cumbria Local Biodiversity Action Plan (LBAP) records the presence, extent and distribution of habitats and species of local importance. The LBAP has 39 Species and Habitat Action Plans covering over 700 individual actions designed to conserve and / or enhance a range of threatened species and habitats of both local and national importance.

Cumbria County Council has developed a number of Species Action Plans and Habitat Action Plans for BAP species. These are listed in Figure 8.

Figure 8: Species and Habitat Action Plans

Bap Species Action Plans (SAPs)
Barn Owl (Tyto alba)
Bats (Chiroptera) All species
Great Crested Newt (Triturus cristatus)
Hen Harrier (Circus cyaneus)
Natterjack Toad (Epidalea calamita)
Otter (Lutra lutra)
Red Squirrel (Sciurus vulgaris)
Reptiles (Reptilia) All native species
Small Blue Butterfly (Cupido minimus)
Water Vole (Arvicola terrestris)
Wintering Geese and Swans

BAP Habitat Action Plans (HAPs)
Rivers and Streams
Standing Open Waters and Canals
Boundary and Linear Features
Traditional Orchards
Wood-Pasture and Parkland
Semi-Natural Woodland
Lowland Dry Acid Grassland
Calcareous Grassland
Hay Meadows and Pastures
Coastal and Floodplain Grazing Marsh
Heathland
Fen, Marsh and Swamp
Bogs
Montane Habitats
Rock Habitats
Calaminarian Habitats
Open Mosaics on Previously Developed Land
Coastal Habitats Above High Water
Coastal Intertidal Habitats
Saline Lagoons
Coastal Sub-tidal Habitats

Natural and man-made water bodies are important areas for biodiversity, habitats and species. Managing the risk of flooding and coastal erosion may include managing water bodies. These activities may affect biodiversity, habitats and species positively or negatively. The linear nature of water bodies and flood and erosion risk management structures can mean they are important as "wildlife corridors" connecting separate areas and providing access routes for migration, foraging, breeding and general distribution of wildlife. When considering how these structures are managed and maintained, their role as wildlife corridors will need to be taken into account.

4.3 Water

Water Quality

The Water Framework Directive (WFD) aims to improve the quality of inland and coastal waters across the EU. It regulates monitors and manages in terms of "water bodies". This includes surface water bodies (lakes & reservoirs, rivers & canals, estuaries and coastal waters) and groundwater.

The WFD requires all natural water bodies to achieve both "Good Chemical Status" (GCS) and "Good Ecological Status" (GES). River Basin Management Plans (RBMPs) outline the actions required to enable natural water bodies to achieve GES, where this is defined as "a slight variation from undisturbed natural conditions". The majority of the lakes and several stretches of river in Cumbria are failing to meet Water Framework Directive targets due to nutrient enrichment and, in some cases, high sediment loads. There are opportunities to enhance water quality through addressing soil erosion, particularly on peat soils, creating new woodland, managing nutrients on improved grassland and in farmsteads, as well as through improvements to point source discharges

Artificial water bodies (AWBs) and Heavily Modified Water Bodies (HMWBs) have been created or modified in order to provide a particular service (e.g. water supply, flood protection, navigation or urban infrastructure). They may be prevented from reaching GES due to the modifications necessary to maintain their function. They are, however, required to achieve good ecological potential (GEP), through implementation of a series of mitigation measures outlined in the relevant RBMP.

Cumbria is within the North West and Solway Tweed River Basin Management Plans (RBMP) and next to the Northumbria RBMP. The main river catchments within Cumbria are the River Derwent, River Eden, South West Lakes, Rivers Kent and Leven, River Lune, River Tess and the River Tyne. 624 km of Cumbria's rivers have been designated as Sites of Special Scientific Interest (SSSI). This is around half the total length of river SSSI designated nationally. The four rivers SSSI in Cumbria are also candidate Special Areas of Conservation (SAC) designated under the EU Habitats Directive.

Many of the river catchments have recovered from historical degradation caused by the iron, coal and other industries and their run-off to the rivers. Overflows from abandoned mine workings can cause water quality problems, but they do benefit river flows in the summer months. Historical industrial development and towns tend to lie close to the banks of the rivers resulting in extensive physical modification and loss of river habitats. Improvements in water quality have allowed the return of salmon and sea trout with some tributaries providing spawning and nursery areas.

River Derwent Catchment

The River Derwent Catchment covers a total area of 1,235km^2 and has four significant river systems (Derwent, Ellen, Wampool and Waver) which drain the northern fells of the Lake District and the Solway Basin into the Irish Sea. The River Derwent and its major tributaries cover the southern part of the Catchment Flood Management Plan (CFMP) area and rise in the high peaks of the Lake District draining into the Irish Sea at Workington. There are several lakes which play a key role in the Derwent catchment, including Bassenthwaite Lake, Derwent Water, Thirlmere Reservoir, Buttermere and Crummock Water.

River Eden Catchment

Within the River Eden catchment, the principal watercourses are the Eden, Eamont, Irthing, Petteril and the Caldew, with a total catchment area of approximately 2400 km^2. The catchment is predominately rural with only 1% classified as urban. Around 244,000 people live in the catchment, the principal population centres are Carlisle, Penrith and Appleby.

The upper catchment is dominated by the steep gradients of Skiddaw, Helvellyn and surrounding fells. Below Kirkby Stephen, the Eden's valley widens. The Lower Eden is characterised by wide floodplains and washlands. These areas are important in providing storage capacity during high water levels. The catchment is subjected to some of the highest rainfalls in England. Upstream of Penrith, average annual rainfall exceeds 2800mm compared to 920mm across England and Wales. In the upper catchment, high rainfall and the steep terrain make the Eden a 'fast-responding' catchment where High River levels occur soon after heavy rainfall and it can reduce the time available to provide advanced warning of flooding.

South West Lakes Catchment

The South West Lakes catchment covers an area of 900km^2 and contains a number of small, rural, flashy sub-catchments. Approximately 97% of the catchment is rural with larger urban settlements found along the coast, at Barrow and Whitehaven. The catchment is amongst the wettest and steepest in England and Wales. Run-off following rainfall is generally rapid due to the relatively impermeable underlying geology and steep sub-catchments. The watercourses within the CFMP boundary generally rise on the high, rugged and steep sided, western fells of the Lake District. They flow in a westerly or south westerly direction along the coastal plain before discharging into the Irish Sea.

There are a number of internationally designated environmental sites within the catchment including the Duddon and Esk estuaries. Over half the catchment lies within the Lake District National Park. The majority of the agricultural land found in the catchment is considered to be of poor quality but much of the land has a high environmental and recreational value. The catchment is popular with tourists due to its scenic beauty and rural nature. Tourism plays a major part in the South West Lakes economy.

River Kent and Leven Catchment

The Rivers Kent, Leven and Crake drain the southern fells of the Lake District, and high rainfall, thin soils and impermeable geology combine to produce large amounts of run-off. Four other main rivers drain lower-lying land, and smaller rivers drain the coastal fringe, with a slower rainfall response. Most of the rivers, apart from the coastal streams and some small becks (Eea Beck, Dragley Beck), ultimately drain south into Morecambe Bay via the Kent and Leven estuaries.

The upland rivers have little natural floodplain, being confined to narrow channels in the volcanic rock. In the middle catchments, there is limited floodplain, some occupied by settlements, and in the lowlands there are some wider areas including the Lyth valley. The Lyth valley was artificially drained to support agriculture in the 1960s, with pumping stations and embanked rivers. In Kendal, the Kent has been modified to convey water more efficiently, by deepening, widening and constructing raised defences. Most of the floodplain around Kendal has been developed for industry. We need to improve flood risk management in Kendal, and also in Ulverston, to help mitigate the impacts of climate change.

River Lune Catchment

The Lune is a rural catchment in the North West covering 1,300km ^{2}. It extends from the Howgill Fells in the north, the Yorkshire Dales in the east and to Bowland Forest/Cockerham Moss in the south. The western boundary is Morecambe Bay.

The catchment is made up of steep slopes to the north and west, but there is flatter terrain to the east and south, along the Rivers Keer, Conder, Cocker, Pilling Water and the lower reaches of the River Lune. These watercourses are shown opposite. By far the largest river in the catchment is the River Lune. This is a natural, relatively steep watercourse in its upper reaches and tributaries, with narrow floodplains and fast flowing watercourses.

River Tees Catchment

The River Tees drains the eastern slopes of Cross Fell in the Pennines and flows eastward to the North Sea. The length of the channel from source to sea is approximately 160 kilometres. The catchment has areas with distinctly different characteristics. The rivers in the Upper Tees have steep channel gradients and valley sides. In the mid-catchment, the valley widens out and channel slopes become much gentler.

River Tyne Catchment

The Tyne catchment lies in the north east of England, covering an area of 2,300 square kilometres. Main rivers in the catchment include the Allen, Derwent, North Tyne, Rede, South Tyne and the Tyne. There are three distinct parts of the Tyne catchment. The headwaters drain remote moorland and flow through narrow, steep valleys. Within the upland area of the North Tyne, Rede and Derwent there are a number of regionally important water supply reservoirs including Kielder and Derwent Reservoirs. These reservoirs can affect flood flows and are also able to maintain river flows in the Tyne, Wear and Tees rivers via water transfer infrastructure. The middle catchment contains fertile agricultural plains with a string of towns along the watercourses.

Flooding and Erosion

Flooding poses a particular threat to Cumbria because of its coastal location, low-lying areas and rivers flowing through the area.

Flood risk is a combination of the likelihood of an event happening and the impacts / consequences of what happens if an event occurs. Both the likelihood and consequences of flooding are likely to increase over time for a number of reasons. As a result of climate change, weather patterns will alter and climate projections indicate that there will be an increase in the intensity of rainfall, the frequency of sudden storms and sea level rises. Risk will also be influenced by changes in population levels, wealth and settlement patterns, as well as the way that land is managed. More people living and working in an area that is at risk of flooding means that the impacts will be greater. As the value of assets increase so do the potential consequences if they are affected by flooding or erosion. Changes in land use will also lead to different runoff patterns.

The main sources of flooding in Cumbria today are:

- Sea flooding - Flooding from the sea usually occurs through a combination of high tides and waves and severe weather
- River flooding - including main rivers and ordinary watercourses - Main rivers and other smaller watercourses are probably the most commonly recognised and understood source of flood risk. Flooding usually occurs when a watercourse cannot contain the volume of water entering it, and overflows. This can be caused by intense rainfall, increased runoff from land next to the watercourse, seasonal circumstances including snow melt, a blockage in the watercourse, causing water levels to back up behind the blockage a, sudden increase in flow downstream when a blockage is broken through, or a combination of these factors.
- Surface water flooding - This is a common source of flooding in built up areas where developments, such as roads, buildings and other hard surfaces, may result in a lack of soil or open spaces to absorb rainfall. Rainwater flows quickly into the drainage system and flooding occurs when those systems are unable to cope with the amount of water. It can also be a problem in rural areas, where it can lead to significant loss of soil. Drainage systems are designed to deal with frequent, relatively short duration rainfall events. They are not designed to deal with longer storms or more intense rainfall. Blockages caused by natural debris and rubbish, can make flooding worse.

There are other sources of flooding, including from dam failure, canals, sewers and groundwater. The ability to predict flooding has improved and warnings can now be issued in advance of flooding where there is a risk of sea flooding or from large rivers. However, it is still not possible to issue warnings of river flooding everywhere in Cumbria. Modelling and predicting surface water flooding is not as advanced as that for sea and river flooding. The modelling of surface water flooding is improving and the Environment Agency has developed surface water flood hazard maps which were made available to Local Planning Authorities (LPAs) in 2012.

The Environment Agency (EA) has prepared Catchment Flood Management Plans (CFMPs) to manage the risk from Main Rivers for each of the river catchments. Cumbria falls within the Derwent, Eden, South West Lakes, River Tees, River Tyne along with the Kent and Leven main river catchments.

Cumbria is a rural county, so typical urban flooding is not as common as in other locations in the UK i.e. flooding related to urban watercourses; large, long culverts; and large complex drainage systems. In Cumbria Carlisle is the largest urban area where large surface water drainage systems and urban watercourses are likely to be found. A lot of investment has taken place in Carlisle following the 2005 floods. This includes significant improvements to the drainage system, and as a result Carlisle is currently not a significant surface water flooding location. Barrow is the other, large settlement in Cumbria. Similarly, Barrow has had a lot of investment especially from UU, meaning it is not a significant surface water flooding location.

Sea flooding

Coastal flooding occurs when normally dry, low-lying land is flooded by sea water. The extent of coastal flooding is a function of the elevation inland flood waters penetrate which is controlled by the topography of the coastal land exposed to flooding. The sea water can inundate the land via several different paths; these are:

- Direct inundation – where the sea height exceeds the elevation of the land, often where waves have not built up a natural barrier such as a dune system
- Overtopping of a barrier — the barrier may be natural or human engineered and overtopping occurs due to swell conditions during storm or high tides often on open stretches of the coast. The height of the waves exceeds the height of the barrier and water flows over the top of the barrier to flood the land behind it. Overtopping can result in high velocity flows that can erode significant amounts of the land surface which can undermine defence structures.
- Breaching of a barrier — again the barrier may be natural or human engineered, and breaching occurs on open coasts exposed to large waves. Breaching is where the barrier is broken down by waves allowing the sea water to extend inland.

Coastal flooding is largely a natural event; however human influence on the coastal environment can exacerbate coastal flooding. Extraction of water from groundwater reservoirs in the coastal zone can enhance subsidence of the land increasing the risk of flooding. Engineered protection structures along the coast such as sea walls alter the natural processes of the beach, often leading to erosion on adjacent stretches of the coast which also increases the risk of flooding

Surface water flooding

Depending on the topography, the remainder of the surface water flooding issues can be roughly split into two types. Firstly there are low lying drainage systems that back up and secondly Cumbria has steep catchments with many surcharging watercourses in a dense built environment leading to flash flooding.

The low lying systems are typical of Ulverston, Grange-Over-Sands and Whitehaven and other coastal locations. These are generally very flat areas with little gradient in the drainage system. This means that it can be difficult to get a gravity outfall to a larger watercourse or the sea. The gentle gradient can lead to the receiving watercourse silting up, further reducing the gradient and potentially silting up outfalls. In addition, low lying tidal areas will find it difficult to get a free discharge into the sea or estuaries during high tides, storm surges and due to moving sands in the bays.

The flash flood systems are typical of inland hilly places like Keswick, Kendal, Windermere, Ambleside, and Grasmere. During storm events, these locations are prone to flash floods due to rapid runoff from the surrounding hills. This is partly due to the topography (small, steep catchments) and the geology (impermeable bedrock and thin soils). Once the runoff reaches the settlements, the problems are exacerbated. As many of these locations are in the Lake District National Park, planning restrictions can lead to development pressures. There is therefore a lot of dense development next to small watercourses with very little green space to allow watercourses to surcharge. This constrains already swollen watercourses leading to surcharging and flooding of the many nearby properties, e.g. Gosforth.

There have been many high profile flood events in Cumbria e.g. Carlisle 2005 and Workington/Cockermouth 2009. The main flood mechanism for these incidents has been a main river. However, during these events and at many other times, there have been damaging localised floods that should not be overlooked. In all major settlements, there have been many different surface water flooding incidents. However, some settlements have experienced many more than others. For example, Workington is a large town in Cumbria, which has had relatively few historic incidents. Ulverston is much smaller but has had many more incidents. In these examples, the reasons are topography and asset capacity/functionality. Ulverston is low lying and the drainage system is under capacity and prone to backing up from a main river and the sea. Workington has an adequate drainage system and is elevated well above the River Derwent.

River flooding

River flooding (also known as fluvial flooding) occurs when flows exceed the capacity of the river channel. Heavy rainfall can cause river levels to rise and flood adjacent low-lying areas. Rivers are divided into two categories: main rivers and ordinary watercourses. The EA has permissive powers to manage flood risk from main rivers, which are rivers that can cause significant disruption if they flood and need special management to reduce the risks of flooding. Main rivers are identified on the EA 'Flood Map for Planning (from Rivers and the Sea)', which is available on their website:

http://www.environment-agency.gov.uk/homeandleisure/37837.aspx

4.4 Air

Air quality is the term used to describe and classify the concentration of certain pollutants in the air. There is a direct link between air pollution and human health and certain pollutants have the potential to adversely affect human health above certain concentrations. The National Air Quality Strategy (NAQS) and The Air Quality Regulations 2000 set health-based standards and objectives for eight key pollutants. Measures contained in the NAQS are designed to cut emissions and improve air quality.

There may be local "hotspots" of pollution where NAQS measures alone will not be sufficient and all local authorities have been tasked with addressing these local hotspots through Local Air Quality Management (LAQM). Cumbria County Council has declared two Air Quality Management Areas at Sandside, Kendal and an area encompassing part of London Road and properties on either side near the junction with Blake Street in Carlisle.

A variety of monitoring techniques to measure the concentration of pollutants in the air using automatic, real-time, measurements and non-automatic measurements where laboratory analysis is required.

The following pollutants are monitored for compliance with air quality standards:

- Benzene
- Lead
- Particulates
- 1, 3 Butadiene
- Nitrogen dioxide (NO^2)
- Sulphur dioxide
- Carbon monoxide (CO)

In addition to national standards, air pollution can also be caused by local sources. Emitting dark / black smoke from fires on trade or industrial premises or from chimneys is an offence, although certain amounts of such emissions are permitted.

Flood and erosion risk management is unlikely to impact significantly on air quality at a strategic level, however, individual projects or works could affect air quality in more local areas. At this scoping stage, impacts to air quality have been scoped out. It seems more appropriate to consider potential impacts to air quality at a local level and impacts to air quality should be considered in the assessment of environmental impacts at the project stage for projects which may arise as a result of the Cumbria LFRMS.

4.5 Climatic Factors

Climate change and flood and erosion risk management are inextricably linked with climate change being a significant driver to flood and erosion risk. There is clear scientific evidence that global climate change is happening now. It cannot be ignored. Over the past century around the UK we have seen the sea level rise and more of our winter rain falling in intense wet spells. Seasonal rainfall is highly variable. It seems to have decreased in summer and increased in winter, although winter amounts changed little in the last 50 years. Some of the changes might reflect natural variation; however the broad trends are in line with projections from climate models. Greenhouse gas (GHG) levels in the atmosphere are likely to cause higher winter rainfall in future. Past GHG emissions mean some climate change is inevitable in the next 20-30 years. Lower emissions could reduce the amount of climate change further into the future, but changes are still projected at least as far ahead as the 2080s.

We have enough confidence in large scale climate models to say that we must plan for change. There is more uncertainty at a local scale but model results can still help us plan to adapt. For example we understand rain storms may become more intense, even if we cannot be sure about exactly where or when. By the 2080s, the latest UK climate projections (UKCP09) are that there could be around three times as many days in winter with heavy rainfall (defined as more than 25mm in a day). It is plausible that the amount of rain in extreme storms (currently with a 1 in 5 annual chance or rarer) could increase locally by 40%.

Key Projections for River Basin Districts in Cumbria

North West

If emissions follow a medium level future scenario, UKCP09 projected changes by the 2050s relative to the recent past are:

- Winter precipitation increases of around 14% (very likely to be between 4 and 28%) Precipitation on the wettest day in winter up by around 11% (very unlikely to be more than 25%)
- Relative sea level at Morecambe very likely to be up between 6 and 36cm from 1990 levels (not including extra potential rises from polar ice sheet loss)
- Peak river flows in a typical catchment likely to increase between 11 and 18%
- Increases in rain are projected to be greater near the coast than inland.

Solway Tweed

If emissions follow a medium future scenario, UKCP09 projected changes by the 2050s relative to the recent past are:

- Winter precipitation increases of around 11-13% (very likely to be between 2 and 26%)
- Precipitation on the wettest day in winter up by around 11% (very unlikely to be more than 27%)
- Relative sea level very likely to be up between 4 and 35cm from 1990 levels (not
- including extra potential rises from polar ice sheet loss)
- Peek river flows in a typical catchment likely to increase between 9 and 18%
- Increases in rain are projected to be greater near the coast than inland.

Northumbria

If emissions follow a medium future scenario, UKCP09 projected changes by the 2050s relative to the recent past are:

- Winter precipitation increases of around 10% (very likely to be between 0 and 23%)
- Precipitation on the wettest day in winter up by around 11% (very unlikely to be more than 24%)
- Relative sea level at Tynemouth very likely to be up between 7 and 38cm from 1990
- levels (not including extra potential rises from polar ice sheet loss)
- Peak river flows in a typical catchment likely to increase between 8 and 13%
- Increases in rain are projected to be greater near the coast than inland.

Climate changes can affect local flood risk in several ways. Impacts will depend on local conditions and vulnerability. Wetter winters and more rain falling in wet spells may increase river flooding, especially in steep, rapidly responding catchments. More intense rainfall causes more surface runoff, increasing localised flooding and erosion. In turn, this may increase pressure on drains, sewers and water quality. Storm intensity in summer could increase even in drier summers, so we need to be prepared for the unexpected.

Flooding and erosion risk management is potentially the largest area affected by climatic factors and a key driver for the LFRMS. The development of the Cumbria LFRMS will need to take into account of future climatic change in the short, medium and long term: and how the measures within the strategy may affect other environmental factors.

4.6 Cultural Heritage, including archaeological and built heritage

There are a large number of historically important buildings and areas within Cumbria. There are vast quantities of Conservation Areas within Cumbria. Conservation Areas are defined as 'areas of special architectural or historic interest, the character or appearance of which it is desirable to preserve or enhance' and are designated by the District Councils in Cumbria. The number of Conservation areas in each district within Cumbria is listed below.

- Allerdale (21 sites)
- Barrow-in-Furness (11 sites)
- Carlisle (19 Sites)
- Copeland (9 sites)
- Eden (24 sites)
- South Lakeland (10 sites)

Cumbria is also home to 19 historic houses are gardens, 17 Scheduled Ancient Monuments and 186 Grade 1 listed buildings which are detailed below according to their district.

- Allerdale (29 buildings)
- Barrow-in-Furness (8 buildings)
- Carlisle (55 buildings)
- Copeland (14 buildings
- Eden (45 buildings)
- South Lakeland (35 buildings)

Cumbria's heritage extends well beyond those structures with statutory protections or listings. All of the county's historic built fabric helps define the character of the county and the diverse cultural backgrounds of its residents and visitors. The cultural heritage also includes new structures and activities that go on within the county.

Cumbria is the location of one World Heritage Site, part of the Hadrian's Wall portion of the Frontiers of the Roman Empire' World Heritage Site' and there have been a number of attempts to gain World Heritage Site status for the Lake District. The Lake District National Park (LDNP) currently is being advocated as a World Heritage Site on the basis of the cultural association of its landscape with historically important literary figures who were also key figures in the international conservation movement, such as John Ruskin, William Wordsworth and Beatrix Potter. In addition the North Pennines Area of Outstanding Natural Beauty (AONB) is a European and Global Geopark for the importance of its geological resources and features including historic mining remains.

Cumbria has a highly varied landscape as the wide range of character areas testify. Much of it is of an upland character which is why Cumbria has nearly a third of England's surviving common land. At the heart of Cumbria is the Lake District National Park, which is one of a number of landscapes whose perceived value for the conservation of natural beauty and encouragement of outdoor recreation has led to its designation. The others are the Yorkshire Dales National Park, the Solway Coast AONB, the Arnside/Silverdale AONB and the North Pennines AONB.

In addition, both within and without these designated landscapes are numerous sites and areas that are protected because of their archaeological value as Scheduled Monuments. Cumbria has 855 Scheduled Monuments which is nearly two thirds of all the Scheduled Monuments in the North West region. The County also has 117 Conservation Areas and 19 Registered Parks and Gardens (outside the Yorkshire Dales National Park). The historic components of Cumbria's landscape add greatly to its perceived value but much of it is not designated.20

Known and unknown heritage assets could be at risk from flooding and erosion or from activities and actions designed to manage those risks.

4.7 Landscape, Land Use and Soil

Cumbria has some of the finest landscapes in England. These are valued nationally, regionally and locally. Our landscapes have great contrast and diversity. They range from the unique 'scenic' landscapes of the lakes, to dramatic moorland, gentle lowlands, valleys and coastal plains.

Much of the landscape character is influenced by the underlying geology, glaciation and human activity. Together, these have shaped the countryside scenery and created the landscapes we value and enjoy today.

Cumbria is predominantly a rural landscape with development pressures typically occurring around the peripheries of cities, towns and villages or along transport and communication routes. Over the last decade approximately 14,900 houses have been built, a rate that is consistent with house building trends over the last three decades. The vast majority of development has taken place in the countryside on the edge of, or near to existing settlements on land perhaps highly valued by local residents. Increasingly development is also taking place on disused sites within settlements too. The need for affordable housing to meet local need is a critical issue in Cumbria and more housing is needed to meet both local needs and population expansion.

In line with past building rates, the Regional Spatial Strategy (2008) sought around 31,000 new housing units to be provided during 2003-2021. These targets will be reviewed and future growth rates are likely to be planned more locally. However, during the next decade there will be a continued need to expand Carlisle, Barrow, Workington, Kendal, Ulverston, Whitehaven and Penrith to support affordable housing, population expansion and economic growth. Other towns and villages are also likely to experience some expansion to support the rural hinterland and maintain viable communities. Development patterns and designs will be influenced by the need to reduce carbon emissions and the need to have regard to the role that open spaces, edges of settlements and the wider countryside has in delivering Green Infrastructure and Ecosystem Services across Cumbria.

Landscapes are by nature dynamic. They have changed throughout the centuries and will continue to change. Policies and guidance seek to manage change and leave distinctive and high quality landscapes for future generations to benefit from.

The role that water plays in terms of setting Cumbria's landscape is important. Management of the risks from coastal erosion and flooding has the potential to affect the landscape of Cumbria, either positively or negatively and this will need to be taken into consideration in the development of the Cumbria LFRMS.

5.0 Identifying Environmental Issues

The review of other plans and programmes and the collection of baseline data have helped to flag up environmental issues that need to be taken into account in the development of the Cumbria LFRMS. This includes those issues that may constrain the LFRMS or opportunities where the LFRMS could contribute to or improve environmental value or quality. This is important, as one of the requirements of the LFRMS is to identify how it will contribute to wider environmental and sustainability objectives. This section summarises the key environmental issues that have been identified so far. As with the other aspects of the SEA process, the identification of environmental issues is an on-going process that will develop as the SEA and Cumbria LFRMS develop.

Consultation Question – are there any other key environmental issues, opportunities or constraints that have not been identified and need to be considered as part of the SEA for the Cumbria LFRMS? Please consider Cumbria County Council's assessment of the significance of potential impacts located within Appendix A.

Consultation Question – are there any major development proposals within the study area that need to be considered as part of the SEA for the Cumbria LFRMS?

Figure 9: Key environmental issues

Key issues	Opportunities / constraints for the Cumbria LFRMS
Population and human health	
Population growth and increasing demand for accommodation, particularly family and affordable housing are key drivers for development.	The LFRMS needs to recognise the need for more housing over the next 15 years and beyond, bearing in mind both the type and amount of housing required. Development pressure may impact on coastal and fluvial areas and flood storage capacity. There are also implications for land drainage and surface water drainage capacity. Some sections of the population may be less able to cope with flood and erosion events than others. This may be because of age, ethnic minority, deprivation or other reasons. The LFRMS provides opportunities to link to planning and housing policies and raise awareness of the risk from flooding and erosion with relevant Council departments to ensure that policy development takes appropriate account of current and future flood and erosion risk. There are opportunities for other Council departments to contribute to managing the future risk from flooding and erosion. The LFRMS will also need to raise awareness among residents in areas at potential risk both now and in the future to influence local plans.
Deprivation - there is no indication that Cumbria contains a disproportionate number of deprived areas or that the numbers of more deprived areas are increasing, however, more deprived people may be less able to cope with flood and erosion events than less deprived people. There is a clear correlation between less good health and more deprived areas (see Human Health).	The LFRMS will need to take account of the risk of flood and erosion in more deprived areas such as Copeland and Barrow-in-Furness, considering that people in such areas may be less able to cope with flood events. This has potential to reduce flood and erosion risks in more deprived areas through both capital and non-capital measures, including awareness rising. There are opportunities to link to other departments in the Council.
Economic activity and regeneration are key drivers for development in Cumbria.	The LFRMS needs to recognise the need for development and regeneration of areas within Cumbria over the next 15 years and beyond to support current and future economic activity and growth. It will need to bear in mind both the type and amount of development required. Development pressure may impact on coastal and fluvial areas and flood storage capacity. There are also implications for land drainage and surface water drainage capacity. Flooding poses a potential risk to business continuity from direct impacts and indirect impacts to the infrastructure that supports economic activity (e.g. transport, electricity, communications). The LFRMS offers opportunities to manage and reduce these risks. The LFRMS provides opportunities to link to the Cumbria Local Enterprise Partnership and raise awareness of the risk from flooding and erosion with relevant Council departments to ensure that policy development takes appropriate account of current and future flood and erosion risk. There are opportunities for other Council departments to contribute to managing the future risk from flooding and erosion. The LFRMS will also need to raise awareness among businesses in areas at potential risk both now and in the future.

Human Health - Cumbria has varying life expectancy between different communities in Cumbria and the need to 'level up' so that the worst performing areas (Barrow, Carlisle) matched up with the best (Eden, South Lakes).	Flood events have the potential to adversely affect the health and wellbeing of people both directly, in terms if injury or illness as a result of flood waters, and indirectly, in terms of the upset, stress and anxiety that can result from the event and the aftermath of the event. Living with the risk of future flooding may also cause stress and anxiety, affecting health and wellbeing. Some sections of the population may be less able to cope with flood and erosion events than others. This may be because of age, ethnic minority, deprivation or other reasons. This can make these sections of the population more at risk from the adverse health and wellbeing impacts associated with flooding as well as the flood event. The LFRMS needs to consider the implications for human health. It has potential to reduce potential health implications by reducing risk and reducing the anxiety associated with flood risk by raising awareness and knowledge of how to deal with flood events. The LFRMS also has potential to contribute to the safeguarding of open spaces that could be used for recreation purposes (with knock on health benefits) through the safeguarding and management of flood storage areas.
Biodiversity, Flora and Fauna	
Protected conservation sites in Cumbria	The LFRMS will need to consider the potential effects of objectives and measures on designated sites. The Habitats Regulations will require an Appropriate Assessment of the LFRMS if objectives or measures are considered likely to have a significant effect on a European site. Compensatory habitat may be required. The LFRMS could provide opportunities to benefit designated sites.
Green spaces and local biodiversity Parks and green spaces contribute to the biodiversity and habitats within Cumbria as a whole. Cumbria Council has developed a number of Species Action Plans and Habitat Action Plans for BAP species and maintains a database of flora and fauna recorded in Cumbria	Local authorities have a Duty under the Natural Environment and Rural Communities Act which came into force on 1 October 2006 to have regard to the conservation of biodiversity in exercising their functions. The LFRMS will need to consider the potential effects of objectives and measures on green spaces and biodiversity. It also provides opportunities to contribute to the achievement of conservation and biodiversity objectives and aims. The LFRMS should also seek to enhance biodiversity wherever possible, such as maintaining or improving habitat connectivity, the use of Sustainable Drainage Systems (SUDS) incorporating habitat creation (e.g. green/brown roofs, wetlands). There are opportunities to work with other departments, including, but not limited to, the Harbour Authority and parks department.
Water	
Water quality Water quality is improving in the water bodies within Cumbria; however, they do not all currently meet the requirements of the WFD. There are several potential threats to the achievement of GES including current, past and future industry, the redevelopment of historical industrial land, and activities to manage the risk of flood and erosion.	The WFD requires the prevention of the deterioration of the status of all water bodies, and sets aims to improve their status and achieve GES by 2027. The Cumbria LFRMS will need to consider the requirements of the WFD and ensure that it does not compromise its objectives, and that it contributes to achieving its aims.

Flooding Flooding poses a particular threat to Cumbria because of its coastal location, low-lying areas and rivers flowing through the area. Both the likelihood and consequences of flooding are likely to increase over time for a number of reasons, including climate change, changes in population levels and settlement patterns, land management and asset values. A number of strategies and analyses have been carried out to identify and plan for flood risk within Cumbria and the relevant river catchments within which it sits.	The aim of the LFRMS is to develop, maintain, apply and monitor a strategy for local flood risk management. It will need to take account of existing predictions, policies and actions within other flood and erosion risk management strategies (CFMPs, SMP2, PFRA) and the specific guidance and legislative requirements for the development of the LFRMS. There are opportunities for the LFRMS to contribute to the achievement of the objectives within other flood risk management strategies. There are also opportunities to work with other departments within the Council through Making Space for Water Groups and partner organisations such as United Utilities, Internal Drainage Boards and the Environment Agency
Air	
Air quality is generally good across the Council's area.	Flood and erosion risk management is unlikely to impact significantly on air quality at a strategic level, however, individual projects or works could affect air quality in more local areas. At this scoping stage, impacts to air quality have been scoped out. It seems more appropriate to consider potential impacts to air quality at a local level and impacts to air quality should be considered in the assessment of environmental impacts at the project stage for projects which may arise as a result of the Cumbria LFRMS.
Climatic Factors	
Climate change and flood and erosion risk management are inextricably linked with climate change being a significant driver to flood and erosion risk.	Flooding and erosion risk management is potentially the largest area affected by climatic factors and a key driver for the LFRMS. The LFRMS will need to take account of climate change predictions and the changing likelihood of flood and erosion events.
Cultural heritage, including archaeological and built heritage	
Conservation sites, Scheduled Ancient Monuments and other heritage sites within the county.	Known and unknown heritage assets could be at risk from flooding and erosion or from activities and actions designed to manage those risks. The LFRMS will need to take account of both risks to heritage resources and the potential for measures within the LFRMS to affect such resources. The LFRMS provides opportunities to link to planning and heritage policies and raise awareness of the risk from flooding and erosion with relevant Council departments to ensure that policy development takes appropriate account of current and future flood and erosion risk. There are opportunities for other Council departments to contribute to managing the future risk from flooding and erosion.

Landscape, Land Use and Soil	
Cumbria has a distinct landscape, characterised mainly by the Lake District and relatively small urban areas located near to the coast.	The LFRMS should seek opportunities to identify, conserve and enhance landscape character and important landscape features such as wetland areas and areas of historic interest, whilst protecting their setting within the wider environment. The LFRMS also has potential to contribute to the safeguarding of landscape areas such as river corridors, open spaces and flood plains. The LFRMS provides opportunities to link to planning and land use policies, open space and park management and to raise awareness of the risk from flooding and erosion with relevant Council departments to ensure that policy development takes appropriate account of current and future flood and erosion risk. There are opportunities for other Council departments to contribute to managing the future risk from flooding and erosion.

6.0 SEA Objectives

This section sets out the draft objectives, targets and indicators that will be used to predict and assess the nature and degree of potential effects that the Cumbria LFRMS might have on the different environmental receptors and whether those impacts are significant or not. Only those effects which may be significant need to be included in the SEA.

Baseline information, the policy review and identified key environmental issues, along with a review of other potentially relevant SEA objectives have been used to help formulate the SEA objectives. The SEA Directive does not specifically require the use of objectives or indicators but they are a useful way in which environmental effects can be described, analysed and compared at key stages of plan making process.

The objectives in plans, policies and strategies of relevance to the Cumbria LFRMS have been reviewed to guide the development of the SEA objectives for this plan.

Consultation Question - are the proposed SEA objectives and indicators suitable in the context of the Cumbria LFRMS, and are there any objectives or indicators that should be removed or added?

Figure 10: SEA Objectives

SEA Objectives			
Reference	Objective	Indicator	Outline of proposed monitoring
SEA 1	Minimise the probability and consequences of flooding	1. Number of properties (residential, commercial, industrial, etc.) at significant risk of flooding 2. Number of properties granted planning permission in flood risk areas. 3. Number of potentially polluting features (e.g. sewage treatment works, landfill sites, contaminated land at significant risk of flooding 4. Number of flood risk management measures implemented 5. Number of Sustainable Drainage Systems developed	1. Development and maintenance of "flooding risk registry" which lists number of properties at risk, with approximate standard of protection and includes critical infrastructure at risk 2. Number of major / minor planning permissions in the City informed by Flood Risk Assessments (FRAs). 3. Development and maintenance of a register of potentially polluting features within the floodplain 4. Development and maintenance of a register of flood risk management measures (e.g. walls, embankments, balancing ponds, flood barriers, etc.) 5. Development and maintenance of a register of sustainable drainage systems along with their owners and maintenance regime
SEA 2	Minimise the probability and consequences of climate change	1. Number of properties (residential, commercial, Industrial, etc.) at significant risk of flooding 2 Number of potentially polluting features (e.g. sewage treatment works, landfill sites, contaminated land at significant risk of flooding 3. Per capita greenhouse gas emissions	1. Development and maintenance of "flooding risk registry" which lists number of properties at risk, with approximate standard of protection and includes critical infrastructure at risk 2. Development and maintenance of a register of potentially polluting features within the floodplain 3. No strategic monitoring required for per capita greenhouse gas emissions related flooding risk activities.
SEA 3	Maintain, and where possible, enhance the quality of water resources, water bodies and their environment	1. WFD ecological status of rivers 2. WFD chemical status of rivers	1. Maintain a register of Source Protection Zones 2. Maintain a register of significant water bodies

SEA 4	Maintain, and where possible, enhance biodiversity, geo-diversity and soils	1. Area and condition of BAP habitat within the flood risk zone 2. Population of key protected species 3. Percentage of weirs which incorporate fish passes 4. Non-native crayfish and other invasive species such as Japanese knotweed 5. Number of flood risk schemes impacting on SSSIs.	1. Monitoring area of BAP habitats 2. Review of population surveys of key protected species 3. Maintain a register of weirs and fish passes 4. Monitor the number of SSSIs affected by flood risk schemes.
SEA 5	Protect, and where possible, enhance the landscapes and green infrastructure	1. Extent of areas of special landscape character (e.g. Special Landscape Areas) 2. Extent of areas of Green Infrastructure	1. No strategic monitoring required. The impact on local landscape quality and green infrastructure is to be considered on a site by site basis when works are proposed.
SEA 6	Protect, and where possible, enhance the health and well-being of the population	1. Number of sewer flooding incidents 3. Number of flood related injuries 4. Number of residential properties at significant risk of flooding	1. Maintain register of sewer flooding incidents (United Utilities) 2. Development and maintenance of "flooding risk registry" which lists number of residential properties at risk, with approximate standard of protection
SEA 7	Protect existing and future economic and social infrastructure assets, services and amenities and encourage economic investment and growth	1. Number and severity of flood incidents leading to disruption or damage to service provision	1. Maintain register of flooding incidents 2. Development and maintenance of "flooding risk registry" which would include key economic and social infrastructure, with approximate standard of protection

Social, Environmental and Economic Impacts of the SEA Objectives

It is acknowledged that the SEA objectives will have an impact on all social, environmental and economic factors. In order to highlight the areas where they are likely to have the most significant impact, the objectives have been tabulated in Figure 9.

Figure 11: Social, environmental and economic impacts of the SEA Objectives

SEA Objective	Social	Environmental	Economic
Minimise the probability and consequences of flooding	x	x	
Minimise the probability and consequences of climate change	x	x	
Maintain, and where possible, enhance the quality of water resources, water bodies and their environment		x	
Maintain, and where possible, enhance biodiversity, geo-diversity and soils		x	
Protect, and where possible, enhance the landscapes and green infrastructure		x	
Protect, and where possible, enhance the health and well-being of the population	x	x	
Protect existing and future economic and social infrastructure assets, services and amenities and encourage economic investment and growth	x	x	x

Figure 9 shows that a good spread of impacts can be achieved through the SEA objectives, however the objectives still have the environment at the heart.

7.0 Next Steps

This Scoping Report will be circulated to consultees for comment. These comments and additional baseline data received in response to consultation will inform the assessment of potential impacts from the Cumbria LFRMS and will be included in the SEA Environmental Report (ER). The assessment of potential impacts from the Cumbria LFRMS will, in turn, be used to inform the development of the LFRMS and the selection of measures for inclusion in the Cumbria LFRMS.

The ER will be published as part of the consultation on the draft Cumbria LFRMS in autumn 2014. The ER will document the likely significant effects on the environment of implementing the Cumbria LFRMS, and provide a comparison against other alternatives. The ER will also describe any mitigation measures that may be available to offset significant environmental effects identified in the assessment.

Figure 12: The remaining steps involved in the SEA for the Cumbria LFRMS

SEA Stages	SEA tasks
Stage B: Developing and refining options and assessing effects	B1: Testing the plan objectives against the SEA objectives
	B2: Developing the strategic alternatives
	B3: Predicting the effects of the plan, including alternatives
	B4: Evaluating the effects of the plan, including alternatives
	B5: Mitigating adverse effects
	B6: Proposing measures to monitor the environmental effects of implementing the plan.
Stage C: Preparing the Environmental Report	C1: Preparing the Environmental Report
Stage D: Consulting on the draft LFRMS and the SEA report	D1: Consulting on the draft LFRMS and Environmental Report with the public and Consultation Bodies.
	D2: Assessing significant changes
	D3: Making decisions and providing information
Stage E: Monitoring the significant effects of implementing the LFRMS	E1: Developing aims and methods for monitoring
	E2: Responding to adverse effects

Consultation Question - Do you have any further comments on the proposed approach and scope of the SEA?

Appendix A

Cumbria County Council's assessment of the significance of potential impacts

Effect:	Landscape	Population and flood risk	Water Quality
Major Beneficial	Creation, enhancement or restoration of a major / iconic characteristic landscape feature in line with the local Landscape Character Assessment, or within a nationally designated landscape (e.g. AONB)	Movement of properties from significant to low flood risk	Improvement in the WFD Ecological Status/Potential of one or more waterbodies
Moderate Beneficial	Creation, enhancement or restoration of an important characteristic landscape feature in line with the local Landscape Character Assessment	Movement of properties from significant to moderate flood risk	Improvement in the WFD status of one or more elements which make up WFD status
Minor Beneficial	Creation, enhancement or restoration of a minor characteristic landscape feature in line with the local Landscape Character Assessment	Movement of properties from moderate to low flood risk	No improvement in WFD element status but likely to speed progress to improved WFD status
Natural / Negligible	No or negligible change to the landscape.	No change in flood risk to properties	Negligible change to WFD elements
Minor Adverse	Loss or damage to a minor characteristic landscape feature in line with the local Landscape Character Assessment	N/A	No reduction in WFD element status but likely to slow the progress to improved WFD status
Moderate Adverse	Loss or damage to an important characteristic landscape feature in line with the local Landscape Character Assessment	N/A	Reduction in the WFD status of one or more elements which make up WFD status
Major Adverse	Loss or damage to a major / iconic characteristic landscape feature in line with the local Landscape Character Assessment, or within a nationally designated landscape (e.g. AONB)	N/A	Reduction in the WFD Ecological Status of one or more waterbodies

Effect:	Biodiversity	Health and well-being	Historic Environment
Major Beneficial	Creation of new BAP habitat within or adjacent to a nationally or internationally designated sites (e.g. SSSI, SPA, SAC or Ramsar site). Eradication of non-native species Removal of one of the key barriers to fish migration, or creation of new fish spawning areas in reach	Generally, the average of the assessment for "population and flood risk" and "accessibility", weighted toward the greater magnitude. Consideration should be given to the way people are affected by conditions and the overall change from the current frequency and level of disruption to people's lives and livelihoods.	Flood protection or benefit to the integrity (by way of its main historical significance) or setting of a nationally significant heritage feature, such as a Scheduled Monument, Conservation Area, Grade I or II* Listed Building
Moderate Beneficial	Creation of significant new habitats in line with BAP or other wider aspirations.		Flood protection or benefit to the integrity (by way of its main historical significance) of a locally significant heritage feature, such as a Grade II Listed Building, Registered Park and Garden, other historic landscape or archaeology
Minor Beneficial	Increased management of existing habitats on a catchment-wide scale, OR Beneficial flood protection of local habitats.		Enhancement of the setting of a locally significant heritage feature, or other form of benefit unrelated to the site's integrity by way of its main historical significance
Natural / Negligible	No or negligible change to habitats.		No or negligible change to cultural heritage features and their setting.
Minor Adverse	Reduction in quality of BAP habitats or their management.		Harm to the setting of a locally significant heritage feature, or other form of harm that will not affect its integrity by way of its main historical significance
Moderate Adverse	Loss of BAP habitats or other significant local nature sites.		Harm to the integrity of a locally significant heritage feature, such as a Grade II Listed Building, Registered Park and Garden, other historic landscape or archaeology
Major Adverse	Reduction in quality of a nationally or internationally designated site (e.g. SSSI, SPA, SAC or Ramsar site).		Loss or damage to a major / iconic characteristic landscape feature in line with the local Landscape Character Assessment, or within a nationally designated landscape (e.g. AONB)

Effect:	Climate Change	Accessibility	Material Assets
Major Beneficial	Creates or expands a number of carbon sinks across the relevant catchment area, OR Replaces existing measures that will have high emissions into the future (e.g. are both fossil fuel-intensive and require materials of high embodied carbon) with low- or zero-carbon alternatives	Flood protection of an essential service, such as a hospital, police station, fire station or post office, OR Flood protection of transport infrastructure connecting settlements, or settlements with services (includes any type of infrastructure).	Movement of major non-transport infrastructure into a lower category of flood risk, such as a power station, sewage treatment works, communications mast or reservoir.
Moderate Beneficial	Creates or expands a carbon sink (e.g. woodland or wetland), OR Replaces existing measures that will have moderate emissions into the future (e.g. are either fossil fuel-intensive or require materials of high embodied carbon) with low- or zero-carbon alternatives	Flood protection of a key community facility OR Creation of key local transport infrastructure, including footpaths, bridleways, and cycle paths	Movement of other (not under major category) non-transport infrastructure into a lower category of flood risk, such as power lines, drainage infrastructure, telecommunications wires, or pumping stations.
Minor Beneficial	Improves management of a carbon sink (e.g. woodland or wetland), OR Replaces existing measures that have low emissions into the future (e.g. involve some use of fossil fuels or materials of high embodied carbon) with low- or zero-carbon alternatives	Flood protection or enhancement of key local transport infrastructure, including footpaths, bridleways, cycle paths and local roads	Flood protection of key transport infrastructure providing access for maintenance of other key infrastructure (as identified above).
Natural / Negligible	No or negligible change in future emissions or carbon sinks. For new schemes, uses mostly renewable materials, maintenance is not intensive, and uses no or little fuel for operation.	No or negligible change to the usability of recreation and services.	No or negligible change to the integrity or operation of key assets / infrastructure.
Minor Adverse	Promotes measures that require one of the following: majority non-renewable materials for construction; intensive maintenance OR a constant supply of fossil fuels	Loss or decrease in the direct usability of key local transport infrastructure	Loss or decrease in the direct usability of key transport infrastructure providing access for maintenance of other key infrastructure (as identified above).
Moderate Adverse	Promotes measures that require two of the following: majority non-renewable materials for construction; intensive maintenance OR a constant supply of fossil fuels	Loss or decrease in the direct usability of a key community facility	N/A (Theoretically, the movement of non-major key infrastructure into a higher category of flood risk.)
Major Adverse	Promotes measures that require all of majority non-renewable materials for construction, intensive maintenance AND a constant supply of fossil fuels	Loss or decrease in the direct usability of an essential service, such as a hospital, police station, fire station or post office, or of transport infrastructure connecting settlements, or settlements with services.	N/A (Theoretically, the movement of major key infrastructure into a higher category of flood risk.)

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