SEFTON BOROUGH COUNCIL
LOCAL FLOOD RISK MANANEMENT STRATEGY

STRATEGIC ENVIRONMENTAL ASSESSMENT
ENVIRONMENTAL REPORT

SEFTON METROPOLITAN COUNCIL
October 2014

Sefton Council

Merseyside Environmental Advisory Service

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NON-TECHNICAL SUMMARY

Introduction

Sefton Council, as Lead Local Flood Authority under the Flood and Water Management Act 2010 (The Act), commissioned Merseyside Environmental Advisory Service to undertake a Strategic Environmental Assessment (SEA) of their draft Local Flood Risk Management Strategy (LFRMS). The Act places a duty on Sefton to develop a strategy for local flood risk management. The aim of the SEA process is to identify and assess the potential environmental effects from the implementation of the draft LFRMS.

The aim of the SEA process is to provide for a high level of protection of the environment. The assessment will evaluate the environmental effects resulting from implementation of the draft LFRMS on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the inter-relationship between the above factors.

Sefton covers an area of approximately 155 square kilometres comprising an equal division of rural and urban areas. The Borough is located between Liverpool and Manchester, adjoins Knowsley to the west, West Lancashire to the north, Wigan to the east and Halton and Warrington to the south.

Methodology and Approach

SEA is a statutory assessment process under the SEA Regulations and requires that an assessment be made of the effects that certain plans and programmes will have on the environment. Sefton came to the decision that the draft LFRMS should be subject to SEA. The SEA was undertaken in line with current best practice and follows Government guidance. The process consist of five stages namely; Setting the context and objectives, establishing the baseline and deciding the scope; Develop options and assess environmental effects; Preparation of an environmental report; Consultation; and Monitoring significant effects

Setting the context and objectives, establishing the baseline and deciding the scope

The first stage of the SEA process involves identifying the current environmental characteristics within the Borough, formulating a list of environmental objectives, review of relevant plans, programmes and policies and the preparation of a scoping report for consultation with the three statutory consultees which are Natural England, Environment Agency and English Heritage.

Environmental data was obtained from a number of reports all of which are referenced at appendix G within the main environmental report. The collection of baseline environmental information shows the following:

- Sefton has several European designated nature conservation sites and Sites of Special Scientific Interest (SSSI), which are predominantly along the coast in the north of the Borough. Special protection Area (SPA), Special Area of Conservation (SAC) and Ramsar designations are all present. There are 56 Local Wildlife Sites and 12 local geological sites;
- Sefton lie within the catchment of the Alt and the River Mersey. The Alt flows through a low-lying landscape and operates under a pumped drainage regime. There are a number of recorded instances of groundwater and surface water flooding;
- Sefton has a mainly aging population. The 2011 census records the Sefton population as 273,800 following years of decline. Standards of health are generally good and improving, though there are significant challenges due to the aging population and deprivation levels in the south of the Borough;
- Sefton has the below average levels of CO2 emissions for the north west region;
- Sefton has three Air Quality Management Areas;
- Approximately 30% of Sefton is classed as grade 1, 2 and 3 agricultural land, which is 'best and most versatile'. However, there is also legacy of contamination in places, arising from historic industrial activity;
- Sefton has material assets including a range of healthy, education and community facilities and significant infrastructure including transport, waste, and telecommunication; and
- Sefton has significant heritage assets including over 800 listed buildings, 13 Scheduled Monuments, 25 Conservation Areas and 5 Parks and Gardens. Approximately 2000 non-designated historic environment features are also recorded by the Historic Environment Record.

The environmental baseline information is used to identify whether there are any environmental and sustainability issues within the Borough. The environmental issues, once identified from the baseline are then used to develop a list of environmental objectives (also known as SEA Objectives) and indicators for monitoring. Essentially, the process involves assessing how the implementation of the draft LFRMS will affect the SEA Objectives i.e. negatively or positively. The following environmental and sustainability issues were identified within Sefton:

- Sefton valued natural environment must be protected and enhanced;
- A need to protect water resources;
- High level of localised flood risk in localised and urban areas;
- The health and well-being of the population;
- Climate change;
- Residential, commercial and other development currently located in areas of flooding; and

- Large number of heritage assets

As part of the SEA scoping, the regulations requires that consideration should be given to relationship between the strategy and other relevant plans, programmes and policies so as to better understand the wider framework influencing the choice of actions available to the draft LFRMS. The review confirms that there are no policies, plans, programmes or objectives that have a direct conflict of interest with the objectives of the draft LFRMS.

The scoping report was submitted to the statutory consultees for a five week consultation. The consultation responses did not raise any significant issues. Details of the consultation response can be found in Appendix A to the main environmental report. The remaining stages involve the assessment of effects, reporting and consultation and monitoring.

Developing Options and assessing Effects

This is the main stage of the SEA process. The process was undertaken using a series of assessment matrices which involved assessing the objectives of the draft LFRMS against the SEA Objectives. The appraisal consider the beneficial and adverse, secondary, cumulative, synergistic, short, medium and long-term permanent and temporary effects of implementing the Strategy and identify and propose mitigation measures where appropriate.

The assessment demonstrates that the draft LFRMS will generally have positive effects on the environment, although many were found to be indirect positive effects. In particular, the assessment shows that the draft LFRMS will have a significant positive effect on SEA Objective 1 – Flood Risk and SEA Objective 8 – Infrastructure, Properties and Businesses. This is because the main aims of the LFRMS is to manage local flood risk to people and property through implementing a range of regulatory procedures, preventative measures and intervention actions, as well as incorporating sustainable, environmental and social improvement alongside the flood risk management duties for Sefton.

No likely significant negative effects on the environment were identified. This was due to the intended outcome of implementing the draft LFRMS which will result in a reduction in flooding within Sefton and the associated resulting indirect benefits resulting from a reduction in flood risk to the natural and built environment.

Recommendation

A range of measures have been identified in addition to the ones already set out in the draft LFRMS. They have been proposed to enable the objectives of the draft LFRMS to contribute to wider environmental benefits and avoid any unintended negative effects. Because the Strategy itself contains few specific proposals, the recommendations point to issues for considerations when interventions are developed and mainly relate to the dissemination of information and advice to increase the level of awareness and preparedness of flood and coastal erosion risk and the wider environmental benefits linked to managing flood risk to businesses, residents and landowners.

Monitoring

As part of the SEA process there is a requiremnent to monitor the environmental effects of implementation of the draft LFRMS. The indicators developed at the scoping stage will be used to monitor the environmental effects of the draft LFRMS and monitoring of environmental effects due to implementation of the draft LFRMS will focus mainly on those objectives where significant or uncertain effects were identified.

A list of indicators has been proposed within the Environmental Report. It is recommended that monitoring of the potential environmental effects of the LFRMS is combined with the annual monitoring process carried out for the Sefton Local Plan where appropriate.

Conclusion and Next Steps

The findings of this Environmental Report will be taken into account by Sefton Council as it finalises the draft LFRMS, following the public consultation between June and July 2013. The Environmental Report will then be updated to reflect any changes to the measures in the final LFRMS. Once all the necessary changes have been made and the Council completes its formal internal approvals process, the LFRMS will be adopted as a Council strategy.

1. INTRODUCTION

Background

Sefton Council (Investment Programmes and Infrastructure), as Lead Local Flood Authority (LLFA) under the Flood and Water Management Act 2010, commissioned Merseyside Environmental Advisory Service in April 2012 to undertake a Strategic Environmental Assessment (SEA) on their Local Flood Risk Management Strategy.

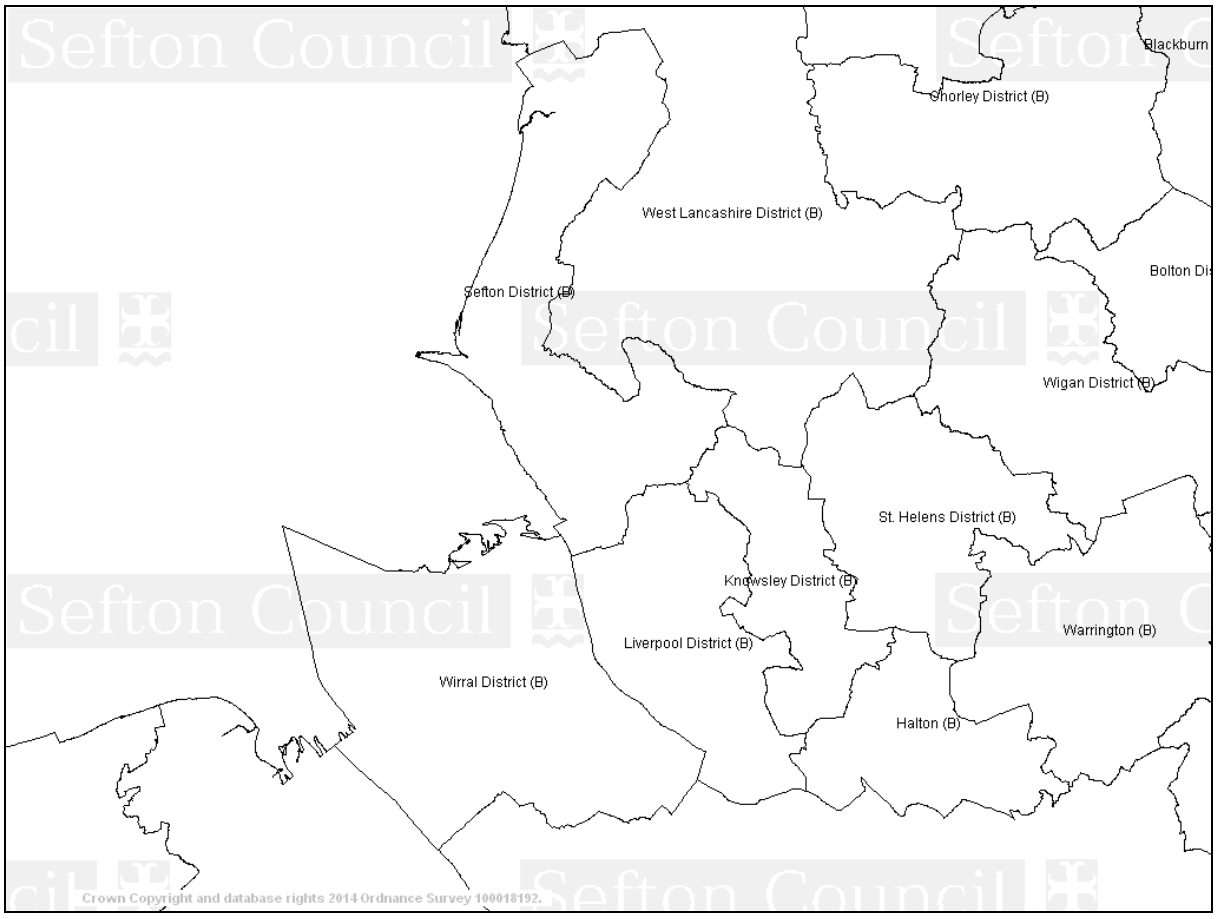
Study Area

The administrative boundary of Sefton covers an area of approximately 155 square kilometres comprising a diverse mixture of industrial, commercial and urban development separated by the rural Green Belt. The coastline extends 36 kilometres and comprises of mainly extensive sand dunes and coastal salt marshes. Beaches and mudflats are also an integral part of the coastal landscape along the shore.

Sefton adjoins the boroughs of Liverpool to the south, Knowsley to the east, and the largely rural West Lancashire to the east and north. In the south, Bootle, Litherland, Seaforth and Netherton have a similar metropolitan character of Liverpool. The other main settlements are Crosby, Maghull, Hightown and Formby in the centre of the Borough and the Victorian resort of Southport in the north. These urban areas comprise approximately half of the area of the Borough and are where 95% of Sefton's residents live.

The other half of Sefton is characterised by rural countryside hosting a number of villages. The Merseyside Green Belt is tightly drawn around Sefton's towns and villages and aids to direct regeneration and development into the built-up areas, notably Bootle and Southport.

Figure 1. Location of Sefton



Local Flood Risk Management Strategies

Under the Flood and Water Management Act 2010 (The Act), LLFAs (Sefton Council) are required to produce a Local Flood Risk Management Strategy (Hereafter referred to as the Strategy) setting out how flooding and coastal erosion will be managed in their area. The Act defines local flood risk as flood risk from:

- Surface runoff;
- Groundwater;
- Ordinary watercourses (those that do not form part of a 'main river');and
- Canals

The Act places a duty on the LLFA to develop, maintain, apply and monitor a strategy for local flood risk management. As LLFA, Sefton Council will be responsible for ensuring the strategy is put in place. However, the Council must work with other local partners to agree how to develop the Strategy in the way that suits best local circumstances.

The Act requires LFRMSs to specify:

- The risk management authorities within the authority's area;
- The flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area;
- The objectives for managing local flood risk (including any objectives included in the authority's flood risk management plan prepared in accordance with the Flood Risk Regulations 2009);
- The measures proposed to achieve those objectives;
- How and when the measures are expected to be implemented;
- The costs and benefits of those measures, and how they are to be paid for;
- The assessment of local flood risk for the purpose of the strategy;
- How and when the strategy is to be reviewed; and
- How the strategy contributes to the achievement of wider environmental objectives.

The Strategy must be consistent with the National Flood and Coastal Erosion Risk Management Strategy and should have regard to the following guiding principles for managing flood and coastal erosion risk set out at the National level:

- Community focussed and partnership working;
- A catchment and coastal cell approach;
- Sustainability;
- Proportionate risk based approach;
- Multiple benefits; and
- Beneficiaries should be allowed and encouraged to invest in local flood risk management.

The Sefton LFRMS aims to set out how the LLFA can reduce flood and coastal erosion risk within the Borough by working with partners and communities to raise awareness of flood and coastal erosion risk and detail what can be done to reduce this risk. It is set out in three separate but interrelated documents:

- The Flood and Coastal Erosion Risk Management Strategy (2014-2017)
- The Flood and Coastal Erosion Risk Management Investment Plan
- The Flood and Coastal Erosion Service Delivery Plan

Together, these documents fulfil Sefton Council's legal obligations under the Flood Risk Regulations (2009) and the Flood and Water Management Act (2010). The Strategy sets out the objectives and activities that the Council will pursue, which are further elaborated together with monitoring and reporting arrangements in the Service Plan. The Investment Plan provides funding information and analysis of costs and benefits. The SEA has taken into account the content of all three documents but will refer to the strategy as a whole unless a specific reference is required.

The main objectives of the Sefton LFRMS are as follows:

- Present an overview of the risk in Sefton from flooding and coastal erosion;
- Present an overview of the management of flood and coastal erosion in Sefton;
- Provide signposting to other relevant sources of detailed information;
- Comply with the Flood and Water Management Act (2010); and
- Comply with the Flood Risk Regulations (2009)

An action plan will also accompany this strategy that will detail what Sefton and other flood management organisation will do to manage flood and coastal erosion risk in Sefton, by when and how much it will cost to achieve. The Strategy will be updated every 5 years and the action plan will be reviewed annually, to account for any changes to legislation, policy development and our understanding of risk evolves.

Sefton Council will need to consider the full range of measures consistent with a risk management approach in developing their local flood risk strategy and to meet the above objectives. Resilience and other sustainable approaches which minimise the impact of flooding are expected to be a key aspect of the measures proposed.

Strategic Environmental Assessment

SEA is a statutory assessment process, required under the Environmental Assessment of Plans and Programmes Regulations (the SEA Regulations, Statutory Instrument 2004, No 1633) which provide the legislative mechanism for transposing into UK law the European Directive 2001/42/EC 'on the assessment of the effects of certain plans and programmes on the environment' (the SEA Directive). The SEA Directive and Regulations requires that an assessment be made of the effects that certain plans and programmes will have on the environment.

The Directive's main objective is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view of promoting sustainable development. The assessment will evaluate significant environmental effects resulting from implementation of the Strategy on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the inter-relationship between the above factors.

Government Guidance refers to SEA as an iterative process of collecting information, defining alternatives, identifying environmental effects, developing mitigation measures and revising proposals in the light of predicted environmental effects. However, it is important to identify an end-point where further iterations are unlikely to bring further significant improvements in predicting the environmental effects of the plan or programme.

Compliance with SEA Regulations

This report has been prepared in accordance with the requirements of the SEA Regulations. The reporting requirements of the SEA Directive are set out in Table 1 below, which also indicates where in this SEA Report the relevant requirement has been met.

Table 1 Requirements of the SEA Directive and where these have been addressed in this SEA Report

SEA Directive Requirements	**Where Covered**
An environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme, are identified, described and evaluated.	
An outline of the contents, main objectives of the plan or programme, and relationship with other relevant plans and programmes;	Section 3, Section 4, Appendix B
The relevant aspects of the current state of the environment	Section 3, Appendix C
The environmental characteristics of areas likely to be significantly affected;	Section 3, Appendix C
Any existing environmental problems which are relevant to the plan or programme including,	Section 4
The environmental protection, objectives, established at international, Community or national level, which are relevant to the plan or programme	Section 2, Section 3
The likely significant effects on the environment	Section 5, Appendix E
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;	Section 6
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;	Section 2
a description of measures envisaged concerning monitoring in accordance with Art. 10;	Section 7
Consultation: authorities with environmental responsibility, when deciding on the scope and level of detail of the information which must be included in the environmental report (Art. 5.4)	Appendix A

This chapter (**Chapter 1**) has described the background to the production of the Sefton LFRMS and the requirement to undertake SEA. The remainder of this report is structured into the following sections:

- **Chapter 2** describes the approach that is being taken to the SEA of the LFRMS and outlines the tasks involved.

- **Chapter 3** presents the review of plans policies and programmes, baseline information and key sustainability issues in Sefton.
- **Chapter 4** presents the SEA framework that is being used for the SEA of the LFRMS.
- **Chapter 5** summarises the findings of the SEA of the draft LFRMS for public consultation (June 2012).
- **Chapter 6** details the approach that will be taken to monitoring the effects of the LFRMS as it is implemented.
- **Chapter 7** presents the conclusions of the SEA and describes the next steps to be undertaken.

The information in the main body of the report is supported by a number of appendices:

- **Appendix A** sets out the consultation comments received in relation to the SEA Scoping Report and describes how each one has been addressed.
- **Appendix B** presents the review of plans, policies and programmes of relevance to the SEA. This has been updated since it was originally presented in the SEA Scoping Report, in light of the consultation comments received.
- **Appendix C** presents the updated baseline information for Sefton, which has again been updated since the Scoping stage.
- **Appendix D** presents the detailed SEA matrices for the draft LFRMS.
- **Appendix E** shows the detailed SEA assessment matices.
- **Appendix F** has a list of principle references.

2. METHODOLOGY

The approach for carrying out the SEA of the Sefton LFRMS is based on current best practice and the following guidance:

- A Practical Guide to the SEA Directive, (September 2005) Office of the Deputy Prime Minister, Scottish Executive, Welsh Assembly Government, Department of the Environment for Northern Ireland.

SEA Stages and Work Undertaken
Table 2 below sets out the main stages of SEA process. Each stage is then discussed in more detail in the subsequent sections.

Table 2 Stages of the SEA process

SEA Stages
SEA Stage A: setting the context and objectives, establishing the baseline and deciding on the Scope
A1: Identifying other relevant plans, programmes and sustainability objectives
A2: Collecting baseline information
A3: Identifying sustainability issues and problems
A4: Developing the SEA Framework
A5: Consulting on the Scope of the SEA
SEA Stage B: Develop options, taking account of assessed effects
B1: Testing the project objectives against the SEA Framework
B2: Developing the options
B3: Predicting the effects of the LFRMS
B4: Evaluating the effects of the LFRMS
B5: Considering ways of mitigating adverse effects and maximising beneficial effects
B6: Proposing measures to monitor the significant effects of implementing the LFRMS
SEA Stage C: Preparing the SEA Report
C1: Preparing the SEA Report
SEA Stage D: Consulting on the Project and the SEA Report
D1: Public participation on the draft project and SEA report
D2: Assessing significant changes
SEA Stage E: Monitoring the significant effects of implementing the LFRMS
E1: Finalising aims and methods for monitoring
E2: Responding to adverse effects

Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope
A SEA Scoping report was prepared and consulted upon with the three statutory consultees (Natural England, the Environment Agency and English Heritage) between June and July 2012. The SEA Scoping exercise involved the following main tasks:

- Identification and review of other relevant policies, plans and programmes, strategies and initiatives which may influence the Sefton LFRMS.
- The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme and the environmental characteristics of the area likely to be significantly affected.
- Development of the SEA Framework against which the Sefton LFRMS measures and any reasonable alternatives would be appraised.
- Identification of the key environmental and sustainability issues of relevance to the LFRMS.

A list of the comments received from the consultees, along with a description of how each one has been addressed, is provided in Appendix A. Each of the comments received was reviewed and certain elements of the Scoping Report have been updated as necessary. The revised and updated baseline information and review of plans, policies and programmes are presented in Chapter 3 and Appendices B and C. The updated key environmental and sustainability issues are presented at the end of Chapter 3.

Stage B: developing and refining alternatives and assessing effects
Sefton (Flood and Coastal Erosion Risk Management Team) conducted a consultation exercise with its risk management authorities and other partners early in 2013. These included the Planning department (Sefton Council), Merseyside Fire and Rescue, Environment Agency, United Utilities, the Canal and Waterways Trust, and upstream Authorities.

Sefton Council provided MEAS with an early internal draft of the LFRMS in order to enable the assessment process to inform its development. The draft LFRMS included a host of draft objectives and indicative measures through which they could be achieved. The Sefton LFRMS will bring together existing approaches and policies for flood risk management. The scope of the assessment will therefore be limited to the assessment and evaluation of an approach to flood risk managing rather than new policy options. It is important to note that the Act, which enables the production of LFRMS, places specific duties and obligations for LPA in respect of the management of flood risk. Therefore there will, in some instance, be very limited scope for the SEA to influence certain actions within the LFRMS. A review of the early draft LFRMS during the scoping stage identified no 'reasonable alternatives' to the measures included within the LFRMS. However, the SEA process has identified, through the assessment an evaluation process, minor changes to the aims and objectives to place more emphasis on environmental preservation and enhancement, particularly in respect of water quality.

Stage C: Preparing the SEA Report
This report is the output of Stage C.

Stage D: Consulting on the LFRMS and the SEA Report
A consultation on the Draft LFRMS is due in 2014, with the report being made available to the statutory environmental bodies as well as a range of other consultees and the wider public. This SEA Report is being published alongside the Draft LFRMS during the consultation.

Comments received will be taken into account as the LFRMS is finalised. Any comments relating specifically to the SEA will be taken into account and addressed where relevant as the SEA Report is updated to reflect the final version of the LFRMS.

Stage E: Monitoring the significant effects of implementing the LFRMS
Proposals for monitoring the significant effects of implementing the LFRMS are set out in Chapter 6 of this report, and will be reviewed to reflect the final version of the LFRMS.

3. REVIEW OF PLANS, POLICIES AND PROGRAMMES AND BASELINE INFORMATION

Plans Policies and Programme (PPPs)
Annex 1(a) of the SEA Directive requires "an outline of the…relationship with other relevant plans or programmes".

The SEA is required to consider the relationship between the Strategy and other relevant plans and programmes, so as to better understand the wider framework influencing the choice of actions available to the Coastal Defence Strategy, particularly where there are environmental protection objectives that must be addressed.

The review of plans and programmes will assist with the following:

- The identification of environmental objectives of other relevant plans or programmes that should guide the SEA process;
- The baseline data collation process by identifying key indicators and baseline trends;
- The development of the SEA Framework (objectives, indicators and targets where appropriate);
- Determining whether there are any clear potential conflicts or challenges between the plans, programmes and environmental protection objectives and the emerging strategy which is the subject of the SEA process

As part of the scoping stage of the SEA, a review was undertaken of other relevant plans, policies and programmes in relation to their objectives and implications for the LFRMS and the SEA. Information was taken from the SA/SEA of Sefton Local Development Framework (LDF). However, in light of consultation comments received in relation to the SEA Scoping Report, the list of relevant PPPs has been amended. The full updated review is presented in Appendix B. The international, national, regional and local policies, plans and programmes considered in the review are listed in Figure 3 below.

Table 3 List of Relevant Plans and Programmes

International Plans, Programmes and / or Environmental Objectives
EU Floods Directive - Directive 2007/60/EC on the assessment and management of flood risks, 2007
EU Water Framework Directive - Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy, 2000
National Plans, Programmes and / or Environmental Objectives
The Flood and Water Management Act, September 2011
The Flood Risk Regulations, 2009
The National Flood and Coastal Erosion Risk Management Strategy for England, 2011
The National Planning Policy Statement, 2012
Making Space for Water – Taking forward a new Government strategy for flood and coastal erosion risk management in England, 2005
Securing the Future: Delivering the Sustainable Development Strategy, 2005
Water Act, 2003
Land Drainage Act, 1991, as amended 2004
Future Water, The Government's Water Strategy for England, 2008
Water for People and the Environment; Water Resources Strategy for England and Wales, 2009
The Impact of Flooding on Urban and Rural Communities, 2005
Directing the Flow: Priorities for Future Water Policy, 2002
EA Policy: Sustainable Urban Drainage Systems, 2002
Regional Plans, Programmes and / or Environmental Objectives
North West of England Plan: Regional Spatial Strategy to 2021
North West River Basin Management Plan, 2009
North West England and North Wales Shoreline Management Plan SMP2, 2011
Local Plans, Programmes and / or Environmental Objectives
Mersey Estuary Catchment Flood Risk Management Plan, 2009
Alt Crossens Catchment Flood Management Plan, 2008
Sefton Coastal Defence Strategy, 2007
Sefton Strategic Flood Risk Assessment, 2009
Sefton Surface Water Management Plan, 2011

Sefton Unitary Development Plan, 2006

Summary of the findings of the Plans, Policies and Programmes review

The review has reflected the specialised purpose and limited scope of the Strategy but has also identified consistency in approach with a significant number of other plans, programmes and objectives in respect of the need for co-ordination and co-operation between individuals and organisation to assess and manage flood risk. The review confirms that there are no policies, plans, programmes or objectives that have a direct conflict of interest with the objectives of the Strategy. In general the Strategy has the potential to complement existing and proposed plans, for example the North Merseyside Biodiversity Action Plan (NMBAP).

Baseline Information

Annex 1 of the SEA Directive requires that the Environmental Report shall include information on the 'relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme' and 'the environmental characteristics of areas likely to be significantly affected'.

The collection of baseline information is a key part of the SEA, and it requires the provision of information to characterise an area, including the current state of the environment, and identification of trends that are likely to continue without the implementation of the Strategy. The data will also be used as a basis for predicting potential environmental impacts and to suggest suitable indicators to monitor the effectiveness of the Strategy in addressing the identified issues.

The baseline information collated in relation to Sefton was originally presented in the SEA Scoping Report (2012). In light of consultation comments received in relation to the Scoping Report, the baseline information has been amended and added to in places, and the updated version is presented in Appendix C.

Key Environmental and Sustainability Issues

Annex 1 of the SEA Directive requires that the Environmental Report shall include information on any existing 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/EC.'

Reviewing the relevant plans, policies and programmes and considering the baseline character of the area highlights a number of environmental and sustainability issues within Sefton, as set out in **Table XYZ**. These are relevant to producing the LFRMS and have been considered throughout the SEA process, in particular helping to inform the SEA objectives developed at the Scoping stage.

Table 4 Key Environmental and Sustainability Issues and Likely Evolution without implementation of the LFRMS

Key Environmental and Sustainability Issues	Likely Evolution without the LFRMS
Sefton valued natural environment which hosts a range of international, national and local designated nature conservation sites needs to be protected and enhanced where possible	In the absence of the flood risk management through implementation of the Sefton LFRMS, there are other flood management plans and policies such as the Shoreline Management Plan, Crosby to Formby Point Coastal Defence Strategy, Sefton Surface Water Management Plan that would still have benefits in terms of protecting the natural environment from flooding and managing these risks. Protection of these sites afforded by International legislation, local biodiversity management measures through implementation of the North Merseyside Biodiversity Action Plan and policies within the Emerging Core Strategy would still apply which would directly provide protection and enhancement to nature conservation sites and other areas natural valuable coastal and inland landscapes. However, implementation of the LFRMS will have a direct effect on how flood risk will be managed within the borough and one of the fundamental aims of the Strategy is to ensure that there is contribution to wider environmental objectives.
The need to comply with the requirements of the Water Framework Directive and protecting water resources	The requirement to comply with the Water Framework Directive and to protect and improve the quality of water resources would still apply even without implementation of the LFRMS and would be met by other policies and plans, most importantly through implementation of the North West River Basin Management Plan. However, the LFRMS will aim to ensure that flood risk management measures in Sefton do not adversely affect water quality

	or quantity and therefore it is reasonable to conclude that the rate of improvement to water quality may decrease without implementation of the LFRMS.
The need to maintain flood defence within the Alt and Crossens catchment in line with Government targets	The pumping regime within the Alt and Crossens catchment will be governed by DEFRA (through the Environment Agency) and influenced by available funding and the need to protect urban areas. Without implementation of the LFRMS, there are other plans such as the EA Draft Flood Risk Management Strategic Plan, The Alt Crossens Catchment Flood Management Plan, and Surface Water Management Plan that would guide the appropriate level of flood risk management / intervention within the catchments.
High level of surface water flood risk in localised and urban areas	Without implementation of the LFRMS, there are other flood management plans such as the Catchment Flood Management and Sefton Surface Water Management Plan and policies in the emerging Local Plan Core Strategy to manage flood risk. However, these are less likely to have a direct and significant effect on the management of local flood risk. The LFRMS will provide better co-operation with other authorities, identification of responsibilities and champions for risk management measures.
The perceived risk of flooding on the health and well being of the population	Without implementation of the LFRMS, there are other flood management plans such as the Catchment Flood Management and Sefton Surface Water Management Plan, Sefton Strategic Flood Risk Assessment and policies in the emerging Local Plan Core Strategy to manage flood risk that will have benefits in respect of protecting local people's health and well being from the impacts of flooding However, these are less likely to have a direct and significant effect on the protection of human health through the management of local flood risk than the LFRMS would.
Increase in flood risk resulting from Climate Change	The issue is likely to continue as present. The LFRMS is unlikely to have a significant effect on the causative factors of climate change. However, the LFRMS will support adaptation to climate change by increasing resilience and minimising the effect of increased flooding by managing future risk. Therefore, without implementation of the LFRMS, the impact of climate change on flooding may become more prevalent.
High quality local landscape and large proportions of the Alt catchment which is best and most versatile agricultural land could be subject to flooding	In the absence of the LFRMS, the issue is likely to continue. Pumping regime in the Alt catchment will be influenced by the EA Flood Risk Management Strategic Plan. The risk of flooding for high quality landscapes including Green Belt will be managed by policies within the emerging Local Plan and Catchment Flood Management Plan. However, these are likely to have less direct and significant effects on the management of local flood risk than implementation of the LFRMS would.
Residential, Commercial and other development (including infrastructure) located in areas of high flood risk	In the absence of the LFRMS, the issue is likely to continue as present. However, there will be policies in the emerging Local Plan Core Strategy which should apply, which aim to ensure that new development is steered away from areas of higher flood risk. Other flood management plans and policies such as the Catchment Flood Management Plans and the Coastal defence Strategy that would still apply and should have some benefit in terms of reducing the flood risk facing existing residential properties and other development both inland and on the coastline from the potential adverse impacts of flooding. However, these are likely to have less direct and significant effects on the management of local flood risk than implementation of the LFRMS would.

Large number of heritage assets such as listed buildings which require management (including in terms of their setting).	In the absence of the flood risk management achieved through implementation of the LFRMS, other flood management plans and policies such as the Catchment Flood Management Plans and policies to manage flood risk in the emerging Local Plan Core Strategy would still apply and should have some benefit in terms of protecting heritage assets from the potential adverse impacts of flooding. However, these are likely to have less direct and significant effects on the protection of heritage assets through the management of local flood risk than implementation of the LFRMS would.

4. SEA FRAMEWORK AND SEFTON LFRMS

Sea Framework
The SEA framework was prepared and consulted upon as part of the Scoping stage of the assessment and have since been revised in light of the consultation response. The SEA objectives were developed having undertaken a strategic analysis of the baseline information, a review of plans and programmes and having identified key environmental issues.

The ultimate aim of the SEA framework is to develop a coherent and clear list of environmental objectives to be used as an evaluation tool to help show whether the objectives of the Strategy are beneficial (or adverse) for the environment, but also to compare the environmental effects of alternative options. The SEA objectives will be used to evaluate the nature and degree of impacts and whether implementation of the Strategy will give rise to significant environmental effects.

Table 5 SEA Objectives

To reduce the risk of flooding.
Reducing the contribution to climate change and enabling adaptation to climate change which is already locked in.
To protect and maintain the ecological condition of water resources.
Protecting and enhancing biodiversity, including both habitats and species, and maintaining and enhancing nationally, regionally and locally designated wildlife sites and priority habitats.
Maintaining and enhancing human health, including enhanced health from access to green spaces and improved equitable access to a healthier, happier and more sustainable lifestyle.
To protect best quality soil and enhance the quality and character of the landscape.
Conserving and enhancing geodiversity.
To minimise adverse impacts of local flood risk on existing and future key infrastructure, properties and businesses.
To minimise the impact of flooding on the character and physical attributes of Sefton historic environment and heritage assets of historic, archaeological and architectural interest and their settings.

Compatibility of Objectives
As part of the Scoping Stage the SEA objectives were tested against each other to identify whether the objective were consistent. It is to be expected that not all objectives will be relevant to each other and those that are relevant may not necessarily be compatible. In carrying out the compatibility test it was found that the objectives were largely compatible with each other. However, there were a number of uncertainties. In order to be able to confirm whether the SEA objectives are consistent, we need to know the nature of the flood risk measures and how they would be implemented within the LFRMS. Until this is known the compatibility of all the objectives cannot be confirmed. A copy of the compatibility test is included in Appendix XYZ.

Assessment methodology
The assessment will appraise the individual policies (where relevant), objectives, measures of the Strategy against the SEA objectives outlined in the SEA framework to assess the environmental effects of the implementation of the LFRMS.

The appraisal consider the beneficial and adverse, secondary, cumulative, synergistic, short, medium and long-term permanent and temporary effects of implementing the Strategy in accordance with Annex 1 of the SEA Directive, and identify and propose mitigation measures where appropriate. Results of the assessment will then be considered in light of the evolution of the environment in the absence of the Strategy.

The findings will be presented in an assessment matrix format like that of Table 10 and colour coding will be used for greater clarity. The matrix will be supplemented by a narrative of the potential effects and mitigation measures where appropriate.

Table 6 SEA Assessment Matrix

		Sustainability Objectives							
	1	2	3	4	5	6	7	8	9
Short Term									
Medium Term									
Long term									

+ +	Significant Positive
+	Positive
?	Uncertain
-	Negative
- -	Significantly Negative
0	No Impact

Development of the Sefton LFRMS

A review of past and future flood risk was undertaken as part of the Sefton Preliminary Flood Risk Assessment. The Department for Environment, Food and Rural Affairs (Defra) has identified that a Flood Risk Area containing a cluster of over 30,000 people would be considered for significant European importance. It was also found through modelling outputs provided by the Environment Agency that up to 17,400 properties within Sefton could be at risk from surface water flooding in a 0.5% (1 in 200) annual probability rainfall event. Therefore the scale of risk is not sufficient for Sefton to be considered a 'flood risk area' reportable at a European level.

The Strategy identifies that flood risk exists to 1 in 7 properties in Sefton, with high risk areas mostly in the south and east. Two stretches of coastline are subject to erosion which could, over time if unaddressed, result in flooding from the sea.

It is the responsibility of the LLFA to decide what it considers as a flood with 'significant harmful consequences' at a local level. Sefton has decided that a flood of 'significant harmful consequences' would have one or more of the following characteristics:

- 200 People;
- 83 houses (200 people using an average of 2.5 people per property) or more, or;
- 1 piece of Critical Infrastructure.

Given the nature of the risks identified within the PFRA, it is felt that the preferred option is for the Sefton LFRMS to build upon existing approaches to flood risk management and develop this as part of Sefton Council new responsibility as LLFA.

Table 7 The local objectives and associated measures of the Sefton LFRMS

Sefton LFRMs Local Objectives	Associated Measures
Understanding Risks to our Communities	• Identify and review flood and coastal erosion risk • Develop plans that set out and prioritise our actions based on our understanding of risk • Inspect and record our assets and where necessary 3rd party assets • Inform the development of plans where flood and coastal erosion risk is a factor
Avoiding Increase of Risk to our Communities	• Work via the Planning System • Advising 3rd parties of their maintenance responsibilities and where necessary intervene • Administer powers in relation to consenting for ordinary watercourses, coast protection and bylaws
Reducing Risk to our Communities	• Reactive maintenance • Develop a programme of improvement works • Develop and implement a prioritised maintenance programme
Reducing Consequences to our Communities	• Develop and implement plans for Council actions in the event of flooding occurring • Work in partnership with our communities to increase their resilience

5. SEA FINDINGS

The assessment was undertaken using an assessment matrix found at Appendix E**.** The matrices present the detailed results of the assessment of each of the objectives (and associated measures) in the draft LFRMS against the SEA objectives.

The assessment demonstrates that the LFRMS objectives will generally have positive effects on the environment, although a significant number were found to be indirect positive effects. This was due to the likely outcome of implementing the LFRMS which will result in a reduction in flooding within Sefton and the associated resulting indirect benefits resulting from a reduction in flood risk to the natural and built environment. In addition, the draft LFRMS is a high level strategic document which emphasises more on issues pertaining to improving knowledge and understanding of flood risk, identifying responsibilities and drawing together existing information to reduce and manage the risks of flooding within Sefton rather than prescribing physical works or actions on the ground. However, when taken as a whole, the combined effect of all the LFRMS objectives and measures is expected to have an overall positive effect on the environment.

Following the assessment a small number of recommendations have been identified in addition to the ones already set out in the draft LFRMS. These have been proposed to enable the objectives of the draft LFRMS to contribute to wider environmental benefits. Table 8 presents a summary of the results.

Table 8 Summary of SEA scores for the emerging draft LFRMS

Key **++** Significant positive effect; **+** Positive effect **+0** Indirect positive effects **?** Effects uncertain **?+** Effects are uncertain but expected to be beneficial	SEA Objective 1 – Flood Risk	SEA Objective 2 – Climate Change	SEA Objective 3 – Water Resource	SEA Objective 4 - Biodiversity	SEA Objective 5 – Heath and Well Being	SEA Objective 6 – Soil and Landscape	SEA Objective 7 - Geodiversity	SEA Objective 8 – Infrastructure, Properties and Businesses	SEA Objective 9 – Historic, Architectural and Archaeological Interest
Understanding Risks to our Communities	**+0**	**?+**	**?+**	**?**	**?+**	**?**	**?+**	**+0**	**?+**
Avoiding Increase of Risk to our Communities	**++**	**+0**	**+0**	**+0**	**+0**	**+0**	**+0**	**+**	**+**
Reducing Risk to our Communities	**++**	**+0**	**+0**	**+0**	**+0**	**+0**	**+0**	**++**	**+**
Reducing Consequences to our Communities	**?+**	**+0**	**?**	**?**	**++**	**+0**	**?**	**++**	**+**

6. RECOMMENDATIONS

Annex I of the SEA Directive requires the Environmental Report to include measures to prevent, reduce or offset any significant adverse effects on the environment of implementing the plan or programme. The SEA shows that none of the LFRMS objectives will have an adverse effect when assessed against the SEA objectives. However, a number of recommendations have been proposed to strengthen the Strategy with an aim to enhance the likelihood of positive effects.

Under the Act, LLFA and other flood and coastal erosion risk management authorities should aim to make a contribution towards the achievement of sustainable development when exercising their flood and coastal erosion risk management function. The recommendations below also take account of the DEFRA publication 'Guidance for risk management authorities on sustainable development in relation to their flood and coastal erosion risk management functions'.

Overall, no negative effects, either minor or significant, have been identified in relation to any of the LFRMS measures that will require mitigation. This is because the LFRMS is a document which is intended to have positive effects on the environment, and aims to mitigate potential adverse environmental impacts from flooding. However, some of the potential positive effects were uncertain. This was mainly due to the high level nature of the Strategy and consequent lack of detailed information regarding the specifics of advice/information that will be collected/provided by the LLFA and exactly what land management activities land owners and businesses will be encouraged to implement and where, if necessary. It is considered that there is already good provision for overall mitigation of the potential for any physical works or actions resulting from the LFRMS to have negative environmental effects, due to the requirement for environmental considerations to be embedded in the LLFA flood risk management duties.

SEA Objective 1: Flood Risk
By taking a holistic approach and placing the safety and wellbeing of people at the centre of the Strategy's vision, the LLFA provides a mechanism by which advice and information can be effectively disseminated for maximum coverage across the Borough to increase the level of awareness and preparedness of flood and coastal erosion risk. This will reinforce the generally beneficial effects of the Strategy and no additional measures are recommended.

SEA Objective 2: Climate Change
It is understood that the Strategy has limited scope to influence greenhouse gas emissions, but information and advice arising from the LLFA to individuals, businesses and community should promote the importance of adaptation measures such as design resilience (retrofitting), land management (SUDS and flood storage), in managing the risk of flooding. Of particular relevance, advice should be provided to the Planning function, on the importance and benefits of adaptation measures in respect of development proposals and when considering planning applications.

SEA Objective 3: Water Resource
Very clear links are apparent here to the Water Framework Directive, and the wording of the Strategy should be strengthened to emphasise this. As it currently stands the Strategy provides limited recognition of its role in respect of groundwater, which is also a key component of the systems affecting flood risk, as well as being an important water resource. The Strategy should accordingly be strengthened by the inclusion of references to its interaction with groundwater,

However, in general it is clear that the Strategy is in sympathy with the aims of Water Framework Directive. The Strategy will promote appropriate land management measures to reduce silty and contaminated run-off, the importance and benefits of SuDS as part of an effective drainage design to cater for extreme flooding and improved run-off quality, in particular by providing information and advice to raise awareness of impact of flooding to water quality from soil erosion, contaminated run-off from chemical fertilisers and combined sewer overflows.

SEA Objective 4: Biodiversity
The Strategy should be strengthened to further highlight opportunities to promote biodiversity and nature conservation protection and enhancement measures in synergy with its primary objectives in respect of flooding. Where applicable, flood and erosion risk management should be undertaken in concert with the frameworks provided for the enhancement of habitats by the emerging Green Infrastructure Strategy and Ecological Framework, among other things, and promoting the development of blue corridor planning and management as it does so.

SEA Objective 5: Health and Well-Being
The benefits of green and blue spaces to human health and wellbeing should be recognised more strongly in the Strategy, particularly given new local authority responsibilities in respect of Public Health. Links could be drawn specifically to the Joint Strategic Needs Assessment, which is the principal planning local vehicle for health matters. In general thought, the strategy will encourage the incorporation of multifunctional areas that can be used for flood risk management and as functional green and blue spaces for amenity use. For example, the delivery of land management options for managing flood risk, e.g. flood storage, attenuation, should where possible aim to provide usable areas for recreational and leisure activities this making use of multiple sustainability benefits, including for health. The delivery of SuDS schemes are part of new development should also provide green space functions where practicable and subject to adequate health and safety.

SEA Objective 6: Soil and Landscape
Soil is a non-renewable resource, which provides a number of functions and services to society. It has strong links with flooding issues because the infiltration rate and capacity of soils affects risks associated with flooding caused by surface water run-off, while soil that is easily eroded contributes to silt build-up in watercourses, which reduces their drainage capacity and increases flood risk. This is an important component of the wider physical system within which flooding occurs and which the Strategy seeks to understand and manage. The strategy should therefore strengthen references to interaction with soils as part of its suite of wider environmental considerations.

SEA Objective 7: Geodiversity
Geology is also a component, like soils, of the wider geophysical systems that influence flooding. In this case geology is most associated with groundwater aquifer resources and their ability to contribute to drain and store surface water. Sefton has extensive sandstone sub-surface geology and a complex aquifer system which, because of the porous nature of the rock interacts fairly readily with activity at the surface. This is an important component of the wider physical system within which flooding occurs and which the Strategy seeks to understand and manage. The strategy should therefore strengthen references to interaction with the geophysical environment as part of its suite of wider environmental considerations.

SEA Objective 8: Infrastructure, Properties and Businesses
In taking account of the safety and wellbeing of people, the Strategy will provide a mechanism by which advice and information can be effectively disseminated for maximum coverage across the Borough to increase the level of awareness and preparedness of flood and coastal erosion risk. The LLFA should provide information and advice that will assist and empower the community to take the responsibility for managing and protecting property and assets from the adverse effects should flooding occur. Amongst other things this could include details of flood resilience measures (and retrofitting where necessary) for the community, economy, natural, historic, built and social environment, flood warning systems / evacuation and emergency procedures, effective land management measures to reduce runoff, areas that are prone or will be prone to flooding in future. This is a positive feature of the Strategy and requires no further amendment as a result of the SEA.

SEA Objective 9: Historic, Architectural and Archaeological Interest
LFRMS Objective 1 – The Strategy should take into account the importance of Sefton designated and non-designated heritage assets and should ensure that appropriate professional expertise is sought when heritage assets are potentially affected by measures arising. The location and presence of these sites will affect what land management options can be employed to manage flood risk and the importance of appropriate adaptation measures such as design resilience (retrofitting) for historic buildings to prevent future deterioration of heritage assets. The design for flood risk management measures, particularly structural defences, river enhancement and other land management options also has the potential to affect the setting of historic buildings, and this also requires due consideration.

7. MONITORING

The SEA Directive requires that *"member states shall monitor the significant environmental* effects of the implementation of plans or programmes… in order, inter alia, to identify at an early *stage, unforeseen adverse effects, and be able to undertake appropriate remedial action"* (Article 10.1) and that the environmental report should provide information on *"a description of the measures envisaged concerning monitoring"* (Annex 1 (i)). Monitoring proposals should be designed to provide information that can be used to highlight specific issues and significant effects, and which could help decision-making.

A number of the measures in the draft LFRMS have the potential for positive effects on the SEA objectives, although no likely significant negative effects on the environment were identified. There are also a number of SEA objectives for which there are uncertainties regarding the nature of the effects. Therefore, it is recommended that monitoring of environmental effects due to implementation of the LFRMS is undertaken in relation only to those objectives where significant or uncertain effects were identified.

Table 9 sets out a number of suggested indicators for monitoring the potential environmental effects of implementing the LFRMS, some of which draw on information that are already being collected for the Core Strategy or Development Control purposes. To achieve efficiency in monitoring of the environmental effects of the LFRMS, it is important that the indicators proposed are consistent, where appropriate and complement sustainability effects monitoring arrangement for other plans and strategies developed by Sefton Council (in particular the Core Strategy), also as some of the indicators proposed will be relevant to the LFRMS. It is important to note that the indicators were initially introduced at the scoping stage and have been subject to a five week consultation with the statutory consultees.

Annual Monitoring Reports are already produced for the Local Development Framework (including the Core Strategy), and monitoring proposals for the Core Strategy are presented in the Proposed Submission version. Therefore, it is recommended that monitoring of the potential environmental effects of the LFRMS be combined with the annual monitoring process carried out for the LDF where these are found to be appropriate.

Table 9 Proposed indicators for monitoring the potential significant and uncertain environmental effects of the Sefton LFRMS

SEA Objectives for which potential significant positive or uncertain effects have been identified	Suggested indicators for monitoring effects of LFRMS
To minimise the risk of flooding (Significant positive effects identified in relation to LFRMS Objectives 3, 4 and 5 and uncertain effects identified in relation to LFRMS Objective 1)	Number of new developments permitted in areas of flood risk; Number of flood defences developed
Reducing the contribution to climate change and enabling adaptation to climate change which is already locked in (Uncertain effects identified in relation to LFRMS Objectives 1 and 5)	Mitigation measures and actions implemented by the strategy which takes account of the impact of climate change
To protect and maintain the ecological condition of water resources (Uncertain effects identified in relation to LFRMS Objective 1)	Ecological status of waterbodies
Protecting and enhancing biodiversity, including both habitats and species, and maintaining and enhancing nationally, regionally and locally designated wildlife sites and priority habitats (Uncertain effects identified in relation to LFRMS Objective 1)	Habitat creation and compensation resulting from the Strategy policies, actions and measures; Loss of habitat resulting from the Strategy policies, actions and measures;
Maintaining and enhancing human health, including enhanced health from access to green spaces and improved equitable access to a healthier, happier and more sustainable lifestyle (Uncertain effects identified in relation to LFRMS Objective 1)	Number of flood related injuries; Change in area / number / quality of public open spaces, recreational and amenity facilities resulting from the Strategy policies, actions and measures.
To protect best quality soil and enhance the quality and character of the landscape (Uncertain effects identified in relation to LFRMS Objective 1)	Number of flood alleviation / defence developments to be located within the Green Belt.
Conserving and enhancing geodiversity (Uncertain effects identified in relation to LFRMS Objective 1)	Area / number of incidences where Grade 1, 2 or 3 soil is lost due to need for flood alleviation / defences;
To minimise adverse impacts of local flood risk on existing and future key infrastructure, properties and businesses (Significant positive effect identified in relation to LFRMS Objectives 3 and 4 and uncertain effects identified in relation to LFRMS Objective 1)	Number of properties / businesses at risk of flooding; Number and severity of incidents leading to disruption or damage to Sefton social and physical infrastructure.

To minimise the impact of flooding on the character and physical attributes of Sefton historic environment and heritage assets of historic, archaeological and architectural interest and their settings (Uncertain effects identified in relation to LFRMS Objective 1)	The number of Strategy policies, measures and actions developed and implemented to protect Sefton heritage site from flooding; Flood alleviation / defences developed that affect the integrity and setting of Sefton heritage sites.

8. CONCLUSION AND NEXT STEPS

None of the measures in the draft LFRMS are likely to have significant negative effects on any of the SEA objectives. This is because of the nature of the LFRMS, which has an underlying aim of environmental protection through flood risk management, meaning that the effects of the strategy are largely positive.

The findings of this SEA Report will be taken into account by Sefton Council as it finalises the draft LFRMS, following the public consultation between May and June 2013. The SEA Report will then be updated to reflect any changes to the measures in the final LFRMS. Once all the necessary changes have been made and the Council completes its formal internal approvals process, the LFRMS will be adopted as a Council strategy.

Appendix A – Consultation Comments Received in Relation to the SEA Scoping Report

Table 10 Comments from Statutory Consultees on the SEA Scoping Report for the Sefton Local Flood Risk Management Strategy

Statutory Consultee	Comment	Response
Natural England	We have considered the scoping report and overall we consider it generally fit for purpose and that it follows current Government advice on structure, content and approach to Strategic Environmental Assessments (SEA). We have no further specific or detailed comments to make at this stage.	Noted.
Environment Agency	We have no comments to make.	Noted.
English Heritage	Section 3.82 -3.85 - The SEA should **explicitly scope in** non-designated Cultural Heritage assets. Known sites are listed and described in the Local Historic Environment Record (HER). Many of these are of national or regional significance (as well as local significance) even though they are not protected by national legislation. In addition to the designated sites already listed in sections 3.82 - 3.85 (including Table 6 Sefton Cultural Facilities) there are two registered parks and gardens which should also be included.	Noted. The evidence base has been updated to highlight the potential presence of non-designated Cultural Heritage asset and the two registered parks and gardens. The Merseyside HER holds information on non-designated heritage assets predominantly of historic and archaeological interest in the form of individual sites and remains above / below ground/under water, buildings, artifacts, landscapes. The data is kept at the Museum of Liverpool. However, at present, the data for non-designated assets / sites is not kept in a readily accessible format for SEA reporting purposes. Local non-designated Heritage assets will be considered as part of the assessment and will be considered should there be a need to undertaken flood risk management works.
English Heritage	Appendix B - The same consideration of non-designated heritage assets should be made as in Section 3. The potential indicator (SEA Objective 9) should delete the word 'designated'.	Noted. Consideration has been given to non-designated heritage assets and the baseline has been updated. The indicator has been revised to take account of non-designated sites.
English Heritage	Table 3 (List of relevant plans and programmes) - The 2012 National Planning Policy Framework should be listed and described in the National section. NB it is incorrectly referred to as a Statement rather than a Framework in one box in Appendix A.	Noted. The National Planning Policy Statement has been accurately amended and referenced.

Appendix B – Updated Review of Other Plans, Policies and Programmes

Plan, Policy and Programme	Main aims and objectives	Implication for the Strategy
International Plans and Programme		
EU Floods Directive - Directive 2007/60/EC on the assessment and management of flood risks, 2007	The aim of Directive 2007/60/EC is to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. The Directive requires Member States to first carry out a preliminary assessment by 2011 to identify the river basins and associated coastal areas at risk of flooding. For such zones they would then need to draw up flood risk maps by 2013 and establish flood risk management plans focused on prevention, protection and preparedness by 2015. The Directive applies to inland waters as well as all coastal waters across the EU.	The Strategy will complement the requirements of the Directive.
EU Water Framework Directive - Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy, 2000	Prevents deterioration of aquatic ecosystems and associated wetland by setting out a timetable until 2027 to achieve good ecological status or potential. The Water Framework Directive requires Member States to manage the effects on the ecological quality of water which result from changes to the physical characteristics of water bodies. It requires action in those cases where these “hydro-morphological” pressures are having an ecological impact which will interfere with our ability to achieve Water Framework Directive objectives. The Strategy should promote sustainable management of the water environment by carefully considering current land use and future climate scenarios, to minimise the effects of flooding and drought events and to facilitate long term improvements in water quality, including the protection of groundwater near landfill sites and minimise agricultural runoff.	The Strategy will need to consider the requirements of the WFD and ensure that it does not compromise its objectives, and, where appropriate, contributes to achieving its aims.
Convention on Biodiversity (since 1993)	The Convention has three main objectives: • The conservation of biological diversity • The sustainable use of the components of biological diversity • The fair and equitable sharing of the benefits arising out of the	The Strategy should take account of biodiversity and the SEA should consider biodiversity impacts within their objectives.

	utilization of genetic resources	
National Plans and Programmes		
Flood and Water Management Act 2011	The Flood and Water Management Act places a duty on all flood risk management authorities to co-operate with each other. The Act also provides lead local flood authorities and the Environment Agency with a power to request information required in connection with their flood risk management functions. It requires flood and coastal erosion risk management authorities (that did not previously have such a duty) to aim to contribute towards the achievement of sustainable development	The key driver for the Local Flood Risk Management Strategy.
Flood Risk Regulations, 2009	The Flood Risk Regulations implement the requirements of the European Floods Directive, which aims to provide a consistent approach to managing flood risk across Europe. The approach consists of a six year cycle of planning based on a four stage process of: • Undertaking a Preliminary Flood Risk Assessment (PFRA). • Identifying flood risk areas. • Preparing flood hazard and risk maps. • Preparing flood risk management plans. Lead Local Flood Authorities are responsible for managing the flood risk caused by precipitation. The Environment Agency covers flooding from the sea, main rivers and reservoirs.	Key driver for implementing Local Flood Risk Management Strategy.
National Planning Policy Statement, 2012	The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. The National Planning Policy Framework was published on 27 March 2012. This is a key part of Government reforms to make the planning system less complex and more accessible, to protect the environment and to promote sustainable growth. LPAs should avoid inappropriate development in areas at risk of flooding by directing development	The policy on development and flood risk is a key driver for implementing Local Flood Risk Management Strategy.

	away from areas at high risk. Local Plans should apply a sequential risk based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impact of climate change.	
The Conservation of Habitats and Species Regulations 2010	The Regulations provide for the designation and protection of 'European sites', the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites. Under the Regulations, competent authorities i.e. any Minister, government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the EC Habitats Directive.	The Strategy should avoid adverse impacts on Special Areas of Conservation, Special Protection Areas and Ramsar sites.
Wildlife and Countryside Act 1981 (As amended)	The purpose of the Act is to create a new statutory right of access on foot to certain types of open land, to modernise the public rights of way system, to strengthen nature conservation legislation, and to facilitate better management of Areas of Outstanding Natural Beauty. Government departments are required to have regard for biodiversity in carrying out its functions, and to take positive steps to further the conservation of listed species and habitats. The protection of Sites of Special Scientific Interest, already established in the Wildlife and Countryside Act, is strengthened giving greater power to Natural England. Local Authorities have a statutory duty to further the conservation and enhancement of SSSIs both in carrying out their operations, and in exercising their decision making functions. The Act strengthens legal protection for threatened species and assists in bringing offenders to justice, and provides for stronger penalties.	The Strategy should have regard to the conservation of listed species and habitat.
UK Biodiversity Action Plan	The UK Biodiversity Action Plan (UKBAP) represents a national strategy for the conservation of biological diversity and the sustainable use of biological resources. It contains 391 Species Action Plans and 45 Habitat Action Plans. It is further supported by	The Strategy will need to consider the relevant action plans within Sefton.

	Local Biodiversity Action Plans developed by local authorities. It has the following aims: • To conserve, promote and enhance species and habitats • To develop public awareness and understanding	
Countryside and Rights of Way Act 2000	The Countryside and Rights of Way Act 2000 provides for the statutory right of access to open country and registered common land, modernise the rights of way system, give greater protection to SSSIs, provide better management arrangements for AONBs and strengthen wildlife enforcement legislation.	The Strategy will have regard to the protection of SSSI and maintaining the right to access the open countryside.
Natural Environment White Paper: The natural choice: securing the value of nature (Defra June 2011)	The White Paper outlines the Government's vision for the natural environment over the next 50 years, along with practical action to deliver that ambition. The white paper recognises that the natural environment is sometimes taken for granted and undervalued, but that people cannot flourish without the benefits and services it provides.	The Strategy should aim to be consistent with the Government vision for the natural environment.
Biodiversity 2020: A strategy for England's wildlife and ecosystem services	This new biodiversity strategy for England builds on the Natural Environment White Paper and provides a comprehensive picture of how the Government is implementing international and EU commitments. It sets out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea. It builds on the successful work that has gone before, but also seeks to deliver a real step change.	The Strategy should have regard to the new biodiversity strategy and should assist with the aim to halt the decline in priority habitats and species.
Natural England's Natural Area Strategy	Framework for setting nature conservation objectives in a wider setting and helping to achieve the Biodiversity Action Plan (BAP) targets.	The SEA will consider how the LFRMS can integrate and contribute to the creation and maintenance of biodiversity for habitats and conservation species.
The National Flood and Coastal Erosion Risk Management Strategy for England (May 2011)	This strategy aims to help risk management authorities and communities understand their different roles and responsibilities and will be particularly relevant to Lead Local Flood Authorities (LLFAs) which have new responsibilities under the Flood and Water Management Act (2010). The strategy encourages more	Guidance document for the lead local flood authority.

	effective risk management to: • Ensure a clear understanding of the risks of flooding and coastal 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 risk; • Manage flood and coastal erosion risks in an appropriate way, taking account of the needs of communities and the environment; • Ensure that emergency plans and responses to flood incidents are effective and that communities are able to respond effectively to flood forecasts, warnings and advice; • Help communities to recover more quickly and effectively after incidents.	
Future Water, The Government's Water Strategy for England, 2008	Future Water sets out how it intends for the water sector to look by 2030. The vision of a sector that values and protects its water resources; that delivers water to customers through fair, affordable and cost-reflective charges; where flood risk is addressed with markedly greater understanding and use of good surface water management; and where the water industry has cut its greenhouse gas emissions. The vision shows a sector that is resilient to climate change, with its likelihood of more frequent droughts as well as floods, and to population growth, with forward planning full in tune with these adaptation challenges.	The Strategy should consider water as a valuable resource.
Water for People and the Environment; Water Resources Strategy for England and Wales, 2009	This Strategy sets out how the Agency believe water resources should be managed over the coming decades so that water can be abstracted and used sustainably. The objective • Reducing greenhouse gas emissions • Reducing the vulnerability of ecosystems to climate change (which makes reference to flood risk management) Increasing the resilience of supplies • Protecting critical infrastructure (which • States that water supply	The Strategy should have regard to the management of water resources within Sefton so as not to have detrimental impact.

	infrastructure needs to be resilient to flooding)	
Making Space for Water – Taking forward a new Government strategy for flood and coastal erosion risk management in England, 2005	The Strategy aims to implement a more holistic approach to managing flood and coastal erosion risks in England. The aim will be to manage risks by employing an integrated portfolio of approaches which reflect both national and local priorities, so as to: • Reduce the threat to people and their property; and • Deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.	This Strategy is a key driver for the Local Flood Risk Management Strategy.
Directing the Flow: Priorities for Future Water Policy, 2002	Sets future water policy to implement the Water Framework directive. Highlights that considerably more emphasis needs to be put on integrating the different aspects of water policy, including between water quality, water resources and flood management, as well as greater integration of water policies with policies in other areas additional to health – especially with regard to: • Agriculture and fisheries; • Biodiversity • Tourism and recreation; • Land-use planning	Key driver for Local Flood Risk Management Strategy.
The Impact of Flooding on Urban and Rural Communities, 2005	This document has two stated aims namely: • Understanding the relationships between urban/rural policies and flood risk management (FRM) policy such that opportunities for 'win–win' solutions could be explored; • Understanding the social impacts (e.g. economic, health, community) on urban and rural communities from an empirical perspective (i.e. what evidence is there for differential impacts on urban and rural communities in terms of flooding)	The Strategy will need to take into account the findings of the report.
Securing the Future: Delivering the Sustainable Development Strategy, 2005	This Strategy sets out the Government approach to sustainable development and new shared priorities agreed across the UK. It sets out ways in which to adapt to climate change, one of which is to research the effects of climate change, particularly flood and coastal management sectors. It also sets out that in line with national planning policy guidance, there will be flood risk assessments	The strategy needs to consider the approach set out in this Government Strategy.

	for publicly funded developments and new flood defence schemes; and integrated water management studies.	
Water Act, 2003	Goals of this Act includes: • Amending the Water Resources Act 1991 and the Water Industry Act 1991; • Making provision with respect to compensation under section 61 of the Water Resources Act 1991; • Providing for the establishment and functions of the Water Services Regulation Authority and the Consumer Council for Water; • Making provision in connection with land drainage and flood defence; • Making provision about contaminated land so far as it relates to the pollution of controlled waters	The Strategy should take account of the duties and powers resulting from the Act.
Land Drainage Act,1991 (As amended 2004)	Gives the operating authority (including the Environment Agency) authorisation to carry out works on watercourses for certain purposes. It also places environmental and recreational duties on the Environment Agency	The Strategy should take account of the duties resulting from the Act.
EA Policy: Sustainable Urban Drainage System	The Environment Agency's policy will be to promote SuDS as a technique to manage surface and groundwater regimes sustainably. The policy has two key objectives: • Primary objective: to establish SuDS as the normal drainage practice where appropriate for all new developments in England and Wales; • Secondary objective: retrofitting SuDS on those surface water drainage systems which have an adverse effect on the environment	The Strategy needs to consider how SuDS can be incorporated within management interventions where necessary and appropriate.
The Historic Environment: a Force for Our Future (2001)	This statement sets out the intention of the Government to protect the historic environment, recognising its major contribution to the economy in rural and deprived communities, as well as in economic centres.	The Strategy could influence the historic environment in several ways, including impacts upon townscape, historic structures and features and buried archaeology.
Our Towns and Cities, the Future-Delivering an Urban Renaissance. White Paper. DETR (2000)	Sustainable economic growth is based on thriving towns and cities, which are the economic hubs of large areas. To stop urban decline by taking a joined approach to	The Strategy should take into account the overarching aims of this document and consider the targets this White paper refers to.

	policies on housing, planning, transport and education in and for cities and towns.	
Localism Act 2011	The Act aims to move land use planning away from central Government decision-making by introducing new powers, control and influence at a local level. The main of the act include: • Presumption in favour of sustainable development; • Abolition of RSS; • statutory duty for local planning authorities and 'public bodies' to cooperate with each other; • Retention of the CIL; • the introduction of neighbourhood development plans and neighbourhood development orders; • etc	The Strategy must have regard to the new requirements of the Localism Act. At the moment there are no Neighbourhood Plans within Sefton that need to be taken into account for the Strategy.
Regional Plans and Programmes		
North West River Basin Management Plan	Prepared under the Water Framework Directive, the RBMP emphasises on the pressures facing the water environment in the North West River Basin District, and the actions that will address them. It is the first of a series of six-year cycles of planning and action plan focussing on the protection, improvement and sustainable use of the water environment.	The Strategy will need to consider the requirements of the RBMP and ensure that it does not compromise its objectives, and, where appropriate, contributes to achieving its aims.
Local Plans and Programmes		
Mersey Estuary Catchment Flood Management Plan, December 2009	The Mersey Estuary Catchment Flood Management Plan was published in 2008 by the Environment Agency and sets out policies for the sustainable management of flood risk across the whole of the Mersey Estuary over the long-term (50 to 100 years) taking climate change into account. More detailed flood risk management strategies for individual rivers or sections of river may sit under these.	The Strategy needs to consider these policies when developing local policies and measures for the management of flood risk.
The Mersey Forest Plan, Consultation Draft, 2013	The Mersey Forest Plan is the main strategic document which guides the work of The Mersey Forest team and partners. The plan aims to deliver “More from Trees” – with partners, communities and landowners transforming their landscape and revitalising a woodland culture in and around our towns and cities. Relevant policies include Flood Alleviation and Water	The Strategy will need to consider how implementation of the Mersey Forest Plan can assist with its aims for managing flood risk within Sefton.

	Management as well as Climate Change.	
Sefton Strategic Flood Risk Assessment (Level 1), 2009	Sefton SFRA shows that the primary source of flood risk within the Borough is from fluvial flooding. The Sankey Brook corridor, with many of its tributaries, is prone to flooding, which puts at risk a small number of commercial and residential properties.	The Strategy, in proposing measures and action to manage flood risk, needs to take account of the wider risk of fluvial flooding.
Sefton Preliminary Flood Risk Assessment, 2011	The PFRA provides a strategic overview of the flood risk from local sources through a review of historic flooding incidents and the predicted future extents of flooding. The production of the PFRA is required by the Flood Risk Regulations and is the first step in the management of local flood risk. The PFRA will be primarily utilised in developing the Sefton Local Flood Risk Management Strategy.	It will be a fundamental requirement for the Strategy to take account of the results of Sefton PFRA.
Sefton Unitary Development Plan, 2006	The UDP is the principal local plan document guiding the Borough in its local development making decisions. It provides an overall strategy of where development should be located and how we meet the needs of the Borough. It also contains proposals for housing, economy and employment, community facilities, quality of life and accessibility are explained for an individual area and the Borough as a whole. The UDP is due to be superseded by a new Local Plan currently in early stage preparation.	The Strategy must ensure that the policies an d actions complement the objectives and policies within the UDP.

Appendix C – Updated Baseline Information

The SEA Directive requires the consideration of likely significant effects on the environment, including on biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between these factors. The collection of baseline information is a legal requirement of the SEA Directive and is required to provide information on the characteristics of an area, including the current state of the environment, and identify trends that are likely to continue without the implementation of the Strategy.

The baseline information has been revised and updated in light of any new evidence obtained through development of the LFRMS and comments received from the statutory consultees. The information below set out the updated baseline information and any local trends that can be identified from a range of data sources in relation to each of the above topics. The ways in which the LFRMS could potentially affect that topic are set out at the end of each section. Note that some topics (such as population and human health and flora and fauna) have been grouped together as there is a significant amount of crossover between these topics in terms of the data sources and the key environmental issues.

Plan Area

The administrative boundary of Sefton covers an area of approximately 155 square kilometres comprising a diverse mixture of industrial, commercial and urban development separated by the rural Green Belt. The coastline extends 36 kilometres and comprises extensive sand dunes and coastal salt marshes. Beaches and mudflats are also an integral part of the coastal landscape along the shore.

Sefton adjoins the boroughs of Liverpool to the south, Knowsley to the east, and the largely rural West Lancashire to the east and north. In the south, Bootle, Litherland, Seaforth and Netherton have a similar metropolitan character of Liverpool. The other main settlements are Crosby, Maghull, Hightown and Formby in the centre of the Borough and the Victorian resort of Southport in the north. These built-up areas comprise about half of the area of the Borough and are where 95% of Sefton's residents live.

The other half of Sefton is characterised by rural countryside hosting a number of villages. The Merseyside Green Belt is tightly drawn around Sefton's towns and villages and aids to direct regeneration and development into the built-up areas, notably Bootle and Southport.

Biodiversity, Flora and Fauna

Within Sefton there are 56 Sites of Local Biological Interest (also known as Local Wildlife Sites) and 12 Local Geological Sites. Local Wildlife Sites have been designated by the Council within the Unitary Development Plan due to the presence of important species and habitats. Several of the rare species of fauna and flora found within Sefton are protected under the Wildlife and Countryside Act 1981. The full and original text for the Wildlife and Countryside Act can be found at www.jncc.gov.uk

Sefton's strategic ecological assets include all the international & national designations and a number of strategically important habitats that include the watercourses such as the River Alt, Downholland Brook, Three Pools Waterway, Fine Jane's Brook and Back Drain and the Leeds & Liverpool Canal.

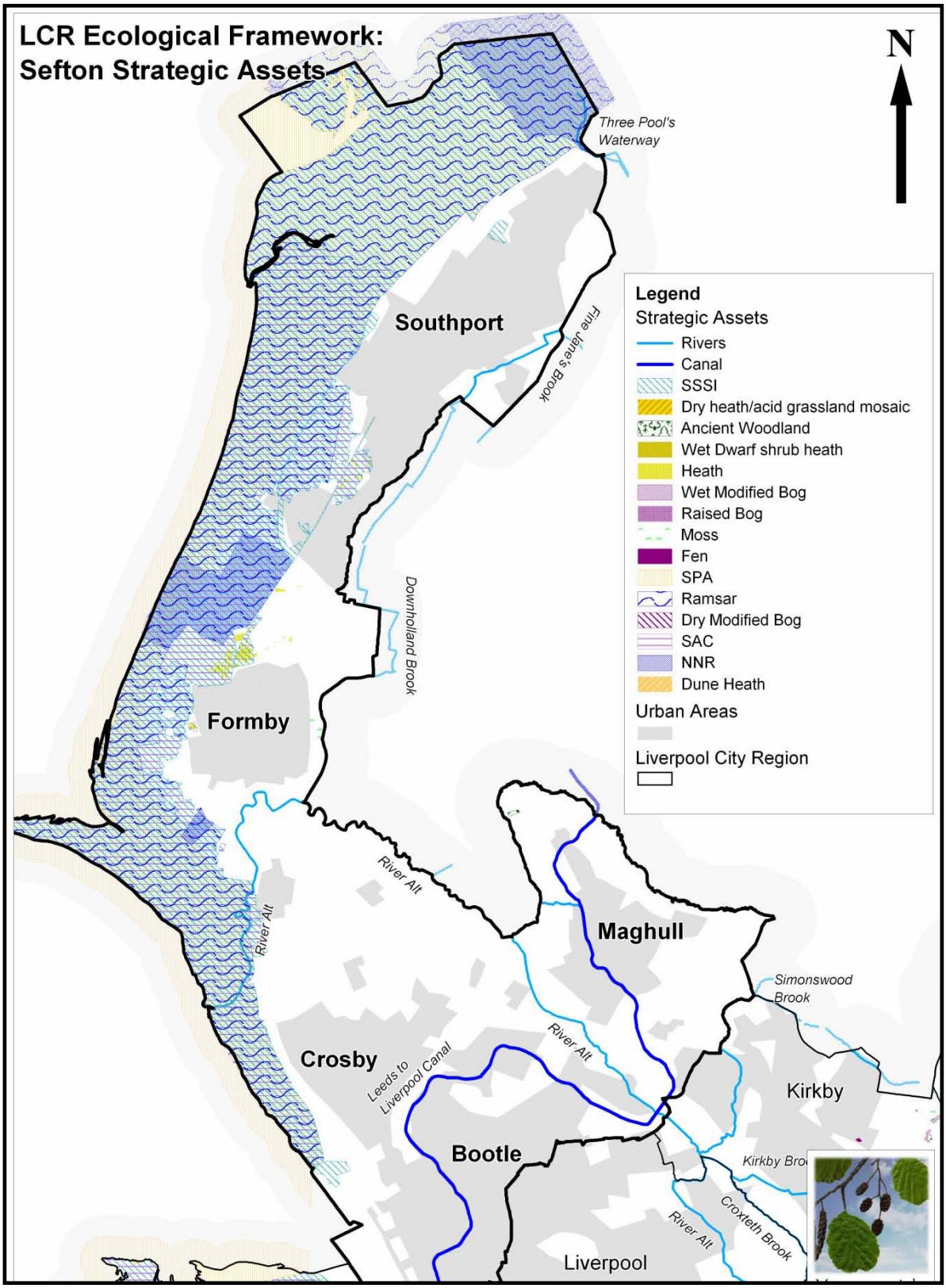
Sefton's Coastal habitats are dominated by internationally important sand dune systems and salt marsh. There are also areas of Dune Heath, Dune Slacks and Grasslands. As well as these typical coastal habitats Sefton Coast has large areas of coniferous plantations. These habitats are covered by International, National & Local designations, which include; Ramsar, Special Area of Conservation (SAC), Special Protection Area (SPA), National Nature Reserve (NNR), Sites of Special Scientific Interest (SSSI), Local Nature Reserve (LNR) and Local Wildlife Site (LWS) and are home to large numbers of protected species, such as Natterjack Toads, Sand Lizards, Red Squirrels and internationally important numbers of wintering birds. These coastal habitats cover approximately 7978 ha, and are of strategic importance within the Ecological Framework (Figure 1).

The sand dunes on the Sefton Coast are one of the largest areas of dunes in Britain. They stretch for approximately 17km and cover 2100ha and are protected with local, national and European conservation designations. Within the project area the dunes provide a vital coastal defence function and protect the towns of Formby and to a lesser degree Hightown. There are also smaller areas of dunes in front of and behind the seawall at Crosby and running along the frontage to Hightown, though the majority of these dunes are set well back from the coastline.

The foreshore on the Sefton Coast is dominated by sand along most of its length that only becomes progressively muddier as it approaches the Ribble Estuary. Some small localised areas of muddier deposits also occur at other sites across the coast, notably the Alt Estuary and the lower foreshore at Crosby. The shore at Crosby is restricted in width due to the sea wall on the landward side and the trained river channel on the other. North of the Alt estuary the foreshore is continuous up to the Ribble Estuary. Just to the north of the Alt Estuary is a large sand bank called Taylors Bank. Just to the north the shore is at it narrowest in the section at Formby, where the coast is eroding.

Salt marshes are almost flat areas of the intertidal area that are comprised of fine sediment that supports plants and animals that are very tolerant to the extreme conditions that are present there. Salt marshes are important areas for sea defence as they significantly reduce the wave energy that passes over them.

Figure 2 Liverpool City Region Ecological Framework – Sefton Strategic Assets



Salt marshes form in the landward area of the intertidal zone that is only covered by the sea for relatively short periods of time at high tide, and is uncovered for the majority of the tidal cycle. Marshes form in relatively low energy environments where fine sediments can deposit. Changes to the amount of energy coming into the system will affect deposition rates. They are very slow growing habitats.

Beaches and mudflats are an integral part of the coastal defences on the shore. They act as buffers to wave energy absorbing large amount of energy before it can impact on the coastal defence structures. The beaches and mudflats respond rapidly to environmental changes and can act as indicators of coastal change.

In addition, the Sefton Coast provides habitat for a number of protected species, such as Natterjack Toad (*Bufo calamita*), Sand Lizard (*Lacerta agilis*), Great Crested Newt (*Triturus cristatus*), and Red Squirrels (*Sciurus vulgaris)* along with the populations of the Sandhill Rustic Moth (*Luperina nickerlii gueneei*), a Red Data Book species.

The grasslands found outside of the coastal zone are key local features within the Sefton Ecological Framework and cover approximately 955 hectares. Sites include Southport Old Golf Links to the north of the borough and Rimrose Valley to the south both of which are managed grassland sites that form key habitats within the Ecological Framework. These areas support a number of Priority species, such as Brown Hare, Skylark and Barn Owl.

Outside of the Coastal Plantations there are a number of broad-leaved and mixed woodlands, most of which are designated as Local Wildlife Sites. These sites are found along the eastern boundary of the borough and cover approximately 748 hectare and include large blocks of woodland such as North Meols Estate and Ince Blundell and Little Crosby Estate. As with the coastal woodlands these woods are important for Red Squirrels. These woods are also important for a number of other species, such as Bats and large numbers of Breeding Birds.

The strategically important wetlands across Sefton include the main rivers, the Alt, Maghull Brook and Fine Jane's Brook, and the Leeds & Liverpool Canal. Other important wetland areas are the large number of drainage ditches across the farmland near Lunt and Ince Blundell. These farmland areas, along with the rest of the Alt & Crossens river catchment are potentially a national key site for Water Vole as they are home to a large population. More recently the river & canal system in Sefton have become associated with Otters that have begun to move back into these areas. The wetlands in Sefton cover approximately 584 ha.

Water Resources and Flooding

Water resources within the administrative boundary of Sefton are influenced by two major catchments; the River Alt and the Crossens catchment. The coastal ridge between the townships of Formby and Southport, north of Ainsdale, result in an easterly flow of most of the watercourses towards the boundary with West Lancashire. These areas drain via Fine Jane's Brook, Boundary Brook and Three Pools Waterway towards Crossens, where it discharges to the sea via Crossens pumping station at Banks. Watercourses south of Ainsdale flow generally in a southerly direction via Downholland Brook to the River Alt which discharges to the sea via the Altmouth pumping station.

The River Alt has its source in Knowsley and drains a catchment that includes areas of Liverpool, Sefton, West Lancashire and a small part of St. Helens District. Within Sefton, the River Alt splits the higher areas of Litherland and Maghull, then flows in a north westerly direction along the boundary until it turns south westwards, south east of Formby, to discharge to the sea north of Hightown.

The Alt catchment currently operates under a pumping regime and in recent years, pumping within the catchment has reduced. The catchment historically has had problems with water quality, due to nutrient enrichment and agro-chemical input from agricultural activities, and sediment input contaminated with heavy metals from the area's industrial legacy. However, a fisheries survey undertaken in 2005 indicated that water quality in the River Alt was showing improvement.

The Rimrose Brook and the Leed Liverpool Canal flows across Crosby, western parts of Litherland and Bootle generally in a west and south westward direction towards the coastline and docks.

Water Framework Directive

In the North West river basin district 30 per cent of surface waters meet good ecological status or better; 70 per cent do not meet good status (512 water bodies). 22 per cent of groundwater bodies are at good overall status with the rest being poor status.

Table 11 Key Statistics for Alt Crossens Catchment

River and Lake Waterbodies	Now	2015
% at good ecological status or potential	0	0
% assessed at good or high biological status (11 waterbodies assessed)	18	18
% assessed at good chemical status (3 water bodies assessed)	0	0
% at good status overall (chemical and ecological)	0	0

% improving for one or more element in rivers		14

Much of the catchment contains rivers designated as artificial or heavily modified. Table 4 shows that the waterbodies within the Alt and Crossens catchment fail to achieve good ecological status mainly due to failing to achieve a good chemical status. However, the improvement schemes planned as part of the River Basin Management Plan and building on our work with partners to investigate and deliver solutions, should lead to environmental improvements in the Water environment.

Interactions and Trans-Boundary Issues

There are potential interactions with adjacent boroughs due to the nature of the River Alt Catchment and the drains that discharge at Crossens that could affect surface water flooding. Areas north of Formby, drain in an easterly direction to the watercourses that run along the eastern boundary of Sefton, which it shares with West Lancashire. The River Alt has its source in Knowsley and drains a catchment that includes areas of Liverpool, Sefton, West Lancashire and a small part of St. Helens District and therefore. It is known that flood levels in the River Alt affects areas of Formby and therefore any action taken to manage flood risk within the Alt catchment could affect other areas in Sefton.

Flooding within the borough can occur from a range of different sources including fluvial and tidal flooding, overland flows, sewer and groundwater flooding and flooding from artificial sources such as canals and reservoirs. Sometimes the cause of flooding is more complex (may be various factors). For example, very intense localised rain storm could lead to high river levels preventing discharge of surface water from sewers. Surface water flooding in parts of Sefton (e.g. Formby, parts of Thornton and Maghull) is affected by wider land drainage issues. There are very few surface water, or indeed combined (surface water and foul) sewers in Formby relative to other parts of Sefton.

Parts of Sefton are low lying and the two drainage catchments, the Alt and the Crossens, are pumped to the sea. Both catchments have extensive floodplains, particularly the River Alt to the south east of Formby and in the Maghull area but also the Crossens sub-catchment to the north east of Southport, in the Crossens area. Failure of the Altmouth and Crossens Pumping Stations could lead to higher flows in these watercourses or the channels leading to them. This in turn can prevent the free discharge of surface water sewers, which can result in flooding further upstream in areas not directly affected by flooding in rivers and ordinary watercourses. This is known to occur in Formby where levels in ordinary watercourses such as Dobb's Gutter are affected by high levels in Downholland Brook and the Alt.

The pumping regime and flood defence within the Alt and Crossens catchment primarily benefits rural land drainage and only a proportion of the existing pumping contributes to flood risk management that benefits residential and commercial properties. The capital, operational and maintenance cost associated with the pumping stations and flood defences is approximately £3 million per annum. Furthermore, intensive land drainage within the area is causing large peat soil deposits to be gradually lost through "wastage". This has resulted in the gradual lowering of ground levels, which not only impedes effective land drainage, but also causes the release of the greenhouse gas carbon dioxide, contributing to climate change. The Government, through targets dictated by DEFRA, will now require the EA to direct limited resources on protecting urban areas. The EA, through the Draft Flood Risk Management Strategic Plan, is currently considering long term sustainable flood risk management in the Lower Alt and the Crossens pumped drainage catchments. This may include reducing the amount of pumping by investigating in other flood risk management options such as increased flood storage.

Sefton has an extensive coastline, though, for the most areas the levels are sufficiently high along the coast to naturally limit the risk of tidal flooding. However, in areas above Birkdale, where there is a natural dip in levels, the extent of tidal flooding increases inland to impact coastal marsh as well as properties in the Marshside and Crossens area. Tidal flooding can also be caused by 'tide locking' of rivers or estuaries where high water levels prevent a river from discharging into the sea. However, given the predominantly pumped nature of the catchments tide locking is not a significant issue. However, tidal flooding is known to occur in Sefton.

Sewer systems in the urban areas of Sefton are largely based on Victorian sewers that were not designed to manage the level of run-off associated with increased impermeable resulting from growth and new development. In some places, sewer flooding occurs from events ranging from 10 to 2 years.

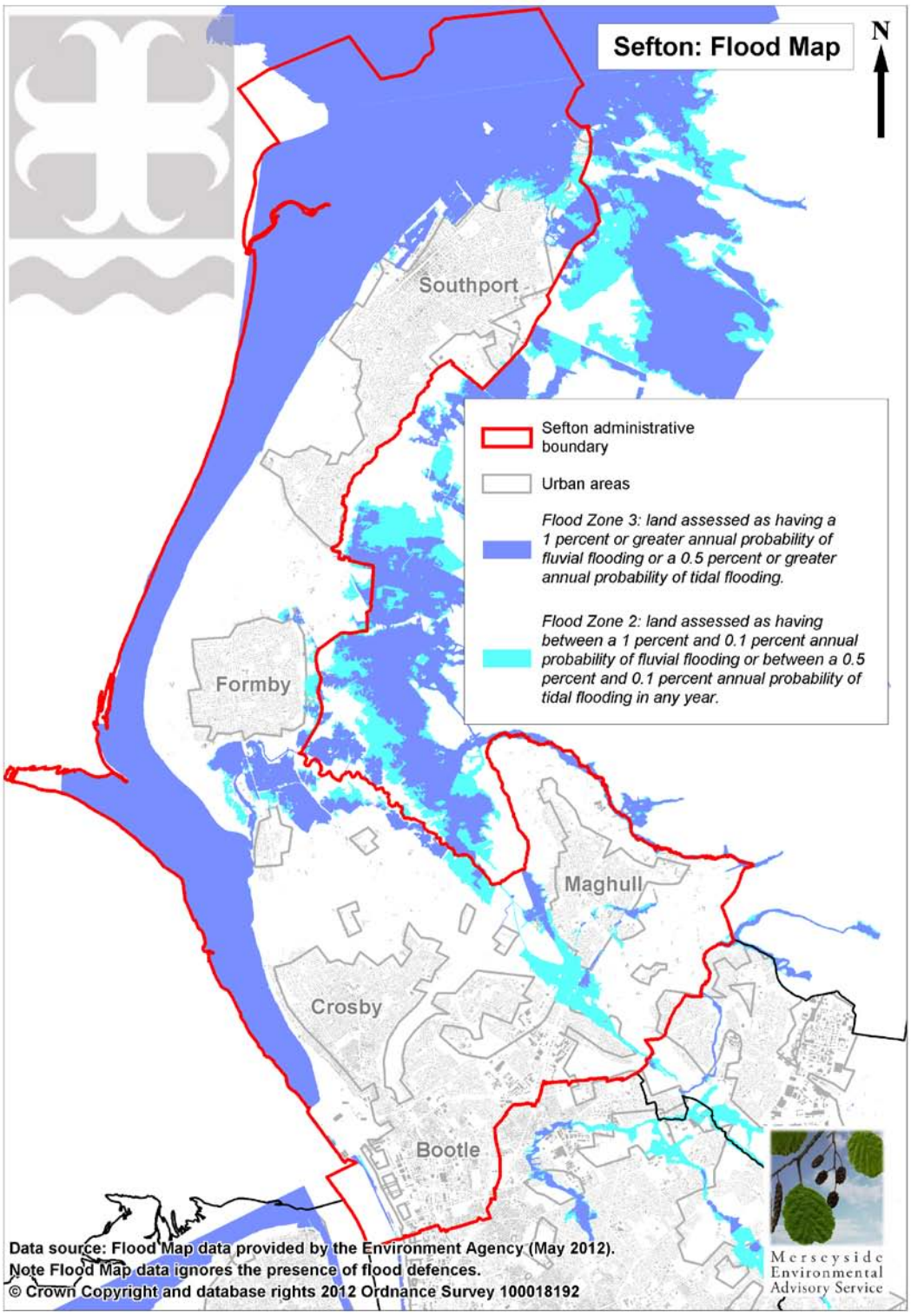
According to the Alt Crossens CFMP parts of the borough have seen groundwater emergence which has been attributed to the cessation of pumping from former mines and water abstraction. Within the Bootle area (which drains to the Lower Mersey), groundwater levels are continuing to rise gradually due to reductions in groundwater abstraction from water supply or industrial purpose. However, this does not appear to be causing an increased risk of flooding. The lower Alt catchment is identified as one of the areas at risk. Also the lower Alt catchment has a typically flat and low lying topography, and according to the Lower Mersey and North Merseyside Groundwater Resources Study a significant proportion of base flow in the River Alt that comes from the underlying Permo-Triassic Sandstone.

There are no large reservoirs within the Sefton area. However, the River Alt does provide a pathway for potential flooding from large reservoirs located in the east of Knowsley (White Man's Dam) and within St. Helens (No.3 and No.4 Reservoir). The Environment Agency's Reservoir Inundation Maps indicate that the extent of flooding would reach Maghull.

There are a number of lakes within Sefton, the largest of which is Marine Lake in Southport. These typically act as a receptor for surface water runoff locally and do not pose a flood risk.

In 1994 the Leeds and Liverpool Canal breached in Maghull, when the roof of a culvert containing Maghull Brook ruptured beneath the canal, which then led to the progressive collapse of the culvert and the canal to burst its banks, causing the flooding of 200 to 300 properties in Maghull.

Figure 3 Environment Agency Flood Zone Map of Sefton



Flood Risk and Records of recent flooding events

According to the Environmental Agency over 4000 homes in Sefton are in flood zone 3 (i.e. 1 in 100 chance or greater of river flooding or 1 in 200 chance of sea flooding) and a further 2,800 plus homes are in flood zone 2 (i.e. 1 in 1000 chance of flooding from river or sea). 2798 hectares of land in Sefton are at risk of flooding (18.38% of Sefton's total area) of which 2222 hectares are within the highest risk category (flood zone 3). However, these statistics do not take account of existing flood defences which will provide some level of protection from fluvial / tidal flooding incidents. Figure 2 shows flood zones within Sefton.

Table 12 Past flood events from local sources with significant local consequences

Date	Main source of flooding	Description	Data Source
19/07/2010 to 22/07/2010	Surface Water	A total of 77 surface water flooding incidents affected properties in Aintree, Birkdale, Bootle, Brighton-le-Sands, Crosby, Formby, Litherland, Maghull, Melling, Netherton, Seaforth, Sefton, Southport, Thornton and Waterloo. Impacts in Maghull were locally significant in isolation.	SMBC
06/10/2009 to 08/10/2009	Surface Water	9 records of flooding in Maghull and Southport	UU (WIRS)
21/01/2008	Surface water / ordinary watercourse	An intense storm system produced surface water flooding across Sefton. There were 98 records of flooding in Ainsdale, Aintree, Blundellsands, Bootle, Crosby, Crossens, Formby, Lunt, Lydiate, Maghull, Melling, Netherton, Southport and Thornton. Impacts in Formby, Maghull and Southport were locally significant in isolation.	SMBC
20/07/2007 to 22/07/2007	Surface water	Flooding incidents reported across Sefton (75 in total). Some internal flooding of properties. Incidents concentrated in Crosby, Sefton & Maghull	SMBC
30/11/2004	Surface Water	55 records of flooding in Ainsdale, Aintree, Birkdale, Bootle, Formby, Litherland, Maghull, Melling, Seaforth and Southport. Impacts in Maghull and Southport were locally significant in isolation.	SMBC
01/08/2004	Surface Water	10 residential properties were recorded having suffered internal and external flooding in Southport.	SMBC
30/04/2001	Surface water / ordinary watercourse	Records of 5 properties flooding are held by Sefton MBC, though it is understood that nearer 25 properties were impacted.	SMBC
19/07/2010 to 22/07/2010	Surface Water	A total of 77 surface water flooding incidents affected properties in Aintree, Birkdale, Bootle, Brighton-le-Sands, Crosby, Formby, Litherland, Maghull, Melling, Netherton, Seaforth, Sefton, Southport, Thornton and Waterloo. Impacts in Maghull were locally significant in isolation.	SMBC
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01/08/2004	Surface Water	10 residential properties were recorded having suffered internal and external flooding in Southport.	SMBC
30/04/2001	Surface water / ordinary watercourse	Records of 5 properties flooding are held by Sefton MBC, though it is understood that nearer 25	SMBC

		properties were impacted.	
12/04/2001	Surface Water	59 residential properties were recorded having suffered internal and external flooding at Claremont Avenue area in Maghull and 10 residential properties were recorded having suffered internal and external flooding at Hawksworth Drive area in Formby.	SMBC
21/01/2008	Surface water / ordinary watercourse	An intense storm system produced surface water flooding across Sefton. There were 98 records of flooding in Ainsdale, Aintree, Blundellsands, Bootle, Crosby, Crossens, Formby, Lunt, Lydiate, Maghull, Melling, Netherton, Southport and Thornton. Impacts in Formby, Maghull and Southport were locally significant in isolation.	SMBC
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12/04/2001	Surface Water	59 residential properties were recorded having suffered internal and external flooding at Claremont Avenue area in Maghull and 10 residential properties were recorded having suffered internal and external flooding at Hawksworth Drive area in Formby.	SMBC
24/11/1996 to 25/11/1996	Surface Water	11 records of flooding in Litherland, Maghull and Southport	UU (SIRS)
01/10/1994	Canal	The Leeds and Liverpool Canal broke through into the Maghull Brook culvert at the point at which the culvert passes beneath the canal. Inundation of the canal water into the culvert led to the progressive failure of the culvert and resulted in the canal bursting its bank. Over 200 properties are understood to have flooded	SMBC
31/07/1994 to 03/08/1994	Surface Water	8 records of flooding in Southport and Waterloo	UU (SIRS)
24/01/1994 to 27/01/1994	Surface Water	9 records of flooding in Bootle, Crosby, Formby, Litherland and Waterloo	UU (SIRS)
13/12/1993 to 15/12/1993	Surface Water	8 records of flooding in Aintree, Formby, Lydiate, Maghull and Southport	UU (SIRS)

There have been a number of recorded past flooding events in Sefton. Records show that flooding may come from a single source or interactions between different sources. In total, records show 13 surface water flooding events, including the Leeds and Liverpool Canal failure in 1994, which have been identified as having significant local consequences.

The most recent of these events was in July 2010 when a total of 77 surface water flooding incidents affected properties in Aintree, Birkdale, Bootle, Brighton-le-Sands, Crosby, Formby, Litherland, Maghull, Melling, Netherton, Seaforth, Sefton, Southport, Thornton and Waterloo. The July 2010 Hydrological Summary for the United Kingdom indicates that the rainfall recorded in the North West in July 2010 was more than double the 1971-2000 average. The month was noted as the wettest month of the year and the sixth wettest July since 1914.

In addition to the July 2010 event, surface water flooding in October 2009 (9 reports of flooding), January 2008 (98 reports of flooding), July 2007 (75 reports of flooding), August and November 2004 (10 and 55 reports of flooding respectively) and April 2001 (59 reports of flooding), clearly indicate that surface water flooding is a frequent event with significant consequences across the borough. The recently developed Surface Water Management Plan has identified that 1 in 3 properties are at risk from surface water flooding in Sefton for an event with a chance of occurrence of 1% in any year.'

Sefton UDP policy DQ5 states that all proposals for new residential, commercial, industrial and leisure development must have a Sustainable Drainage System (SUDS) incorporated into the overall design unless it can be demonstrated that there should be an exception. However, according to Sefton SWMP the policy is rarely implemented. Of the seventy-three approvals in 2009/10 that should have had the policy referred to in the Officers Report and in conditions in the Decision Notice, only four included SUDS in the design or had a condition attached that required some kind of SUDS.

Population and Human Health

The resident population, as measured in the 2011 census was 273,800 , down from the 2001 census figure of 282,958, comprising 47% male and 53% female. Sefton is currently showing declining population with the 2008 based population projections indicate a continued population decline in Sefton over the next 25 years.

Compared with regional and national figures, Sefton has a higher number of residents aged over 60 years with almost 25% of the population within this age bracket. In contrast only 20% of the population is under the age of 16 years. This is particularly evident in the wards in the north of the Borough.

This is evident in the 2008 based population projections which highlight Sefton's ageing population. By 2013 the proportion of Sefton's population over the age of 65 was expected to be greater than the number of 0 –19 year olds. The proportion of people over the age of 65 will continue to rise from 20.2% in 2008 to nearly 30% in 2033 (29.8%). At the same time, the proportion of under 20 years olds in Sefton will continue to fall from 23.5% in 2008 to 21.0% in 2033.

Sefton has a higher number of owner occupied properties than in Merseyside or England and Wales. This is particularly evident in wards in the north of the Borough. Levels of owner occupation across Sefton vary from 92% in Sudell, to 35.4% in Linacre. Renting from the Local Authority is more evident in the wards of south Sefton. However, flood zone 3 covers over 15% of Sefton's area and over 4300 homes are located within flood zone 3 in Sefton.

Overall people in Sefton have good health and improving levels of health. Over three quarters of Sefton Residents describe their health as good or very good. However, the health deprivation and disability domain identifies much of South Sefton, including the whole of Linacre ward, and central Southport in the 5% most deprived areas in the country.

Life expectancy has been increasing in Sefton. For males, this has increased from 75.1 years to 76.3 between 2001/3 and 2004/6, and females from 77.9 years to 81.0 years.

Climatic Factors

In the future flooding will be influenced by climate change. Whilst we do not know exactly what will happen in the future climate change projections produced by DEFRA shows that climate change is likely to result in:

- More frequent and intense storms causing more widespread flooding from drainage systems and some rivers; and
- Wetter winters increasing the likelihood of large-scale flooding.

One of the main causes of climate change is the rapid recent increase in the amount of carbon dioxide (CO2) in the atmosphere. In 2005, 1.7 million tonnes of CO2 was emitted in Sefton, of which a significant proportion came from domestic use. For domestic use Sefton is comparable with the North West and national averages, but 40% lower for total emissions, reflecting the prevalence of the service industries in the borough. However, the level of Sefton's carbon dioxide emissions has decreased by 8.4% up to 2008. In 2008, Sefton produced 5.5 tonnes of carbon dioxide per person, a decrease from 5.8 tonnes the previous year.

Air Quality

Sefton has a number of air quality monitoring stations that monitor air pollution. Nitrogen dioxide is measured in a number of stations, each in the south of the borough. Nitrogen dioxide is a highly toxic chemical compound that is emitted most notably by cars and can cause respiratory problems. The EU has set a target of 21 micrograms per metre3 (µg/m3) as a maximum annual average by 2010. In two of these, at Miller's Bridge, Bootle and Princess Way, Seaforth, the average levels for 2008 (to October) were above the target set by the EU, being 21.1 µg/m3 and 23.6 µg/m3 respectively. During October 2008 the levels at Princess Way averaged over 30µg/m3, nearing the 40 µg/m3 level identified by the World Health Organisation which can cause adverse health effects.

Another measure of air quality is the number of particulates in the air. A number of stations measure the amount of particles smaller than 10 micrometers or less (PM10). These particles are often the result of human activity, such as industrial processes or burning fossil fuels and can cause heart and lung disease. The EU has set a target of 20 µg/m3 not to be exceeded on average per year. During 2008 (to October) several monitoring station have all exceeded this limit - Church Street, Bootle (34.5µg/m3), Church Walk, Bootle (28.1µg/m3), Miller's Bridge, Bootle (25.9µg/m3), and Waterloo Primary School (20.5µg/m3).

According to the 2010 Annual Monitoring Report for Sefton current levels of fine air particulates and nitrogen dioxide have decreased slightly (with one exception – Crosby Road North for nitrogen dioxide) at each of Sefton's monitoring stations.

The local authority must declare an Air Quality Management Area (AQMA) if pollutant concentrations are likely to exceed health based standards in any outdoor location where members of the public are likely to be present. Where an AQMA is declared an air quality action plan (AQAP) must be drawn up detailing how the local authority intends to improve air quality. Sefton have recently declared 3 AQMA at Crosby Road North, Waterloo; Millers Bridge, Bootle, and Princess Way, Seaforth.

Soil, Landscape and Geology

Sefton is a coastal borough with an extensive countryside - about 51% of the area of the Borough – all of which lies within the Merseyside green belt. Over 60% of all Grade 1 and 2 agricultural land in the North West of England is located in the Alt and Crossens catchment. Soils of grade 1, 2 and 3a are collectively known as best and most versatile agricultural land. About 30% of the Borough's area (roughly 60% of the rural area) comprises Grade 1 – 3 agricultural land. This includes most of the land to the east of Southport, Formby and Crosby, and all of the agricultural land in Sefton's eastern parishes around Maghull, Aintree and Waddicar.

Sefton has 8589 sites that require further inspection for potential contamination. Of these 1074 sites are potentially high risk.

Sefton foreshore is characterised by an intertidal expanse of sandbanks and flats. Large sections expanding Lydiate, Maghull, Thornton and Litherland are covered by deposits of Sherdley Hill Sands Formation. The sands which are 3m thick are younger than the glacial deposits and lie immediately beneath the topsoil. They account for some of the most productive agricultural land in the area.

Material Assets

For the purposes of the assessment material assets will include buildings, infrastructure (Physical and Social) and resources that could potentially be affected by flooding. Therefore, it is important to recognise these assets to understand the impact of the Strategy within Sefton.

Sefton has four fire stations within its boundaries, located in Southport, Formby, Netherton and Crosby. A further two stations, at Aintree and Kirkdale, are located close to the Sefton border and provide coverage in Bootle and Aintree.

There are seven police stations in Sefton, located in Southport, Ainsdale, Maghull, Formby, Bootle, Waterloo and Netherton.

Health facilities across the borough includes 57 GP Practices, 12 Health Centres, 127Dentists (plus 6 Community Dentists working from 3 Health Centres), 65 Pharmacists, 37Optometrists, 7 Children's Centres and a Nurse-led walk-in treatment service at Litherland Town Hall. There are five hospitals with Accident and Emergency facilities that serve Sefton residents. However, only one is located in Sefton in Southport (Southport & Formby District General Hospital).

There are five ambulance stations in Sefton, located at Southport, Formby, Maghull, Crosby and Bootle.

There are currently 75 primary schools and 20 secondary schools across the borough. There are also 2 dedicated adult education centres. These are: South Sefton Adult & Community Learning Centre, (Seaforth) and Bridge-2-Learning, (Litherland).

There are thirteen libraries in Sefton. There are also a number of post offices, community facilities. The majority of community facilities are clustered in south Sefton.

The Borough has around 8,200 businesses providing over 91,000 full and part-time employee jobs. Employment is concentrated in a few key sectors including public services, port-related services (including distribution and transport), food products, tourism, ICT and financial services.

The two major retail centres in Sefton are located in Southport and Bootle. Southport has seen its ranking in the National Town Centre Retail Rankings list improve from 62nd to 53rd between 2004 and 2008. In the same period Bootle has dropped from 229th to 285th place.

The local highway network includes more than 1000km of roads and pavements, more than 100 bridges, street lights, traffic lights, signs and road markings. There are two motorways in Sefton, the M57 and the M58. Both of these begin/end at Switch Island junction just south of Maghull. From these motorways connection can be made to the wider national motorway network including the M6 and M62. The only other trunk road in Sefton is the A5036 which connects

Switch Island to the Port of Liverpool at Seaforth. The motorways, the A5036 trunk road, the A565 (between Liverpool and Seaforth) and the A5058 (Balliol Road) form part of the wider strategic freight network.

The railway network is catered for by the Merseyrail Northern line provides high frequency services between Southport and Liverpool and between Ormskirk and Liverpool, which stop at most major towns/areas in Sefton.

Merseyside Recycling and Waste Authority operates four Household Waste Recycling Centres in locations across Sefton. These are located at Irlam Road, Bootle; Sefton Lane, Maghull; Foul Lane, Southport; and Altcar Road, Formby. Each of these centres deal with recycling, general waste and have a recycled goods franchise. These Centres are run on a permit scheme, however local residents can access the waste recycling centres without a permit to dispose of household waste if they are driving a car with or without a trailer.

There is also a network of 'bottle bank' facilities throughout Sefton in accessible locations. These are generally in locations that have high footfall, such as leisure centres and supermarkets.

Water and waste water in Sefton is supplied by United Utilities. Sefton is split into two zones for water supply; South Sefton is within the Liverpool Demand Monitoring Zone (DMZ); North Sefton is within the Southport DMZ. Water to South Sefton and Crosby is supplied from the River Dee via the main Liverpool Trunk. Supply to North Sefton is provided by a mix of local groundwater sources (30%) and regional resources.

There are two projects currently planned to improve water supply in Sefton. From 2013 a pipe from Liverpool North to Maghull will be operational to provide an increased supply to the Maghull area. From 2015 a new wastewater treatment works is planned at Bickerstaffe, near Ormskirk in West Lancashire, which will add 50Ml of supply by 2020. This will a phased delivery and it is expected that 30Ml will be ready by 2015. There will also be some new boreholes drilled in the Southport area to try and reduce the reliance on regional sources.

Waste water in Sefton is directed to a number of waste water treatment works (WwTW) in and near Sefton. These are at Crossens (for the Southport area), Lower Alt (for Formby), Meadow Lane (for Ainsdale), Hillhouse (for the Maghull area), Sandon Dock (for Bootle, Crosby and Hightown) and Melling (for Aintree and parts of Netherton).

In general waste pipes decrease in size the further away from treatment works which can cause problems with developments at the edge of the network. This can in some instances lead to overcrowding of the system at localised points and potential flooding. United Utilities have identified areas at the edge of Southport potentially having this problem. Upgrades to the entire sewer network in Southport may be needed if significant development is proposed.

Other issues in Sefton include at Formby where any significant additional development may require improvements to the existing treatment works. The capacity of Hillhouse WwTW is 60,000 homes and this currently serves fewer than 40,000 homes, all located in Sefton.

Most of South Sefton (including Bootle, Litherland, Crosby and Hightown) is drained via the Mersey Estuary Pollution Alleviation Scheme (MEPAS) which is treated at Sandon Dock Wastewater Treatment Works. Any development schemes in South Sefton will also need to take account of large schemes in Liverpool, such as Liverpool Waters, which also use the MEPAS system.

Not all areas are connected to the waste water system. Parts of Lydiate and Melling and some isolated farms have septic tanks. The traveller site on Broad Lane, Formby has its own small sewerage works. The cost to connect many of these areas to the sewer system is often prohibitive and does not make economic sense for the water company. Any future developments in the Green Belt may present the opportunity to connect some of these areas to the existing network**.**

Both fluvial and tidal defences exist in Sefton. The Environment Agency maintains over 26 km of raised flood defence embankments within the Alt Crossens catchment. There are hard defences of different types at both Southport and Crosby. These provide a 20 year event (5% annual probability) design standard, and experience limited overtopping during a 25 year event. The most recent coastal defence inspection report for Sefton indicates that some areas of the defence network require immediate or short term remedial action, however most stretches are in acceptable condition. Engineering works have recently been carried out to improve the condition of the hard defences protecting the Blundellsands Sailing club and adjacent residential development at Hightown. Also, flood alleviation works at Lunt Meadows will provide natural flood storage and reduce reliance on the Altmouth pumping station in periods of heavy rainfall.

Most of the remaining defences contained in the Sefton area are, according to the Environment Agency's National Flood and Coastal Defence Database (NFCDD), designed to a 50 year event standard. Some areas have defences stated as being to a higher 70 year event standard, although some areas have a lower 25 year event standard

According to the Environment Agency's NFCDD, there are a number of formal raised defences in the Borough of Sefton, which have a standard of protection of between 25 and 50 year events. There are many watercourses which have Environment Agency maintained channels. A section of The River Alt at the M57 and M58 junction is protected to

a 70 year event standard. Downstream of Downholland Brook, defences are generally to a design standard of a 50 year event. There is no defined standard of protection for some of the defences around the Altmouth area. All other defences are stated as being of a 50 year event standard.

There are a large number of privately maintained informal defences within the Borough. These defences include man-made, formal structures such as walls that provide some form of flood defence and man-made topographic features such as earth embankments. Without extensive ground investigations and data collection, specific details of these defences will remain unknown.

Within the Borough of Sefton there are some key flood defence assets which are not linear, raised defences, notably the Altmouth and Crossens pumping stations, two of the largest pumping stations in Europe. These pumping stations are managed by the Environment Agency.

The Environment Agency also manages 12 satellite pumping stations, and linked watercourses, throughout the lower Alt-Crossens catchment (which includes West Lancashire). Sefton Council manages pumping stations at Broad Lane, Lunt, and, on behalf of Merseyside Waste Disposal Authority, at Sefton Meadows, Maghull both of which pump surface water to the River Alt. The Broad Lane station serves a mainly agricultural area, the Sefton Meadows station serves an area including some rural land and commercial and residential areas in the west of Maghull.

The pumping stations are needed because much of the rural area and smaller watercourses and drainage ditches in this area, lie at a lower level than the main channels of the Alt and Crossens system.

Culture

Sefton Council defines culture within two broad categories:

- A Sense of Place – The local geography, coast and countryside, history, buildings, identity and character of the area. Sefton hosts a major holiday resort, aiming for 'classic Resort' status, an internationally recognized coastline of significant ecological value, industrial and commercial legacy, international seaport and port related facilities and extensive areas of high quality agricultural land; and

- Quality of Life – Sefton environment, attraction and activities such as art, sports, libraries, museums, media, parks, play, tourism and socializing. Sefton host a range of high quality sports and leisure provision at Southport, Bootle, Litherland, Formby and Crosby and also numerous parks, libraries and museum throughout the borough. Additionally, tourism activities within the Southport area. Also internationally recognized for golf and racing provided for by Royal Birkdale and Aintree Respectively.

Sefton is a partner within the Merseyside Cultural Forum (Five Merseyside Authorities and Halton), the aim of which is to promote and coordinate cultural activities across Merseyside.

As part of the 2006-07 Liverpool City Capital of Culture Programme, Sefton had established a Capital of Culture Working Group to coordinate Sefton activities which will range from large events to community focused activities.

Some achievement as part of the cultural agenda to date includes:

- Restoration of the Queen Victoria statue and pedestrianisation project in Southport town centre;

- Stanley Road Phase 1 and 2 renovation;

- New leisure facilities in Southport, Bootle and Litherland;

- Installation of Anthony Gormleys' Another Place at Crosby; and

- Perhaps most significant on Merseyside is the award of Capital of Culture which provides a key opportunity to support cultural activities and gain funding.

Heritage including Archaeological, Architectural and Historic Heritage

Sefton's heritage can be identified by the following designations:

- Schedule Ancient Monuments;

- Conservation Areas;

- Historic Parks and Gardens; and

- Listed Buildings.

Scheduled Ancient Monuments are sites of outstanding national importance that are worthy of protection. The word "monument" covers the whole range of archaeological sites. Scheduled monuments are not always ancient, or visible above ground. There are over 200 "classes" of monuments on the schedule and they range from prehistoric standing stones and burial mounds, through the many types of medieval site - castles, monasteries, abandoned farmsteads and villages - to the more recent results of human activity, such as collieries and wartime pillboxes.

Schedule Ancient Monuments within Sefton:

- Cunscough Hall, Melling;
- Maghull Manor Moated Site;
- Sefton Old Hall Moated site and Fishponds;
- Wayside Cross 100m North of Liverpool Lodge, Ince Blundell;
- Standing Cross at the Harkirke 8m NW of the Chapel, Ince Blundell;
- Standing Cross on the village green, Ince Blundell;
- Wayside Cross 150m NE of Ince Blundell Hall, Ince Blundell;
- Hightown Cross on Alt Road 60m SE of Hightown Station;
- Standing Cross at junction of Green Lane and Water Street, Thornton;
- Brooms Cross Wayside cross 150m NE of Orchard House, Thornton;
- Domestic Chapel of St Katharine and Burial Ground, Lydiate;
- Cross Base 25m South of the Tower of Parochial Chapel, Maghull; and
- Standing Cross 30m South of the Tower of Parochial Chapel, Maghull.

Conservation Areas are those declared by the Council as having special architectural or archaeological interest. Twenty five Conservation Areas cover approximately 5% of the Borough.

Similarly, Listed buildings are those statutorily defined as being of special architectural or historic interest. These buildings are protected to preserve the best of our built heritage.

Listed buildings are graded as Grade I, II* or II according to their architectural quality or historical significance, with Grade I being of exceptional interest. 92% of listed buildings in the UK are Grade II listed.

There are over 800 Listed Buildings within Sefton.

Unlike Listed Buildings Parks and Gardens do not have legal protection. Parks and Gardens of special historic interest are contained in the Register of Parks and Gardens of special historic interest in England compiled and maintained by English Heritage. These parks and gardens, which by reason of their historic layout, features and architectural ornaments, are of special interest and an essential part of the nation's heritage.

Historic parks and gardens in Sefton:

- Botanic Gardens, Churchtown (grade II);
- Hesketh Park, Southport (grade II);
- Ince Blundell Hall, Ince Blundell (grade II*);
- Kings Gardens and South Marine Gardens, Southport (grade II); and
- Derby Park, Bootle (grade II).

In addition to the above, the Historic Environment Record (HER) for Merseyside contains 1,970 records of undesignated historic assets and features. The true figure for historic assets is likely to be even higher than this, as the HER is currently undergoing a programme of digitisation and enhancement. Experience suggests that this process is likely to increase the number of records by approximately 20%.

The baseline review will be used as a starting point from which issues will be scoped in or out of the assessment depending on whether or not they are likely to be affected or affect the Strategy.

The SEA will not address any local impacts likely to result during the implementation of any built solution, for example construction impacts that might arise during implementation of the Action Plan. These issues are more appropriately considered during project level Environmental Impact Assessment (EIA) undertaken for specific schemes.

Limitations

At the time of preparing the LFRMS and SEA the available detailed baseline data for the historic environment was limited to national datasets. This was due to the temporary closure of the Merseyside Historic Environment Record (HER) service. Both issues are expected to be resolved during 2014, though there are likely to be limitations in HER data for a further interim period while a data digitisation and enhancement programme is implemented. However, for the purposes of this SEA it has not been possible to include detail of non-designated heritage assets within the baseline. This is a limitation that will be addressed for any future iteration of the Strategy.

Appendix D - SEA Objectives Compatibility Test

+	Where the objectives are compatible
?	Where it is uncertain the objectives are related
0	Where there is likely to be no relation
-	Where the objectives are incompatible

Table 13 Compatibility Matrix for SEA objectives

1									
2	+								
3	?	?							
4	?	?	+						
5	+	+	+	+					
6	?	?	+	?	+				
7	?	?	0	0	+	+			
8	+	+	?	?	+	?	0		
9	+	?	?	?	0	?	0	+	
	1	2	3	4	5	6	7	8	9

- Objective 1 with 3, 4, 6 and 7 - There is the potential that any development / measure required to ensure that the impact of flooding on existing and future development is minimised could result in adverse impact to water quality, existing biodiversity, soil resources, geodiversity and heritage depending on the nature of the measures proposed. For example, flood alleviation works could result in the mobilisation of land contamination into the water column or the construction of flood defences could adversely affect the setting of important heritage sites;

- Objective 2 with 3, 4, 6 and 7 – Given the scope of the Strategy, many measures to adapt development to climate change will involve minimising flood risk and therefore could have similar impacts as Objective 1;

- Objective 3 with 8 and 9 – Minimising flood risk to existing infrastructure, businesses and important heritage sites could potentially affect water quality depending on the nature of the measures being adopted;

- Objective 4 with 8 and 9 - Minimising flood risk to existing infrastructure, businesses and important heritage site could result in adverse impact to biodiversity, flora and fauna depending on the nature of the measures which are adopted;

- Objective 6 with 8 and 9 - Minimising flood risk to existing infrastructure, businesses and important heritage site could result in adverse impact to soil resources depending on the nature of the measures which are adopted.

Appendix E – SEA Matrices for the Sefton LFRMS

LFRMS Objective 1: Understanding risks to our communities

Measures associated with this LFRMS objective

- Identify and review flood and coastal erosion risk
- Develop plans that set out and prioritise our actions based on our understanding of risk
- Inspect and record our assets and where necessary 3rd party assets
- Inform the development of plans where flood and coastal erosion risk is a factor

SEA Objectives	SEA Score	Justification
1. To minimise the risk of flooding	**+0**	The LFRMS Objective will not involve the LLFA carrying out any direct intervention or physical work to manage flooding in the community. However, it involves sharing local knowledge and advice within Sefton Council and partner organisations, advice which will become available to landowners, local businesses and residents in order that they can actively employ measures on their land and within properties to manage flood risk such as flood resilience, signing up for emergency flood warning. The measures are likely to have a positive long term effect through improving community awareness and understanding of their responsibilities in relation to taking effective measures to manage flood risk.
2. Reducing the contribution to climate change and enabling adaptation to climate change which is already locked in.	**?+**	The LFRMS objective will not involve the LLFA carrying out any direct intervention or physical work to reduce the LLFA contribution to climate change. The objective will require the LLFA to take account of relevant legislation. Of particular relevance is the Climate Change Act which sets national targets for the reduction in greenhouse gas emissions. However, these targets are not binding locally and therefore place no duty or requirement on the LLFA to achieve them and therefore this provide little certainty as to whether legislation will be an effective driver at this level. Sharing local knowledge and advice within different sections of Sefton Council and partner organisations will provide an opportunity for the LLFA to provide information on the impact and consequences of climate change and advise individuals, businesses and the community to operate in such a way to reduce greenhouse gas emissions and to implement appropriate measures to combat future climate change effects. Whilst the LLFA can provide advice on flood resilience measures and effective land management option to enable adaption to climate change to reduce the impact of increase, the delivery and implementation of these measures will be dependent on issues such as cost / funding, support from land owners, use of SUDS, etc. The direct effect of the LFRMS objective is unknown. However, there is opportunity for positive effects.
3. To protect and maintain the ecological condition of water resources	**?+**	None of the measures associated with LFRMS Objective 1 will result directly in physical work that could have an adverse effect on the ecological condition of water resources. The Objective will enhance the knowledge and understanding of the responsibilities of Sefton Council, partner organisation and local community in respect of flood risk management. However, the objective could potentially have a positive effect on water quality by providing advice the individuals, businesses and community on measures to reduce the risk of flooding and erosion, which in turn should potentially reduce the likelihood of adverse impact on the ecological condition of water resources from flooding (For example, reducing soil erosion or contaminated run-off from urban areas

		entering controlled water). Advice should cover appropriate land management measures to reduce run-off, the benefits of SUDS to quality of run-off, effective drainage design to cater for extreme flooding. The direct impact of the LFRMS objective is unknown. However, there is opportunity for positive effects.
4. Protecting and enhancing biodiversity, including both habitats and species, and maintaining and enhancing nationally, regionally and locally designated wildlife sites and priority habitats.	**?**	By sharing knowledge and technical expertise within Sefton Council, partner organisation and the local community to improve people's understanding and responsibility in relation to managing flood risk and to reduce the overall risk of flooding across the Borough, the measures associated with LFRMS Objective1 is expected to have an indirect positive effect on the protection of habitats and species from the adverse effects of flooding including the effects of pollution caused by flooding. None of the measures associated with LFRMS Objective 1 will result directly in physical work that could have an adverse effect on the designated and non-designated habitats and species. However, dependent on the nature of the advice provided by the Council to partner organisations and the community, there could potentially be positive impacts to biodiversity. The objective involves the LLFA identifying a list of relevant legislation and guidance contributing to flood risk management. In particular the Wildlife and Countryside Act, Biodiversity Action Plan and the Conservation of Habitats and Species Regulations which affords protection to a number of habitats and species. It is expected that by highlighting and explaining these legislations to individuals and businesses should improve peoples understanding of the importance of biodiversity within the Borough. The direct impact of the LFRMS objective is unknown. However, there is opportunity for positive effects.
5. Maintaining and enhancing human health, including enhanced health from access to green spaces and improved equitable access to a healthier, happier and more sustainable lifestyle	**?+**	The LFRMS Objective will not involve the LLFA carrying out any direct intervention or physical work that would directly affect human health and well being. However, it is expected to have an indirect positive effect on human health and well being by virtue of people and the community becoming aware of the different types of flooding and responsible authorities being made aware of their responsibility to manage the risks including risks to human health. Amongst other functions green spaces can be used as flood storage areas during times of extreme flooding and therefore provide benefits both in respect of flooding as well as providing areas that can be used by communities for recreation, leisure etc. The direct impact of the LFRMS objective is unknown. However, there is opportunity for positive effects. However, there is uncertainty whether more areas of greenspace will be provided through the implementation of the strategy.
6. To protect best quality soil and enhance the quality and character of the landscape.	**?**	None of the measures will result directly in physical works being undertaken by the Council that could affect the character of Sefton landscape and soil quality. However, the objective involves the Council sharing information with landowners and partner organisation on effective flood management, for example the type of measures that they could employ on their land to manage local flood risk. Depending on the nature of those measures and if and how they are delivered, there could potentially be minor localised impacts on the land and soil quality; but the overall effect associated with this objective is considered uncertain.
7. Conserving and enhancing geodiversity	**?+**	By sharing knowledge and technical expertise within Sefton Council, partner organisation and the local community to improve people's understanding of their responsibility in relation to managing flood risk and to reduce the overall risk of flooding across the borough, the measures associated with this LFRMS objective should have an indirect positive effect on the protection geological features by reducing the likelihood of their being adversely affected by flooding events. None of the measures will result directly in physical works being undertaken by the Council that could affect geological features. However, measure 1.3 involves the Council sharing to landowners and partner organisation with regards to effective flood management, for example the type of measures that they could employ

		on their land to manage local flood risk. Depending on the nature and scale of those measures, there could potentially be impacts on the local geological features; therefore the likely positive effect associated with this objective is currently uncertain.
8. To minimise adverse impacts of local flood risk on existing and future key infrastructure, properties and businesses	**+0**	The LFRMS Objective will not involve the LLFA carrying out any direct intervention or physical work to manage flooding to infrastructure, property and businesses and therefore the risk of flooding to community assets and infrastructure will remain. However, it involves sharing local knowledge and advice within different section of Sefton Council and partner organisations, advice which should become available to landowners, local businesses and residents so that they could employ measures on their land and within properties to manage flood risk. The three measures are likely to have an overall positive effect as local people's awareness and understanding of their responsibilities in relation to managing flood risk improves. It is important that the LLFA encourage individuals, businesses and land owners to take responsibility for managing the risk of flooding to their property and assets.
9. To minimise the impact of flooding on the character and physical attributes of Sefton historic environment and heritage assets of historic, archaeological and architectural interest and their settings	**?+**	By sharing knowledge and technical expertise within Sefton Council, partner organisation and the local community to improve people's understanding of their responsibility in relation to managing flood risk and to reduce the overall risk of flooding across the Borough, the measures associated with this LFRMS objective should have an indirect positive effect on the protection of Sefton historic environment and heritage assets (designated and non-designated) by reducing the likelihood of their being adversely affected by flooding events. None of the measures will result directly in physical works being undertaken by the Council that could affect the character of Sefton historic environment or assets. However, their could be effects driven by sharing knowledge with landowners and partner organisation with regards to effective flood management, for example the type of measures that they could employ on their land to manage local flood risk. Depending on the nature of those measures, there could potentially be localised but generally beneficial impacts on the historic environment, sites and assets; therefore the direct effect associated with this objective is currently considered uncertain.

LFRMS Objective 2: Avoiding increase of risk to our communities

Measures associated with this LFRMS objective

- Work via the Planning System
- Advising 3rd parties of their maintenance responsibilities and where necessary intervene
- Administer powers in relation to consenting for ordinary watercourses, coast protection and bylaws

SEA Objective	SEA Score	Justification
1. To minimise the risk of flooding	**++**	The measures associated with the LFRMS objective will ensure that effective action, informed by evidence and best practice, is taken to avoid flood risk using a range of mechanisms available to the Council and its partners. It requires Sefton to play an active role to ensure that organisations incorporate robust flood risk management measures where necessary across the borough, including through infrastructure maintenance and new development. Whilst the objective will not set out a programme of planned engineering works to minimise flood risk, it is expected that there will be a strongly positive effect through increased levels of awareness and effective implementation of measures to reduce flood risk where opportunities to do so arise, for instance by influencing

		regulatory regimes such as the planning system.
2. Reducing the contribution to climate change and enabling adaptation to climate change which is already locked in.	**+0**	The objective will not impact on carbon emissions and is therefore neutral in respect of climate change mitigation. However, by ensuring that actions are planned to avoid increasing the risk of flooding, adaptation to climate change will be indirectly supported, particularly as flood risk parameters normally require an allowance for the effects of climate change to be built-in. Thus the objective's role in avoiding increases to flood risk will indirectly help to drive climate change adaptation.
3. To protect and maintain the ecological condition of water resources	**+0**	The measures associated with the LFRMS objective will ensure that effective action, informed by evidence and best practice, is taken to avoid flood risk using a range of mechanisms available to the Council and its partners. It requires Sefton to play an active role to ensure that organisations incorporate robust flood risk management measures where necessary across the borough, including through infrastructure maintenance and new development. Whilst the objective will not set out a programme of planned engineering works to minimise flood risk, it is expected that there will be an indirect positive effect on water resource through avoidance of pollution from flood events. In this way the objective will contribute to the protection of water quality.
4. Protecting and enhancing biodiversity, including both habitats and species, and maintaining and enhancing nationally, regionally and locally designated wildlife sites and priority habitats.	**+0**	Whilst the LFRMS objective will not involve the LLFA carrying out any direct intervention or physical work to protect and enhance biodiversity and nature conservation sites, the measures associated with the LFRMS objective should have an indirect positive effect on the protection of habitats and species from the adverse effect of increased flood risk, particularly in respect of reducing the risk of negative effects of pollution caused by flooding that could adversely affect aquatic habitats. The positive effect of the objective on water quality will therefore also indirectly beneficially effect priority habitats and species associated with water courses/bodies and also those vulnerable to flooding events.
5. Maintaining and enhancing human health, including enhanced health from access to green spaces and improved equitable access to a healthier, happier and more sustainable lifestyle	**+0**	Whilst the LFRMS objective will not involve the LLFA carrying out any direct intervention or physical work to protect and enhance biodiversity and nature conservation sites, the measures associated with the LFRMS objective should have an indirect positive effect on human health and wellbeing by removing the adverse effect of increased flood risk, particularly in respect of reducing the risk of negative effects of flood damage to property. However, the LFRMS Objective is considered unlikely to have an effect on access arrangement to green spaces within the Borough.
6. To protect best quality soil and enhance the quality and character of the landscape.	**+0**	Whilst the LFRMS objective will not involve the LLFA carrying out any direct intervention or physical work to protect soil quality and landscape character, the measures associated with this LFRMS objective should have an indirect positive effect on the protection of landscape and soils by reducing the likelihood of their being adversely affected by flooding events. For example, soil erosion caused by rapid surface water run-off or soil leaching due to prolonged saturated soil.
7. Conserving and enhancing geodiversity	**+0**	Whilst the LFRMS Objective will not involve the LLFA carrying out any direct intervention or physical work to conserve and enhance geodiversity the measures associated with the LFRMS Objective should have an indirect positive effect on the protection of features of geological interest from the adverse of flooding mainly in respect of

		reducing the risk of negative effects caused by flooding (e.g. soil erosion caused by rapid surface water run-off).
8. To minimise adverse impacts of local flood risk on existing and future key infrastructure, properties and businesses	+	Whilst the LFRMS Objective will not involve the LLFA carrying out any direct intervention or physical work to minimise flood risk to properties, businesses and infrastructure, it is expected that it will promote the protection of infrastructure from increased flood risk from engineering works by ensuring that they consider and address flood risk issues at the outset. This is judged to be a positive effect.
9. To minimise the impact of flooding on the character and physical attributes of Sefton' historic environment and heritage assets of historic, archaeological and architectural interest and their settings	+	Whilst the LFRMS Objective will not involve the LLFA carrying out any direct intervention or physical work to minimise flood risk to Sefton historic environment and heritage assets, it is expected that the measures will a positive effect through driving the integration of flood risk prevention measures into development projects and engineering works, including the maintenance of infrastructure. This will limit the exposure of heritage assets to increases in flood risk and therefore constitutes a generally positive effect.

LFRMS Objective 3: Reducing risk to our communities

Measures associated with this LFRMS objective:

- Reactive maintenance
- Develop a programme of improvement works
- Develop and implement a prioritised maintenance programme

SEA Objective	SEA Score	Justification
1. To minimise the risk of flooding	++	The main aim of the LFRMS objective is to manage local flood risk to people and property through implementing a range of measures including regulatory procedures, policy, internal procedures and advice, all of which will enable community, stakeholders and partners within Sefton to design and incorporate robust flood risk management measures where necessary across the Borough. The measures associated with the LFRMS objective will combine to ensure that robust flood risk management measures are adopted and implemented across Sefton including the delivery of new development schemes. The objective will have a direct significant positive effect on the SEA objective through delivery of more proactive measures to manage flood risk. For example it will put in place mechanisms to improve maintenance regimes for infrastructure associated with drainage and will plan proactively for improvement works to drainage and flood defences.
2. Reducing the contribution to climate change and enabling adaptation to climate change which is already locked in.	+0	The objective will not impact at all on carbon emissions and is therefore a neutral measure in respect of the mitigation of climate change. However it will be standard practice to allow for the unavoidable effects of climate change when planning maintenance or improvement works to infrastructure associated with flooding and, in that respect, the measure will help to entrench adaptation to climate change and resilience to its effects. The LFRMS objective is likely to have an indirect positive effect.
3. To protect and maintain the ecological condition of water	+0	The primary aim of the objective is not to protect and maintain the ecological condition of water resources, but it is likely to have an indirect positive effect on water quality by reducing the risk of flooding, which has a negative

resources		effect on water resources (for example, through soil erosion or contaminated run-off from urban areas entering controlled water). The establishment of the SuDS Approval Body and the requirement to adhere to national standards when designing drainage schemes will provide more consistency in approach and, for example improvement in the quality of surface water run-off. In itself the objective and its associated measures will form only one of many factors affecting water quality, but its effect will nevertheless be a positive one.
4. Protecting and enhancing biodiversity, including both habitats and species, and maintaining and enhancing nationally, regionally and locally designated wildlife sites and priority habitats.	**+0**	The main aim of the LFRMS Objective is to reduce flood risk to people and property. Measures to reduce flood risk will also work to protect vulnerable biodiversity and nature conservation sites, for instance by protecting water quality and reducing the effects of erosion and pollution) and the measures associated with the LFRMS Objective should therefore have an indirect positive effect on the protection of habitats and species.
5. Maintaining and enhancing human health, including enhanced health from access to green spaces and improved equitable access to a healthier, happier and more sustainable lifestyle	**+**	The objective encompasses measures to reduce flood risk to people and property. It will have a direct positive effect on the health and well being of people in Sefton through a lower frequency and severity of flood events. The objective is unlikely to have an effect on access arrangement to green spaces within the Borough but overall will have a directly beneficial effect.
6. To protect best quality soil and enhance the quality and character of the landscape.	**+0**	The objective will involve the LLFA carrying out a range of measures, including direct intervention or physical work to reduce flood risk. By reducing the severity and frequency of flood events, the objective will contribute to the protection of soil quality and landscape character from the deleterious effects of flooding, for example soil erosion caused by rapid surface water run-off or soil leaching due to prolonged saturation. The LFRMS objective should therefore have an indirect positive effect on the protection of landscape and soils by reducing the likelihood of their being adversely affected by flooding events.
7. Conserving and enhancing geodiversity	**+0**	The objective will involve the LLFA carrying out a range of measures, including direct intervention or physical work to reduce flood risk. By reducing the severity and frequency of flood events, the objective will contribute to the conservation of geodiversity from the adverse effects of flooding (e.g. soil erosion caused by rapid surface water run-off). The measures associated with the LFRMS Objective should have an indirect positive effect on the protection of features of geological interest
8. To minimise adverse impacts of local flood risk on existing and future key infrastructure, properties and businesses	**++**	The objective will involve the LLFA carrying out a range of measures, including direct intervention or physical work to reduce flood risk. By reducing the severity and frequency of flood events, the objective will contribute to the protection of properties, businesses and infrastructure. This is judged to be a strongly direct, positive effect.
9. To minimise the impact of	**+**	The objective will involve the LLFA carrying out a range of measures, including direct intervention or physical work

flooding on the character and physical attributes of Sefton historic environment and heritage assets of historic, archaeological and architectural interest and their settings		to reduce flood risk The measures are not specifically intended to benefit historic environment assets, but, as part of the physical infrastructure of the built environment, most will benefit from works to reduce flood risk as flooding can cause significant damage to building fabric, landscaping and can also affect negatively archaeological remains (e.g. through soil erosion and waterlogging). Therefore work to reduce flood risk for the wider community will have a generally positive effect on the protection of historic assets.

LFRMS Objective 4: Reducing consequences to our communites

Measures associated with this LFRMS objective

- Develop and implement plans for Council actions in the event of flooding occurring
- Work in partnership with our communities to increase their resilience

SEA Objective	SEA Score	Justification
1. To minimise the risk of flooding	**?+**	This objective seeks to improve the rapidity and effectiveness of response to flood events. As such, it will not have any significant effect on the risk of flooding occurring. However, the improvement of flood response and recovery efforts will limit the severity of flood effects and thus bring some potential benefits, though their extent is uncertain.
2. Reducing the contribution to climate change and enabling adaptation to climate change which is already locked in.	**+0**	This objective seeks to improve the rapidity and effectiveness of response to flood events. The objective will not impact at all on carbon emissions and is therefore a neutral measure in respect of the mitigation of climate change. However it will be standard practice to allow for the unavoidable effects of climate change when planning for flooding and, in that respect, the measure will help to entrench adaptation to climate change and resilience to its effects. The LFRMS objective is likely to have an indirect positive effect.
3. To protect and maintain the ecological condition of water resources	**?**	This objective seeks to improve the rapidity and effectiveness of response to flood events. As such, it will not have any significant direct link to the protection of water resources and its effects are judged uncertain.
4. Protecting and enhancing biodiversity, including both habitats and species, and maintaining and enhancing nationally, regionally and locally designated wildlife sites and priority habitats.	**?**	This objective seeks to improve the rapidity and effectiveness of response to flood events. As such, it will not have any significant direct link to the protection of water resources and its effects are judged uncertain.
5. Maintaining and enhancing human health, including enhanced health from access to green spaces and improved	**++**	The effects of flooding on the health and well-being of communities can be severely adverse both physically (e.g. through pollution) and mentally (e.g. through the stress of property damage), with effects often disproportionately severe on disadvantaged and vulnerable groups. However these effects can be alleviated significantly through prompt and effective interventions to promote recovery from flood events. Thsi is exactly what this objective seeks

equitable access to a healthier, happier and more sustainable lifestyle		to achieve and it therefore is considered to have a strongly positive effect.
6. To protect best quality soil and enhance the quality and character of the landscape.	**+0**	This objective seeks to improve the rapidity and effectiveness of response to flood events. This includes essential repair and replacement for flood damaged soils and landscapes, where these are associated with essential community infrastructure. In that respect, the measure is likely to have a limited indirect positive effect.
7. Conserving and enhancing geodiversity	**?**	This objective seeks to improve the rapidity and effectiveness of response to flood events. As such, it will not have any significant direct link to the protection of water resources and its effects are judged uncertain.
8. To minimise adverse impacts of local flood risk on existing and future key infrastructure, properties and businesses	**++**	This objective seeks to improve the rapidity and effectiveness of response to flood events. This will include the repair and reinstatement of infrastructure (e.g power, water and transport) and support for businesses to recover from the effects of flooding more rapidly. The measure will therefore have a strongly positive effect in terms of minimising adverse impacts of flooding key infrastructure, properties and businesses
9. To minimise the impact of flooding on the character and physical attributes of Sefton historic environment and heritage assets of historic, archaeological and architectural interest and their settings	**+**	This objective seeks to improve the rapidity and effectiveness of response to flood events. This will include the repair and reinstatement of infrastructure and support for the recovery of the built environment in general. Although primarily aimed at the recovery of critical services, businesses and a return to everyday routine for communities, historic assets are integral to the built environment and will benefit from the increased rate and effectiveness of recovery from flooding that the objective will promote.

Appendix F – Strategic Environmental Assessment Framework

SEA Objective	Sustainability Issues	Potential Indicator
1. To minimise the risk of flooding 2. Reducing the contribution to climate change and enabling adaptation to climate change which is already locked in.	Historic record of flooding events; Significant infrastructure; Surface water flooding incidents; Residential properties at risk of fluvial flooding from 100 year event; Flooding from Sankey Brook and its tributaries; Culvert / Sewer Blockage; Impact of development on neighbouring authorities of Halton and Warrington	Number of new developments permitted in areas of flood risk; Number of developments permitted contrary to EA advice; Number of flood defences developed; Number of SuDS implemented since the publication of the Flood Risk Management Strategy. Mitigation measures and actions implemented by the Strategy which takes account of the impact of climate change.
3. To protect and maintain the ecological condition of water resources	Chemical and Biological status of waterbodies; Contaminated Land.	Ecological status of waterbodies; Chemical status of waterbodies.
4. Protecting and enhancing biodiversity, including both habitats and species, and maintaining and enhancing nationally, regionally and locally designated wildlife sites and priority habitats.	Sefton' rich habitats and species; North Merseyside Biodiversity Action Plan; Tree cover.	Habitat creation and compensation resulting from the Strategy policies, actions and measures; Loss of habitat resulting from the Strategy policies, actions and measures; Achievement of North Merseyside Biodiversity Action Plan targets and Mersey Forest Plan.
5. Maintaining and enhancing human health, including enhanced health from access to green spaces and improved equitable access to a healthier, happier and more sustainable lifestyle	Sefton aging population; Residential and Commercial properties at risk of flooding; Accessibility countryside, attractions, services, natural greenspace	Number of flood related injuries; Number of properties / businesses at risk of flooding; Change in area / number / quality of public open spaces, recreational and amenity facilities resulting from the Strategy policies, actions and measures.
6. To protect best quality soil and enhance the quality and character of the landscape. 7. Conserving and enhancing geodiversity	High grade soil resource ; Landscape Character; Geological Sites	Area / number of incidences where Grade 1, 2 or 3 soil is lost due to need for flood alleviation / defences; Number of flood alleviation / defence developments to be located within the Green Belt.
8. To minimise adverse impacts of local flood risk on existing and future key infrastructure, properties and businesses	Wide range of physical and social infrastructure; Properties at risk of flooding; Population Circa 177,100	Number of properties / businesses at risk of flooding; Number and severity of incidents leading to disruption or damage Sefton social and physical infrastructure.
9. To minimise the impact of flooding on the character and physical attributes of Sefton historic environment and	Rich heritage including a number of Schedule Ancient Monuments, Conservation Areas, and Listed Buildings	The number of Strategy policies, measures and actions developed and implemented to protect Sefton' heritage site from flooding;

heritage assets of historic, archaeological and architectural interest and their settings		Flood alleviation / defences developed that affect the integrity and settings of St Helen's heritage sites.

Appendix G – List of References

1. *A Practical Guide to Strategic Environmental Assessment, Former ODPM, September 2005*
2. *Guidance for risk management authorities on sustainable development in relation to their flood and coastal erosion risk management functions, DEFRA, October 2011*
3. *Mersey Estuary Catchment Flood Management Plan, Environment Agency, December 2009*
4. *Merseyside Mineral Resource, British Geological Survey, October 2005*
5. *North West River Basin Management Plan, Environment Agency, December 2009*
6. *Agricultural Land Classification Map, Ministry of Agriculture, Fisheries and Food, 1988*
7. *Sefton Annual Monitoring Report, Sefton Council, 2011*
8. *Liverpool City Region Ecological Framework, Merseyside Environmental Advisory Service, October 2011*
9. *Sefton Strategic Flood Risk Assessment, Atkins, June 2009*
10. *The Mersey, Mersey Basin Campaign, undated*
11. *Draft LDF Sustainability Appraisal Scoping Report, Scott Wilson, May 2010*