ENVIRONMENTAL REPORT FOR

ROCHDALE BOROUGH'S STRATEGY FOR FLOOD RISK MANAGEMENT 2013 – 2023

OCTOBER 2013

CONTENTS

1. EXECUTIVE SUMMARY

1.1 Introduction

European Union Directive 2001/42/EC (Article 3, 2a) outlines a range of plans and programmes which require environmental assessment to meet its objectives; The Regulations which transpose the Directive into UK law are 'The Environmental Assessment of Plans and Programmes Regulations 2004'.

Having considered the Flood Risk Management Strategy (hereafter referred to as 'the Plan') against the criteria outlined in Annex II of the Directive, it has been determined that the Plan, which relates to water management and which potentially sets the framework for developments which may be subject to Environmental Impact Assessment, is likely to have significant environmental effects and therefore should be subject to Strategic Environmental Assessment (SEA).

This Environmental Report outlines the process which has taken place to carry out SEA of the Plan, its outcomes and recommendations for the Plan. The Directive defines "environmental assessment" (Article 2(b)) as a procedure comprising:

• preparing an Environmental Report on the likely significant effects of the draft plan or programme and of reasonable alternatives that take into account the objectives and the geographical scope of the plan or programme;

• carrying out consultation on the draft plan or programme and the accompanying Environmental Report;

• taking into account the Environmental Report and the results of consultation in decision making; and

• providing information when the plan or programme is adopted and showing how the results of the environmental assessment have been taken into account.

1.2 Process

The first stage is to decide upon the scope of the SEA and to consult upon it with the three relevant statutory consultation bodies: Natural England, English Heritage and the Environment Agency. This involved outlining the environmental characteristics of the area affected by the Plan, other relevant plans, programmes and environmental protection objectives, and key baseline information. Once the scoping has taken place, a set of SEA objectives will be drawn up, to provide a means by which the environmental performance of the Plan can be assessed: the objectives of the Plan are then assessed against these.

The main part of the assessment involves predicting the effects of the Plan by comparing it against the SEA objectives, including any reasonable alternatives and short, medium and

long term effects. This should include proposed mitigation measures for any adverse effects identified, and proposed monitoring measures.

1.3 The likely environmental effects of the Plan

The Plan as proposed and two alternative options were assessed against a range of environmental objectives. It was found that option 1 – producing the Plan as proposed – would have a stronger positive impact on the environment than the other two options.

The assessment of the Plan as proposed showed that it will have a positive impact upon most of the environmental issues to which the objectives related, with the exception of the protection and enhancement of heritage assets, where it would have neither a positive nor negative impact. For most of the issues, there would be an immediate positive impact on production of the Plan, followed by a more positive impact in the medium and longer terms, as the objectives and projects of the Plan are implemented. But it should be noted that that the impact upon ensuring the minimisation of flood risk is strong from the outset, whereas the impact in terms of retaining soil quality is weak from the start and does not improve.

The assessment has thus identified two areas where there is significant room for improvement – the protection of heritage assets and the protection of soil quality. In order to strengthen the Plan in these areas, the following measures are proposed:

1.4 The difference the process has made to date

This assessment has identified several areas where the Plan could be strengthened, particularly in respect of its impacts upon heritage assets and soil quality. As a result of the recommendations set out in 5.2 of this document, the Plan has been revised as follows:

Chapter 5 – ‘Flood risk management in Rochdale borough’ – ‘Influences on future flood risk’ – ‘The South Pennine Watershed’ – additional text to clarify the importance understanding and incorporating soil management into upland management activities.

Chapter 5 – ‘Flood risk management in Rochdale borough’ – ‘Influences on future flood risk’ – ‘Trees and woodland’ – additional text emphasising the role of trees and woodland in the improvement of soil quality.

Chapter 10 – 'Protecting and improving our environment’ – 10.2 – inclusion of soils and geodiversity as asserts which should not be adversely affected by flood risk management, e.g. altering drainage.

Chapter 10 – 'Protecting and improving our environment’ – 10.3 – new text outlining the importance of considering heritage assets, landscape and townscape, and giving detail in respect of what kind of assets may be affected and outlining a commitment to their conservation and enhancement.

1.5 How to comment on the Environmental Report

Details for how to comment can be found at www.rochdale.gov.uk/consultations with the closing date **29 November 2013**.

2. THE FLOOD RISK MANAGEMENT STRATEGY

The Plan aims to ensure that Rochdale borough, its people and its economy are well prepared and as resilient as possible to the range of flood risks which may potentially affect them.

The strategic objectives of the Plan are as follows:

- Understand our flood risks better
- Communicate those risks more effectively to those who are at risk from flooding and who can help manage and respond to flood risk and its consequences
- Help people, communities and businesses to take greater ownership of flood risk where they can manage and where possible reduce their risk and be better prepared to respond to and recover from flood events
- Work as a Lead Local Flood Authority with other flood risk management agencies to manage flood risk better, reduce the impact of flooding and wherever possible reduce or remove the risk of flooding through investing in our drainage infrastructure and its future management
- Ensure that development and land management do not increase flood risks and contribute to sustainable drainage and reduction of flood risk
- Ensure that how we manage and reduce flood risk helps our local communities, economy and environment to be more resilient to climate change impacts and helps to deliver a clean and safe water environment, rich in wildlife and opportunities for its enjoyment.

It also outlines the relative legislation and local policy context, as well as giving detail in respect of the flooding issues specific to the borough and where they may occur. This includes sources of flooding, fluvial flooding, surface water flooding, groundwater flooding, canal and reservoir flooding, sewer flooding, and the influences on future flood risk. There is an examination of the ways that the Council can manage flood risk, including how we can work in partnership with others, and how development can contribute towards sustainable drainage.

One of the key elements of the Plan is to set out priorities, including the following guiding principles:

- Widening ownership and awareness of flood risk management in affected communities;
- Areas with significant flood risk are in many cases amongst the most socially and economically disadvantaged in the North West and England;
- Improving our understanding of flood risk, where it happens and its causes and the likely future pressures from our changing climate;
- Managing, protecting and enhancing our flood risk management infrastructure for the future;
- Reducing flood risk in our urban areas whilst also promoting and delivering essential growth and regeneration;
- Managing and reducing flood risk whilst also helping to protect and improve the ecology of our water environment and to make it cleaner and accessible for leisure, sport and quiet enjoyment.

The next stage of the Plan is to outline in detail how each of the strategic objectives set out earlier in the document will be delivered. It then goes into detail in respect of the Strategic Projects, including outlining the actions which will be taken, delivery approaches and timescales. There is also an outline of the funding opportunities and the framework for monitoring and review.

3. SCOPING OF THE ENVIRONMENTAL REPORT

3.1 Environmental characteristics of the area likely to be affected by the Plan

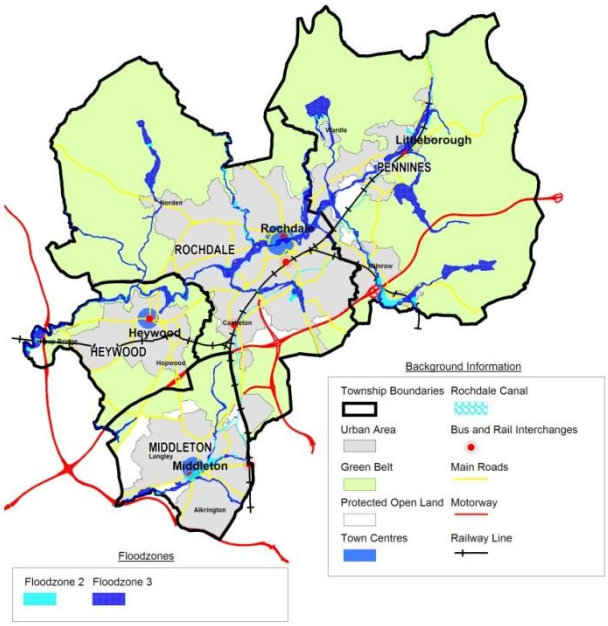
The Borough, which has an area of 160 square km (62 sq. miles), is around two thirds countryside which to the north and east includes the Millstone Grit foothills of the South Pennine Moors shared with East Lancashire and West Yorkshire; this high moorland provides an extensive backdrop for the industrial towns in the river valleys below. River valleys penetrate the heart of the urban centres and the rivers Roch and Irk connect into the Mersey Basin. The west and south west includes a more low level (sandstone and clay) landscape leading to the edges of the city of Manchester.

The Rochdale Canal and a significant part of the South Pennine Moors are designated as Sites of Special Scientific Interest which are also Special Areas of Conservation (Please see para. 5.1 for further detail), the South Pennine Moors also being a Special Protection Area. Three Local Nature Reserves and one Country Park are located at Healey Dell, Hopwood Woods, Alkrington Woods and Hollingworth Lake respectively. The Borough has a significant number of Sites of Biological Importance located throughout the urban and rural area and as part of greenspace corridors and networks.

Only 3% of the Borough is woodland, primarily located in the river valleys and reservoir catchments. Species of high conservation concern in the Borough are; water vole, brown hare, pipistrelle bat, Daubenton's bat, whiskered bat, noctule bat, brown long-eared bat,

skylark, linnet, reed bunting, spotted flycatcher, tree sparrow, grey partridge, bullfinch, song thrush, great crested newt, floating water plantain, grasswrack pondweed, house sparrow and starling.

Floodzones



Scale 1:100,000

Green Infrastructure Resources

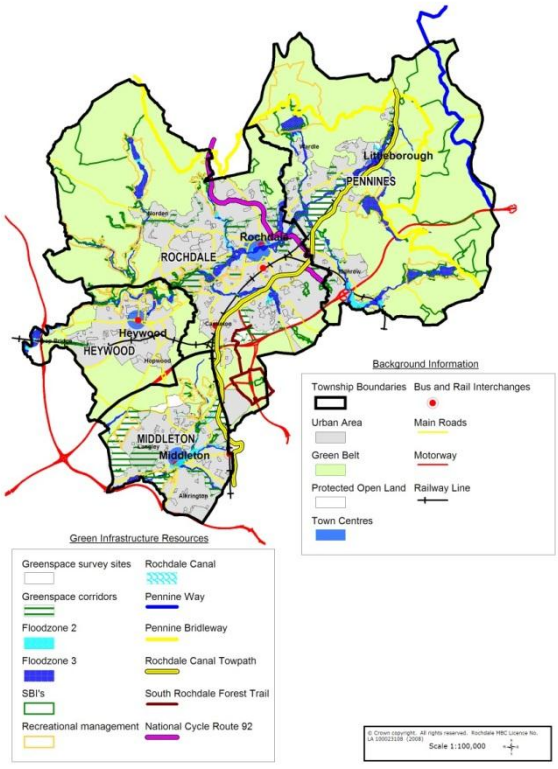


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Table 1: Key Environmental Issues and Problems

ISSUE/PROBLEM	DESCRIPTION	HOW CAN THE PLAN ADDRESS THIS?	SOURCE
There are national and local commitments to tackling climate change and its impacts generally including ensuring all new developments in the Borough are carbon neutral by 2020	Carbon dioxide reduction targets are included in the emerging Rochdale Core Strategy. Adapting to and mitigating the effects of climate change will require an imaginative and positive approach to urban greening in the public realm such as green roofs and street trees	- Policies which have robust requirements in terms of measures to tackle and adapt to climate change - Directing development away from areas of high flood risk	UK Climate Impacts Programme – for climate impacts data RMBC Supplementary Planning Document: Energy and New Development
There is a need to widen travel choice and enhance sustainable accessibility to employment opportunities, shopping, education and local services	The challenge is to provide an affordable, sustainable, reliable, accessible and integrated transport network that serves its communities and supports social inclusion and the regeneration of the local economy	The Plan cannot directly impact upon this	Core Strategy Issues and Options Report
The functional integrity of the Green Infrastructure network is of variable quality and is under pressure from the impacts of urban communities and the need to support economic and housing growth	There are a number of elements to addressing this issue, including protecting and enhancing biodiversity, protecting rivers and river valleys, open spaces and the countryside	- protect green infrastructure, but at the same time ensure ease of access to green spaces for residents of new housing developments - help to increase and enhance green infrastructure	Core Strategy Issues and Options Report
Access to the countryside is poor in many parts of the Borough and urban open spaces vary significantly in quality and diversity	There is a need for access to quality green space to support economic growth and regeneration and to help tackle the effects of climate change	- not compromise the development of quality greenspace networks nor compromise safe and convenient access to the countryside from urban areas - protect greenspace and promote the enhancement of existing greenspaces and the creation of new ones	LAA / Economic Development Strategy / Green Infrastructure Strategy
The biodiversity of the Borough is	There is a need to address this	- do not impact adversely on	Annual Monitoring Report; Natural

under pressure from development, poor management and design and the loss of key features such as urban garden spaces; the Borough, like all local authorities, has a duty to have regard to the conservation of biodiversity in exercising its functions	issue and the impact that climate change could also have on the Borough's biodiversity The Biodiversity Duty states: "Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity"	biodiversity, - promote the enhancement of existing wildlife habitats and the creation of new ones - promote urban greening	Environment and Communities Act (NERC) 2006
The Borough has a very low level of tree cover (3%)	Woodland cover is important for biodiversity, tackling climate change and adapting to the inevitable effects of climate change, as well as aesthetic qualities	- promote tree planting - offer strong protection for existing woodlands and trees	Pennine Edge Forest Strategy
The percentage of rivers of good or fair quality is low	Was 43.7% in 2006 compared to 63.2% nationally. The requirements of the EU Water Framework Directive need to be met	- Allocations that do not compromise water quality by their locations or potential discharges - Policies that ensure new developments do not compromise water quality	Environment Agency General Quality Assessment
There is pressure for more renewable energy developments	Government guidance makes it clear that Authorities must have very good exceptional reasons for blocking renewable energy developments	- promote such developments unless there are significant adverse impacts on the local environment	Core Strategy Background Paper
Significant parts of the borough's urban areas are designated flood zones 2 or 3 on the Environment Agency flood map	These areas include East Central Rochdale and significant areas of Littleborough. This flood risk could increase with climate change and inappropriate developments; flood risk management needs to manage on site risks and not increase risk downstream	- avoid promoting development in flood zones 2 or 3, and which avoid promoting flood risk in any way - Allocations in line with SFRA - ensure new developments take measures to minimise any potential contribution to flood risk	Environment Agency

Table 2: Relevant plans, programmes and environmental protection objectives

Name of Document	Key Objectives relevant to the Plan	Key targets and indicators relevant to the Plan and SA	Implications for the Plan	Relevant draft SA objectives
The Johannesburg Declaration on Sustainable Development (2002)	Develop and implement national/regional strategies, plans and programmes with regard to integrated river basin, watershed and groundwater management and introduce measures to improve the efficiency of water infrastructure to reduce losses and increase recycling of water	Develop and implement national/regional strategies, plans and programmes with regard to integrated river basin, watershed and groundwater management and introduce measures to improve the efficiency of water infrastructure to reduce losses and increase recycling of water	The Plan is effectively part of the response to the Declaration	**All**
EUROPEAN UNION				
EU Water Framework Directive (2000)	- prevent and reduce pollution, promote sustainable water use, protect the aquatic environment, improve the status of aquatic ecosystems and mitigate the effects of floods and droughts	- protect, enhance and restore all bodies of surface water with the aim of achieving good surface water status by 2015 - protect, enhance and restore all bodies of groundwater with the aim of achieving good groundwater status by 2015	The Plan should ensure that its policies and designations promote sustainable water consumption, do not lead to pollution of groundwater and do not exacerbate flood or drought risk	**9**
EU 6th Environmental Action Programme (2002)	Achieve quality levels of ground & surface water that do not give rise to significant impacts on & risks to human health & the environment, & to ensure that the rates of extraction from water resources are sustainable over the long term.	Ensuring a high level of protection of surface & groundwater, preventing pollution & promoting sustainable water use.	The Plan through its policies should reflect the targets of the Action Programme.	**9**
EU Sustainable Development Strategy (2006)	Safeguard the earth's capacity to support life in all its diversity, respect the limits of the planet's natural resources & ensure a high level of protection & improvement of the quality of the environment. Prevent & reduce environmental pollution & promote sustainable consumption &	Improving management & avoiding overexploitation of renewable natural resources such as fisheries, biodiversity, water, air, soil & atmosphere, restoring degraded marine ecosystems by 2015 in line with the Johannesburg Plan (2002) including achievement of the Maximum Yield in	The Plan is in line with the targets of the Strategy	**All**

	production to break the link between economic growth & environmental degradation.	Fisheries by 2015		
NATIONAL				
Future Water – The Government's water strategy for England (2011)	By 2030 at the latest, improve the quality of our water environment & the ecology which it supports, & continue to provide high levels of drinking water quality. By 2030 at the latest, sustainably manage risk from flooding & coastal erosion, with greater understanding & more effective management of surface water. By 2030 at the latest, ensure sustainable use of water resources, & implement fair, affordable & cost-reflective water charges. By 2030 at the latest, cut greenhouse gas emissions; & embed continuous adaptation to climate change & other pressures across the water industry & water users.	Large majority of water bodies in England have good ecological & chemical status. People maximise sustainable use & amenity benefits gained from safe, healthy & attractive waters & water environments. Healthy rivers, lakes, estuaries, coasts & groundwaters that provide maximum resilience to climate change & sustain biodiversity. Major improvements achieved from tackling problems of nutrient pollution, chemical pollution, water resources, litter & microbial contamination. Land increasingly flexibly managed for flood storage.	The Plan will address the targets of the Strategy	**9**
UK Government Sustainable Development Strategy (2005)	Natural resource protection & environmental enhancement: Natural resources are vital to our existence & that of communities throughout the world. We need a better understanding of environmental limits, environmental enhancement & recovery where the environment is most degraded to ensure a decent environment for everyone, & a more integrated policy framework.	River quality – rivers of good (a) biological quality; (b) chemical quality. Flooding – to be developed to monitor sustainable approaches to ongoing flood management. Water resource use – total abstractions from non-tidal surface & ground water sources & GDP	The Plan will address the targets of the Strategy	**All**
National Flood & Coastal Erosion Risk Management	Reduce the threat of flooding & coastal erosion.	Understanding the risks of flooding & coastal erosion, working together to put	The Plan will address the targets of the Strategy	**9**

Strategy for England (2010)		in place long-term plans to manage these risks & making sure that other plans take account of them; Avoiding inappropriate development in areas of flood & coastal erosion risk & being careful to manage land elsewhere to avoid increasing risks; Building, maintaining & improving flood & coastal erosion management infrastructure & systems to reduce the likelihood of harm to people & damage to the economy, environment & society; Increasing public awareness of the risk that remains & engaging with people at risk to encourage them to take action to manage the risks that they face & to make their property more resilient; Improving the detection, forecasting & issue of warning of flooding, planning for & co-ordinating a rapid response to flood emergencies & promoting faster recovery from flooding.		
The National Planning Policy Framework (2012)	Support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the re-use of existing resources, including conversion of existing buildings, and encourage the use of renewable resources; Contribute to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser environmental value, where consistent with other policies in this Framework			**All**
The Flood and Water Management Act (2010)	Sets out the roles and responsibilities with associated		The Plan is in accordance with the provisions of the	**9**

	duties and powers for local authorities and Lead Local Flood Authorities		Act	
Flood Risk Regulations (2009)	Sets out flood risk management requirements, transposing the EU Flood Directive into law for England and Wales		The Plan is in accordance with the provisions of the regulations	**9**
The Conservation of Habitats and Species (Amendment) Regulations (2012)	Transposes the Habitats Directive into UK law. The objective of the Habitats Directive is to protect biodiversity through the conservation of habitats and species.		The Plan should ensure that it protects and, wherever possible, enhances biodiversity	**3**
Wildlife and Countryside Act (1981)	Gives protection to native species (especially those at threat), controls the release of non-native species, enhances the protection of SSSIs		The Plan should ensure that it protects and, wherever possible, enhances biodiversity	**3**
Countryside and Rights of Way Act (2000)	Protects rights of way and the right to roam		The Plan should be in compliance with this legislation	**7**
Biodiversity 2020: A strategy for England's wildlife and ecosystem services	Reverse the decline of biodiversity, including strategic goals and targets		The Plan should ensure that it protects and, wherever possible, enhances biodiversity	**3**
REGIONAL				
North West River Basin Management Plan (2009)				
Greater Manchester Strategic Flood Risk Assessment (2008)	- more detailed flood risk information	Achievement of level 2 district SFRAs	The Plan in its allocations and policies should direct development away from areas of flood risk	**9**
Greater Manchester Strategy (2013)	- we will be known for our good quality of life, our low carbon economy and our commitment to sustainable development		The Plan is in accordance with the provisions of the Strategy	**All**
Greater Manchester Surface Water Management Plan (2011)	Provide an evidence base that can be used cross-departmentally by all AGMA Authorities, such as ongoing		The Plan has taken account of the evidence base provided	**9**

	spatial planning through the Greater Manchester and Local Flood Risk Management Strategies.			
Irwell Catchment Flood Risk Management Plan (FMP) (2009)	Policies relevant to Rochdale Borough (from sub areas 7 and 10): - explore ways of achieving land management change - continue to provide advice on development issues so as not to increase direct flood risk and/or surface runoff - continue to investigate causes of sewer flooding … followed by appropriate remedial works - look at culvert condition and undertake an assessment of risk and carry out remedial works - carry out a study of flood risk on the River Roch		The Plan should reflect the policies of the FMP	**9**
LOCAL				
Core Strategy (emerging)	Promote a greener environment by focussing on: 1. Maintaining Rochdale's contribution to climate change and to mitigate and adapt to its adverse effects; 2. Ensuring in particular that development is energy efficient and contributes to carbon reduction; 3. Reducing the likelihood of flooding through appropriate flood risk management, especially in Rochdale town centre and parts of Littleborough and Heywood; 4. Improving our urban open spaces and make them more accessible;	Policy G8 – Managing water resources and flood risk	The Plan will be in accordance with the relevant Core Strategy policy	**All**

	5. Maximising the value of our green open areas and countryside to provide opportunities for recreation, amenity, biodiversity and flood management; 6. Minimising and managing waste and managing minerals resources sustainably.			
Green Infrastructure Strategy				**1,2,3,4,5,9**
Pennine Edge Forest Action Plan (2011-2015)				**1,2,3,4,5,6,8,9**

Table 3: Baseline Information

Indicator	Quantified Information	National Comparator	Trend and Target	Comments	Source and date of data
NATURAL ENVIRONMENT					
% of residential properties within 400 metres of a good quality natural greenspace, woodland, greenspace corridor or national cycle network / national trail	22.2% (2007)		Target: 37.2% (2009/10)		LAA / Economic Development Strategy
woodland cover	3%	Region – 5.8% England – 8%	Pennine Edge Forest initiative aims to increase tree cover in Rochdale by 100 ha by 2017	Unfavourable situation	Pennine Edge Forest Strategy
Change in area covered by local biodiversity designations, including changes in importance in local and regional terms	Number of Sites of Biological Importance: 43, total area of 2454.8		There has been a slight increase in the area of the Borough covered by SBI designation from 2452.4 in 2010 to 2454.8 in 2011, and two sites have been upgraded to sites of county and regional importance		GMEU
% of rivers of good or fair quality	(2006): Good: 43.7% Fair: 56.3% Poor: 0% Bad: 0%	(North West) Good: 63.2% Fair: 28.9% Poor: 7.0% Bad: 0.8%	100% 'good' status by 2015 (EU Water Fram ework Directive)	Unfavourable situation	Environment Agency General Quality Assessment
NATURAL RESOURCES					
% of residential development on	2012 / 2013: 96.3% of		This trend is likely to go down, but	Favourable situation at	AMR

brownfield land	completions construction		we are still likely to achieve our 80% target	present; well above national average, but likely to fall in the future	
Housing density (to make efficient use of land)	2011/2012: 33% of dwellings completed were on sites with a density below 30 dwellings per hectare42% of dwellings constructed at densities of 30-50 dwellings per hectare, compared to 7% in 2010/2011		There is still a significant proportion of development in the borough at a density of over 50 dwellings per hectare, and this is likely to increase as apartment completions are likely to be less popular in the foreseeable future	The trend for densities is currently decreasing	AMR
% of household waste recycled	22.42% (2011/12)			Favourable situation	RMBC / Defra
HISTORIC ENVIRONMENT					
% of listed buildings at risk	5 (one grade I and four grade II*) listed buildings in the Borough on the English Heritage Buildings at Risk register 2012		The target is zero		English Heritage Buildings at Risk Register 2012
Number / extent of Conservation Areas	28 CAs in Rochdale Borough		There has been an increase in the number of CAs from 21 in 2007to 28 in 2013.	Favourable situation	
CO2 EMISSIONS					
Per capita reduction in CO2	6.1 tonnes (2005/06)	8.9 tonnes	Was 6.1 tonnes in 2006	Uncertain, but there	http://data.gov.u

emissions in the LA area		(2011)	Targets: 08/09: 0.8% reduction from baseline (+ 2.2% from national measures) 09/10: 1.8% reduction from baseline (+ 4.4% from national measures) 10/11: 3.2% reduction from baseline (+6.6% from national measures)	appears to be a downward trend, possibly because of the loss of heavy industry	k/dataset/ni-186-per-capita-co2-emissions-in-the-la-area

4. THE SEA ASSESSMENT

4.1 Developing the SEA objectives

The SEA should test the Plan to assess the likely significant effects on the following environmental receptors:

air quality; human population and health; biodiversity; the landscape; climatic factors

material assets; cultural heritage (including architecture and archaeology); the soil

flora and fauna (plant and animal populations); water resources.

Therefore, taking into account the environmental issues identified above, we have devised the following set of objectives which will be used to carry out the assessment:

1. Will the Plan make a significant contribution towards the reduction of local carbon emissions, contributing to national and global targets?
2. Will the Plan help to reduce health inequalities?
3. Will the Plan contribute towards the protection and enhancement of biodiversity and provide opportunities for new habitat creation?
4. Will the Plan protect and enhance landscape and townscape character, quality and local distinctiveness?
5. Will the Plan help to tackle the impacts of climate change?
6. Will the Plan encourage the efficient use of natural resources in the location, construction and use of developments?
7. Will the Plan protect and enhance the historical, cultural and archaeological heritage of the Borough?
8. Will the Plan help to retain soil and geodiversity quality in the Borough?
9. Will the Plan help to ensure that flood risk is minimised?

Each of the alternatives will be tested against the above objectives, including short, medium and long term effects. Proposed mitigation measures.

4.2 Identification of strategic alternatives

A clear alternative to the production of the Plan would be not to produce it. Another alternative would be to take a more strategic approach, with less emphasis on looking at detailed flood risk containment measures to be carried out. Thus, each of these alternatives, as well as the production of the Plan in its current form, will be assessed against the objectives outlined

4.3 Assessment of the significant environmental effects of the alternatives

--	Undermining – has potential to significantly undermine the objective	+	Fair – makes some direct or significant indirect contribution to the objective
-	Poor – does not contribute to the objective and is a missed opportunity	++	Good – makes a significant direct contribution to the objective
+/-	Weak – makes a minor, indirect contribution to the objective and is a missed opportunity	+++	Excellent – makes a close to optimal contribution to the objective
N/A	Not applicable		

Table 4: Appraisal of option 1: Producing the Plan as proposed

	Short term	Medium term	Long term	Comments
1. Will the Plan make a significant contribution towards the reduction of local carbon emissions, contributing to national and global targets?	N/A	N/A	N/A	
2. Will the Plan help to reduce health inequalities?	+	++	+++	The Plan, through its objectives and projects, will reduce health risks associated with properties flooding and overflowing gullies/sewers; ensure greater accessibility to the recreational opportunities around a cleaner and safer water environment, which will have health benefits for the whole community; will reduce the likelihood of drainage increasing risks from ground contamination. Through its strategic objectives, The Plan aims to reach more vulnerable and harder –to-reach members of the community so that they fully understand potential risks, including those with health problems, and it aims to work closely with disadvantaged communities to help deliver local community flood risk action plans and their associated health benefits.
3. Will the Plan contribute towards the protection and enhancement of biodiversity and provide opportunities for	+	++	+++	One of the priorities of the authority, which will be taken forward by the Plan, is to protect and improve the ecology of the water environment. In terms of the Plan's objectives, compliance with Water Framework Directive will help to protect biodiversity, green infrastructure and ecological enhancements will be

new habitat creation?				delivered. Strategic projects will focus greater participation in local environmental stewardship. The Plan will promote the creation of sustainable drainage systems in new developments, such as ponds, swales and other green infrastructure, and will encourage flood risk management activities such as de-culverting and tree planting, all of which can provide opportunities for habitat creation and biodiversity enhancement.
4.Will the Plan protect and enhance landscape and townscape character, quality and local distinctiveness?	+	+	++	The improvement of rivers and other waters and creation and enhancement of green infrastructure, which will emerge from the implementation of the objectives and projects, will help to improve landscape quality and local distinctiveness.
5. Will the Plan help to tackle the impacts of climate change?	++	+++	+++	One of the key objectives of the Plan is to ensure that how we manage and reduce flood risks helps our local communities, economy and environment to be more resilient to climate change impacts, bearing in mind that increased flood risk will be one of those impacts. The Plan aims to improve our understanding of flood risk, including the impact of climate change, and the impacts on local flood risk will form part of an ongoing review of data by the LLFA and other risk management authorities.
6. Will the Plan encourage the efficient use of natural resources in the location, construction and use of developments?	+	++	++	The Plan will promote the creation of sustainable drainage systems in new developments, which are likely to include natural resources such as ponds, swales and other green infrastructure, and will encourage measures such as de-culverting where appropriate.
7. Will the Plan protect and enhance the historical, cultural and archaeological heritage of the Borough?	+/-	+/-	+/-	A number of heritage assets in the Borough may be at risk from flood risk, including the historic centres of Rochdale and Littleborough. The Plan will promote the appropriate maintenance and management of flood risk management assets such as bridges. However, there is little in the way of mention of the issue of heritage assets, and protection of these could arguably be incorporated into the strategic objectives and the objectives of strategic projects. There may therefore be something of a missed opportunity.
8. Will the Plan help to retain soil and geodiversity quality in the Borough?	+	+	+	The Plan, through its objectives and projects, will help to manage surface water run-off, which can, if unmanaged, depreciate soil quality, including that of agricultural land. However, there is no specific mention of soil quality in the Plan, which could be useful in helping to identify the ways in which soil quality might be affected by flood risk and how the Plan can help to maintain that quality.
9. Will the Plan help to ensure that flood risk is minimised?	+++	+++	+++	The objectives of the Plan include the following: • Work as a Lead Local Flood Authority with other flood risk management agencies to manage flood risk better, reduce the impact of flooding and wherever possible reduce or remove the risk of flooding through investing in our

				drainage infrastructure and its future management • Ensure that development and land management do not increase flood risks and contribute to sustainable drainage and reduction of flood risk. The Plan will help to implement these objectives, through a work programme including strategic and local actions which will aim to reduce and minimise flood risk in areas where it occurs.

Table 5: Appraisal of option 2: Relying on existing strategies and legislation in respect of local flood risk management

	Short term	Medium term	Long term	Comments
1. Will this option make a significant contribution towards the reduction of local carbon emissions, contributing to national and global targets?	N/A	N/A	N/A	The Irwell Catchment Flood Risk Management Plan encourages moorland restoration as a flood risk management measure, which may have some additional impact in terms of reduction of carbon emissions.
2. Will this option help to reduce health inequalities?	+/-	+/-	+/-	There appears to be a lack of existing strategies / legislation which make specific mention of the relationship between flood risk and health and how flood risk management may reduce health inequalities. The proposed Plan should help to fill any gap which may exist and it would therefore appear that to rely on existing strategies and legislation would be something of a missed opportunity in respect of this issue.
3. Will this option contribute towards the protection and enhancement of biodiversity and provide opportunities for new habitat creation?	++	++	++	The Water Framework Directive already has a key role in respect of restoring surface water to good ecological status: the existing North West River Basin Management Plan sets out the strategy for meeting the requirements of the Directive, and includes the enhanced naturalisation of water bodies and biodiversity, and assessment of culvert removal. The Irwell FMP includes actions such as pond creation and tree planting which could be beneficial to biodiversity. The proposed requirement for SUDS in many new developments will potentially introduce new habitats and provide biodiversity enhancement. The proposed Core Strategy policy G8 includes a requirement for the taking of opportunities to improve the habitat value of watercourses and water bodies.

				There therefore seems to be significant existing protection and enhancement of biodiversity arising from existing strategies.
4. Will this option protect and enhance landscape and townscape character, quality and local distinctiveness?	+/-	+/-	+/-	The Irwell Catchment Flood Risk Management Plan encourages moorland restoration as a flood risk management measure. However, there appears to be little else in respect of this issue, although there is also little in the Plan.
5. Will this option help to tackle the impacts of climate change?				
6. Will this option encourage the efficient use of natural resources in the location, construction and use of developments?	++	++	++	There will soon be a statutory requirement for Sustainable Drainage Systems (SUDS) for many new developments, to be agreed with a SUDS approval body. The NPPF gives priority to the use of sustainable drainage systems, and this is reflected at a local level by the provisions of policy G8 of the emerging Core Strategy. The Core Strategy also encourages the avoidance of culverting and the opening up of existing culverts wherever possible. The Irwell Catchment FMP also encourages culvert removal where possible as part of a specific policy for the identified sub-area which includes much of Rochdale Borough. These measures would make more efficient use of natural resources, including water and water bodies. It therefore seems that the Plan would add little in respect of this issue.
7. Will this option protect and enhance the historical, cultural and archaeological heritage of the Borough?	+/-	+/-	+/-	There appears to be little in the scoped strategies and legislation in respect of this issue, however the assessment of option 1 has shown that it is also a missed opportunity in respect of the Plan.
8. Will this option help to retain soil and geodiversity quality in the Borough?	+/-	+/-	+/-	The Irwell Catchment FMP has a policy relating to the rural areas of the borough which involves exploring ways of achieving land management change to reduce run-off from the upper catchment. However, there appears to be little else in the scoped documents in respect of this issue.
9. Will this option help to ensure that flood risk is minimised?	++	++	++	The National Flood and Coastal Erosion Risk Management Strategy for England requires effective flood risk management from the relevant Authorities, including stressing the need to support communities to be better prepared to manage and reduce flood risk. NPPF directs development away from areas of high flood risk through the sequential test and other measures such as site specific flood risk assessments. The Irwell Catchment FMP includes the reduction of run-off in the borough's upper catchment rural areas. The emerging Core Strategy includes a specific policy relating to managing water resources and flood risk, and delivering more extensive and effective flood risk management is one of the primary objectives for the borough's green infrastructure strategy. The Pennine Edge Forest Action Plan aims to maximise

				the role of trees and woodlands in managing flood risk. However, many of these strategies relate specifically to new development, which is not so much of a restriction in respect of the Plan. As the Plan takes a wider strategic approach it is considered that it represents a significant improvement in terms of general flood risk management over relying on existing strategies and legislation.

Table 6: Appraisal of option 3: A more strategic approach, without specific strategic projects

	Short term	Medium term	Long term	Comments
1. Will the Plan make a significant contribution towards the reduction of local carbon emissions, contributing to national and global targets?	N/A	N/A	N/A	
2. Will the Plan help to reduce health inequalities?	+	+	++	This approach would mean that we would be unable to specifically commit to working with the Flood Resilience Community Pathfinder and will not necessarily align with partner authorities strategies, and this could lead to a missed opportunity for raising awareness and preparedness in affected communities. However, the Plan without strategic projects would still be strong in terms of this issue. It is thus considered that there would be little difference.
3. Will the Plan contribute towards the protection and enhancement of biodiversity and provide opportunities for new habitat creation?	+	++	+++	The strategic projects as set out in the draft document do not make specific reference to biodiversity enhancements. However, biodiversity improvements are likely to be subsidiary elements of any projects, and therefore it is not necessarily important for the Plan to outline specific projects as far as this particular issue is concerned.
4.Will the Plan protect and enhance landscape and townscape character, quality and local distinctiveness?	+	+	+	One of the clear advantages of outlining strategic projects is that this can give the Plan the element of local distinctiveness, differentiating it from a strategy which could possibly be transferred to other areas. This can help to focus resources and give a strong spatial dimension to the Plan.
5. Will the Plan help to tackle the impacts of climate change?	++	+++	+++	The Plan will play a strong role in tackling the impacts of climate change, specifically flood risk. This is likely to be an aspect of all elements of the delivery

				programme, and thus it would not be particularly advantageous in respect of this issue to outline specific projects.
6. Will the Plan encourage the efficient use of natural resources in the location, construction and use of developments?	+	++	++	In respect of the Plan as proposed, this relates in particular to the association of Sustainable Drainage Systems (SUDS) with new development, and the possibility of opening up culverts to allow rivers and other waterways to realise full potential as natural resources. This applies to new developments as opposed to strategic projects delivered through the Plan, and thus there would be no particular advantage in terms of this issue of outlining strategic projects.
7. Will the Plan protect and enhance the historical, cultural and archaeological heritage of the Borough?	+/-	+/-	+/-	Specific projects can relate to the heritage assets of the Borough, and would help to give a strong spatial element to the Plan. Thus it would seemingly be advantage to have the Plan as proposed, although it should be noted that it is not strong in this area going by the assessment (option 1).
8. Will the Plan help to retain soil and geodiversity quality in the Borough?	+	+	+	As this is a general issue which will be relevant to most strategic projects, there would be no particular advantage in respect of this issue in outlining strategic projects.
9. Will the Plan help to ensure that flood risk is minimised?	++	++	++	Clearly there is a strong argument that the Plan will make a significant contribution to this objective in the form of either this option or option1. However, the inclusion of strategic projects, as well as giving a spatial dimension to the Strategy, allows the Strategy to align with the strategies of other key authorities, and this is key in terms of successful partnership working and resultant flood risk minimisation.

5. CONCLUSIONS AND RECOMMENDATIONS

Appraisal of option 1: producing the Plan as proposed:

This option performs strongly in respect of objectives relating to health, biodiversity, climate change and flood risk. However, there appear to be weaknesses in respect of the issues of landscape and townscape character, quality and local distinctiveness, protection and enhancement of heritage assets and maintaining soil quality.

In terms of landscape and townscape character, quality and local distinctiveness, and protection and enhancement of heritage assets, it would appear that there is something of a missed opportunity, both in terms of specific reference to such matters in the strategic objectives and in the strategic projects. This could probably be rectified fairly easily, however, by an investigation of where these matters would fit in, in respect of both the objectives and projects, followed by the appropriate wording additions to the Plan.

In respect of the issue of soil quality, this assessment considers that this is an issue of relevance especially regarding surface water run-off management, however it is felt that the Plan should include an analysis of how flood risk can impact upon soil quality and how these impacts may be addressed through the objectives of the Strategy.

Appraisal of option 2: relying on existing strategies and legislation in respect of local flood risk management

Looking at existing strategies and legislation, a number of gaps were notable, in particular relating to health issues, protection of landscape and townscape character, protection of heritage assets and protection of soil and geodiversity quality. However, it should be noted that the Plan is also week in all of these areas except the reduction of health inequalities. Whilst there are existing references to the protection of biodiversity, and the efficient use of natural resources, it could be argued that the Plan improves upon these with its additional and more specific objectives and projects. It can be concluded, therefore, that the Plan as proposed, with its specific local objectives and projects, allows, potentially, for stronger environmental protection in respect of the objections against which it has been assessed, than is the case at present with the reliance on existing strategies and legislation.

Appraisal of option 3: A more strategic approach, without specific strategic projects

This option scores positively in respect of all of the objectives, except that relating to the protection of the historical, cultural and archaeological heritage of the Borough; however, it should be noted that this aspect of environmental protection does not seem to be significantly enhanced with the more site specific approach proposed by the Plan. In respect most of the other objectives which have been used in this assessment, it was found that the site specific approach as proposed helps to strengthen these aspects of environmental

protection, as it enables alignment with the strategies of other key authorities, helps to open up funding opportunities and provides a strong spatial element.

5.1 Conclusion: significant environmental effects of the Plan and proposed mitigation measures

The Plan as proposed and two alternative options were assessed against a range of environmental objectives. It was found that option 1 – producing the Plan as proposed – would have a stronger positive impact on the environment than the other two options.

The assessment of the Plan as proposed showed that it will have a positive impact upon most of the environmental issues to which the objectives related, with the exception of the protection and enhancement of heritage assets, where it would have neither a positive nor negative impact. For most of the issues, there would be an immediate positive impact on production of the Plan, followed by a more positive impact in the medium and longer terms, as the objectives and projects of the Plan are implemented. But it should be noted that that the impact upon ensuring the minimisation of flood risk is strong from the outset, whereas the impact in terms of retaining soil and geodiversity quality is weak from the start and does not improve.

The assessment has thus identified two areas where there is significant room for improvement – the protection of heritage assets and the protection of soil and geodiversity quality. In order to strengthen the Plan in these areas, the following measures are proposed:

5.2 Recommended changes to the Plan to mitigate for any adverse environmental impacts identified

Chapter 5 – 'Flood risk management in Rochdale borough' – 'Influences on future flood risk' – 'The South Pennine Watershed' – additional text to clarify the importance understanding and incorporating soil management into upland management activities.

Chapter 5 – 'Flood risk management in Rochdale borough' – 'Influences on future flood risk' – 'Trees and woodland' – additional text emphasising the role of trees and woodland in the improvement of soil quality.

Chapter 10 – 'Protecting and improving our environment' – 10.2 – inclusion of soils and geodiversity as asserts which should not be adversely affected by flood risk management, e.g. altering drainage.

Chapter 10 – 'Protecting and improving our environment' – 10.3 – new text outlining the importance of considering heritage assets, landscape and townscape, and giving detail in respect of what kind of assets may be affected and outlining a commitment to their conservation and enhancement.

The recommendations as above have been incorporated into the draft consultation Plan.