Local Flood Risk Management Strategy (LFRMS) for Birmingham
Consultation Draft

Strategic Environmental Assessment (SEA) Report

On behalf of

Birmingham City Council

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Non-Technical Summary

This is the non-technical summary of the Strategic Environmental Assessment Report (SEA Report) in relation to the Consultation Draft of the Local Flood Risk Management Strategy (LFRMS) for Birmingham.

The purpose of the SEA Report is to inform the consultees to the Strategy of the potential environmental effects of its' implementation. The Strategy for Birmingham sets out how flood risk will be assessed and what measures will be put in place in order to manage flood risk in Birmingham.

The Strategy covers a 25 year period and considers the impact and consequences of local flooding together with the relationship between the main rivers and other local sources of flooding.

This report identifies, describes and evaluates the likely significant effects on the environment of implementing the Strategy. This has been undertaken by considering the potential effects of the Strategy on the following different aspects of the environment;

- Biodiversity
- Population
- Human health
- Soil and ground conditions
- Water resources
- Material assets
- Cultural heritage
- Landscape

The existing environmental conditions were evaluated and reported on in the SEA Scoping Report (October 2013). The Scoping Report also identified a series of SEA objectives, these objectives have been used as the basis of the assessment.

The assessment concludes that the Strategy is ***unlikely*** to give rise to any ***significant adverse effects*** on the environment and is ***likely*** to result in ***beneficial effects in terms of human health, material assets and water resources***.

Abbreviations

BCC	Birmingham City Council
CAMS	Catchment Areas Management Strategy
EA	Environment Agency
EC	European Commission
EU	European Union
FRA	Flood Risk Assessment
HRA	Habitat Regulations Assessment
LFRMS	Local Flood Risk Management Strategy
NNR	National Nature Reserve
PBA	Peter Brett Associates
SEA	Strategic Environmental Assessment
SINCs	Sites of Importance for Nature Conservation
SLINCs	Sites of Local Importance for Nature Conservation
SSSIs	Sites of Special Scientific Interest
SuDS	Sustainable Drainage Systems
UKCP	United Kingdom Climate Projections

1 Introduction

1.1 Background

1.1.1 Birmingham City Council is required under the Flood and Water Management Act 2010 to develop, maintain, apply and monitor a strategy for local flood risk management in its area. The Local Flood Risk Management Strategy (LFRMS) sets out the objectives for managing local flood risk and the measures proposed to achieve those objectives. The main partners in delivering a local strategy include the Environment Agency and Severn Trent Water together with other flood risk management authorities.

1.2 SEA Process and Legislation

1.2.1 The Environmental Assessment of Plans and Programmes Regulations 2004 (the Regulations), implement the requirements of the European Union (EU) Directive 2001/42/EC (known as the SEA Directive), in England.

1.2.2 The Regulations state;

The Environmental Report must identify, describe and evaluate the likely significant effects on the environment of implementing the plan (or in this case Strategy).

1.2.3 The Local Flood Risk Management Strategy (LFRMS) for Birmingham has been identified as a plan which could give rise to significant environmental effects. The principle steps in the process are provided below;

Step 1: - Establish the current environmental conditions (i.e. the baseline) within the geographical extent of the Strategy.

Step 2: - Predict any changes/trends to the environmental conditions that are likely to occur within the temporal scope of the Strategy

Step 3: - Identify and agree the SEA objectives. These SEA objectives should take into account the following issues;

- Biodiversity
- Population
- Human health
- Soil and ground conditions
- Water resources
- Air quality
- Material assets
- Cultural heritage
- Landscape

1.2.4 **Step 4:** - Consult on the scope of the SEA (i.e. steps 1-3 above) with statutory consultees.

1.2.5 **Step 5:** - Assess the Strategy, against the SEA objectives in the context of the existing and future environmental conditions and determine any significant environmental effects.

1.2.6 **Step 6:** Identify mitigation strategies for any likely significant effects. It is not anticipated that there will be many (if any) significant *adverse* environment effects as a result of the Strategy. If any are identified, mitigation measures to avoid reduce or compensate the effect will be recommended.

1.2.7 **Step 7:** - Recommend a monitoring regime for the implementation of the Strategy.

1.2.8 The requirements of what should be included in an Environmental Report from Schedule 2 of the Environmental Assessment of Plans and Programmes Regulation 2004 are reproduced at Appendix A.

Scoping

1.2.9 The scope of the SEA to be undertaken was set out in the Scoping Report published in September 2013 (provided at Appendix B).

Purpose of this document

1.2.10 The purpose of this document is to report on steps 5-7 above, in relation to the Consultation Draft of the Strategy. The purpose of the SEA Report is to inform the consultees to the Strategy of the potential environmental effects of its implementation. An SEA Statement will be prepared in relation to the Adopted Strategy.

2 The Local Flood Risk Management Strategy

2.1 Introduction

2.1.1 The Local Flood Risk Management Strategy for Birmingham provides a strategic approach to the appraisal and implementation of flood management actions to manage flood risk. The Strategy covers a 25 year period and considers the impact and consequences of local flood risk together with the interface between the main rivers and local flood risk sources. The strategy specifies:

- the risk management authorities in 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 level of local flood risk;
- the objectives for managing local flood risk (including any objectives included in the Flood Risk Management Plan for Birmingham to be prepared by 2015 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;
- how and when the strategy is to be reviewed; and
- how the strategy contributes to the achievement of wider environmental objectives.

2.2 Aims and objectives

2.2.1 The overarching aim of the strategy is to ensure that local flood risk is understood and managed in a coordinated way in Birmingham. The objectives by which this will be achieved are as follows;

- Stakeholder Responsibilities and Partnership Arrangements - identify all stakeholders with a role in flood risk management, set out their responsibilities and work with them to adopt a partnership approach to managing local flood risk;

- Local Flood Risk - develop a clear understanding of flood risk from surface water, groundwater and ordinary watercourses and set out how this information will be communicated and shared;
- Asset Management - outline how local flood risk assets are identified, managed and maintained and develop a clear understanding of riparian responsibilities;
- Responding to Flooding - define the criteria and procedure for responding to and investigating flooding incidents, and set out the role of emergency planning, flood action groups and individual property owners;
- Managing Flood Risk - define the criteria for how and when flood risk management schemes will be promoted to ensure that they provide value for money whilst minimising the long-term revenue costs and maximise external funding contributions;
- Flood Risk and Development - minimise the impact of development on flood risk by developing guidance, policies and standards that manage flood risk and reduce the flood risk to existing communities; and
- Environmental Implications - adopt a sustainable approach to managing local flood risk by ensuring actions deliver wider environmental benefits.

2.3 Alternatives

2.3.1 The only alternative to the Strategy proposed that has been assessed is a “do-nothing” or business as usual scenario.

3 Assessment of Effects

3.1 SEA Objectives

3.1.1 The following Sustainability Objectives were developed and consulted upon within the SEA Scoping Report. These agreed objectives are used as the basis of the assessment;

1. To protect and improve the quality and condition of water resources in Birmingham.
2. To conserve and enhance biodiversity across Birmingham from the potential impacts of local flooding.
3. To protect and conserve soils and reduce their ability to act as pollution sources and pathways in times of local flooding.
4. To promote the mitigation of, and adaptation to, climate change and its effects on flood risk across Birmingham.
5. To safeguard existing and future material assets and critical infrastructure in Birmingham from the potential impacts of local flooding.
6. To protect the health and wellbeing of local people and communities in Birmingham from the potential impacts of local flooding.
7. To safeguard and enhance sites, features and settings of cultural heritage, archaeological, historical value across Birmingham from the potential impacts of local flooding.

3.2 Baseline and Context

3.2.1 A description of the existing environmental conditions is provided in the SEA Scoping Report (at Appendix B). The scoping process incorporated an analysis of the current and future environmental conditions within the context of existing policies, plans and programmes and provided the rationale for the SEA objectives proposed.

Baseline Characteristics

3.2.2 Birmingham is the United Kingdom's second largest urban conurbation and neighboured by several other large conurbations, such as Solihull, Wolverhampton, and the towns of the Black Country.

3.2.3 The Office of National Statistics (July 2012) estimates Birmingham's population was approximately 1,073,000 which equates to an increase of 88,000 (9%) between 2001 (984,600) and 2011.

3.2.4 The City covers an area of 26,780 ha (268 km^2), of which 15,200 ha is residential. According to the Housing Development Plan Birmingham's residents live in 406,000-410,000 households.

3.2.5 There are currently 30 Conservation Areas in Birmingham, which accounts for 4% of the land area of the City including five within the City Centre. Some Conservation Areas, such as the Jewellery Quarter and Bourneville, are unique and are nationally recognised. Birmingham also has nearly 1,500 statutorily listed buildings and 14 Registered Parks and Gardens of special historic interest.

3.2.6 The City has a number of areas that are protected for their nature conservation value. The City's nature conservation sites include two Sites of Special Scientific Interest (SSSIs): Sutton Park and Edgbaston Pool. Sutton Park is also designated as a National Nature Reserve (NNR). There are 10 Local Nature Reserves (LNRs), over 50 Sites of Importance for Nature Conservation (SINCs) and 661.85ha of Sites of Local Importance for Nature Conservation (SLINCs) covering various ancient woodlands, grasslands, lakes, streams, and other important wildlife habitats or examples of natural landscape. Within the City Centre there are a number of sites of local importance for nature conservation (SLINCs), essentially the canal network and the River Rea. These areas, as well as the linear corridors along main rail and Metro lines, are key wildlife corridors.

3.2.7 Birmingham is at considerable risk of flooding from Main Rivers, ordinary watercourses, surface water, sewer flooding and groundwater. There is also the potential for canal and reservoir breach and overtopping. It is estimated that there are 11,365 properties at risk of fluvial flooding and 24,600 properties at risk of surface water flooding.

3.2.8 The urban area of Birmingham sits predominantly within the Humber river basin catchment, a small area to the south west of the City drains to the Severn River basin catchment.

3.2.9 UK Climate Change Projections (UKCP09) suggest that mean summer temperatures could rise by 2.6 ºC, summer rainfall could decrease by 17% and winter rainfall could increase by 13% in the West Midlands by the 2050s. These are the central estimates for a medium emissions scenario. By the 2050s central England could have irrigation needs similar to those currently seen in central and southern Europe. Mean monthly river flows could decrease by 50% to 80%. However, by the 2080s, the latest UK climate projections (UKCP09) are that there could be around three times as many days in winter with heavy rainfall (defined as more than 25 mm in a day). It is plausible that the amount of rain in extreme storms (with a 1 in 5 annual chance or rarer) could increase locally by 40%. The impact of wetter winters and more of this rain falling in wet spells may increase river flooding. More intense rainfall causes more surface runoff, increasing localised flooding and erosion. In turn, this may increase pressure on drains, sewers and water quality. Storm intensity in summer could increase even in drier summers.

3.3 Effects of the Strategy

3.3.1 The likely effects on the environment (including secondary, cumulative and synergistic) of implementing the Strategy have been assessed be using the assessment matrix as proposed in the SEA Scoping Report. The matrix identifies the significance of the effect as either;

- significant positive;
- minor positive;
- no overall effect;
- minor negative;
- significant negative; or
- uncertain.

3.3.2 The effects are also defined as being short term (0-10 year), medium term (between 11 and 25 years) or long term (>25 years).

Assessment Matrix

3.3.3 Objectives 1, 2 and 7 have been screened against the SEA objectives but no further 'assessment of effects' has been undertaken as the policies within the objectives (Objective 1 & 2) are general statements of intent that are unlikely to result in adverse effects to the environment or the objective (Objective 7) is made up of policies that advocate a sustainable approach to managing flood risk, and therefore are unlikely to result in adverse effects to the environment.

3.3.4 Hence, the three objectives scoped-out from the 'assessment of effects' stage of the assessment are:

- **Objective 1** - Identify all stakeholders with a role in flood risk management, set out their responsibilities and work with them to adopt a partnership approach to managing local flood risk.
- **Objective 2** - Local Flood Risk - Develop a clear understanding of flood risk from surface water, groundwater, and ordinary watercourses and set out how this information will be communicated and shared.

- **Objective 7** - Environmental Implications – adopt a sustainable approach to managing local flood risk by ensuring actions deliver wider environmental benefits.

3.3.5 Objectives 3-6 are considered to have potential to result in significant environmental effects and have therefore been included within the 'assessment of effects' stage of the assessment below.

3.4 Objective 3 – Asset Management

3.4.1 **Objective 3**: Asset Management - "outline how local flood risk assets are identified, managed and maintained and develop a clear understanding of riparian responsibilities."

3.4.2 **Policies**:

- The City Council will maintain a register of significant assets which it believes have an effect on flood risk.
- The City Council will not consent works on ordinary watercourses which increase flood risk or have a detrimental effect on the environment.
- The City Council will undertake maintenance works on watercourses and culverts for which it has responsibility for the purpose of flood risk management where it is essential in the general public interest.
- The City Council will use its powers under the Land Drainage Act to remove blockages to watercourses that present a flood risk and recover costs from the landowner where they failed to undertake their riparian responsibilities.

Table 3.1: Assessment Matrix for Objective 3 – Asset Management

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
To protect and improve the quality and condition of water resources in Birmingham.	Will the LFRMS impact on water resources across Birmingham and beyond? Will the LFRMS protect and improve surface and groundwater water	+ Minor Positive	+ Minor Positive	+ Minor Positive	**Assessment of effects**: Theses policies are unlikely to directly impact the quality of water resources in Birmingham but they will improve the knowledge and management of water resources which should in turn mean that the response to pollution incidents and emergencies is more effective and efficient. These policies

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
	quality? Will the LFRMS contribute towards achievement of Good Ecological Potential/Status? Will the LFRMS mobilise known areas of contamination?				should also reduce flood risk which in turn will reduce the potential for diffuse pollution via flood waters. **Mitigation**: None **Assumptions**: Waterbodies potential/status is dependent upon point and diffuse sources of contamination. **Uncertainties**: The extent of change. No baseline information provided on CAMS areas
To conserve and enhance biodiversity across Birmingham from the potential impacts of local flooding.	Will the LFRMS help to protect and enhance designated sites in Birmingham and beyond? Will the LFRMS protect and enhance habitats and species across Birmingham and beyond?	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: The Habitat Regulations screening assessment for the Strategy concludes that the policies of this objective should be screened out from further consideration as they are general statements that are unlikely to result in adverse effects to internationally designated nature conservation sites. The policy is unlikely to change the condition status of Sutton Park and Edgbaston Pool SSSI as it is not dependent upon changes in flood risk. This objective is likely to protect other habitats and species because one policy is that the City Council will not consent works on ordinary watercourse that increase flood risk or have a detrimental effect on the environment. Although the policy does not advocate measures to enhance biodiversity. **Mitigation**: None identified. **Assumptions**: The City Council will not consent works on ordinary watercourse that increase flood risk or have a detrimental effect on the environment.

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
					Uncertainties: None identified.
To protect and conserve soils and reduce their ability to act as pollution sources and pathways in times of local flooding.	Will the LFRMS protect and conserve soils and increase resilience to degradation? Will the LFRMS reduce the risk to waters from diffuse pollution in times of local flooding? Will the LFRMS conserve and protect the best and most productive agricultural land from the impact of local flooding?	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: By identifying , managing and maintaining flood defence assets , this is likely to reduce the frequency and severity of surface water flooding (pluvial and the sewer network) in the short term thus reducing the risk to water from diffuse pollution e.g. agricultural land, historic landfills and mineral sites. The policies of the objective are likely to have no overall effect on the protection and conservation of soils and the best agricultural land from the impact of flooding. **Mitigation**: None identified. **Assumptions**: The frequency and severity of surface water flooding is reduced in the short term. **Uncertainties**: None identified.
To promote the mitigation of, and adaptation to, climate change on flood risk across Birmingham.	Will the LFRMS reduce the risk of flooding from surface, sewer, and groundwater sources? Will the LFRMS contribute to ensuring that new development is sited in accordance with the Sequential Test? Will the LFRMS help to increase resilience to the impacts of flooding through reducing the	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects:** By identifying, managing and maintaining flood defence assets, this is likely to reduce the frequency and severity of surface water flooding (pluvial and the sewer network) and groundwater in the short term helping to increase flooding resilience. There is likely to be no overall effect to ensuring that new development is sited out of the flood plain (in accordance with the Sequential Test) and the encouragement of sustainable drainage solutions. **Mitigation**: None identified. **Assumptions**: The frequency and severity of surface water flooding is reduced in the short term.

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
	frequency and severity of flood events? Will the LFRMS help to reduce the impact of flooding on land and property? Will the LFRMS encourage the development of sustainable drainage solutions?				**Uncertainties**: None identified.
To safeguard existing and future material assets and critical infrastructure in Birmingham from the potential impacts of local flooding.	Will the LFRMS help to ensure the protection of important infrastructure across Birmingham? Will the LFRMS help to protect utility services such as water, power and telecommunications?	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects:** By identifying , managing and maintaining flood defence assets, this is likely to reduce the frequency and severity of surface water flooding (pluvial and the sewer network) and groundwater flooding in the short term to critical infrastructure in Birmingham e.g. housing, road and rail networks, waste management facilities, utilities and community care facilities. **Mitigation**: None identified. **Assumptions**: The frequency and severity of surface water flooding is reduced in the short term. **Uncertainties**: None identified.
To protect the health and wellbeing of local people and communities in Birmingham from the	Will the LFRMS have an impact on human health? Will the LFRMS have an impact on recreational resources, and	**+** Minor Positive	**0** No overall effect	**0** No overall effect	**Assessment of effects:** By identifying, managing and maintaining flood defence assets, this is likely to reduce the frequency and severity of surface water flooding (pluvial and the sewer network) and groundwater flooding in the short term.

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
potential impacts of local flooding.	greenspaces in particular?				Therefore, in the short term, this should improve the health of those currently affected by flooding through for example providing more certainty on flood risk and the response to it and hence reducing anxiety. There is likely to be no overall effect on recreational resources and green spaces from the policies of this objective. **Mitigation**: None identified. **Assumptions**: The frequency and severity of surface water flooding is reduced in the short term. **Uncertainties**: None identified.
To safeguard and enhance sites, features and settings of cultural heritage, archaeological, historical value across Birmingham from the potential impacts of local flooding	Will the LFRMS help to protected cultural heritage assets and landscapes across Birmingham?	**+** Minor Positive	**0** No overall effect	**0** No overall effect	**Assessment of effects:** A policy of this objective is that the City Council will not consent works on ordinary watercourse that increase flood risk or have a detrimental effect on the environment, including this historic environment. Therefore, there is likely to be no overall effect from the policies of this objective on the features and settings of cultural heritage, archaeological and historic value across Birmingham. **Mitigation**: None identified. **Assumptions**: The City Council will not consent works on ordinary watercourses that have a detrimental effect on the historic environment. **Uncertainties**: The location of historic assets at risk of surface water flooding.

SEA Objectives	Guide Questions		Timescale			Commentary/Explanation	
			Short term	Medium term	Long term		
Key	**++** Significant Positive Effect	**+** Minor positive effects	**0** No overall effect	**-** Minor negative effect	**--** Significant negative effect	**?** Score Uncertain	
NB: where more than one symbol is presented in a box it indicates that the SEA has found more than one score for the category. Where a box contains a ?, this indicates uncertainty over whether the effect could be a minor or significant effect. A conclusion of uncertainty arises where there is insufficient evidence for expert judgement to conclude an effect.							

3.5 Objective 4 – Responding to Flooding

3.5.1 **Objective 4:** Responding to Flooding – define the criteria and procedure for responding to and investigating flooding incidents, and set out the role of emergency planning, flood action groups and individual property owners.

3.5.2 **Policies**:

- The City Council will ensure that there are appropriately qualified and experienced staff available to respond to flooding emergencies 24 hours a day every day.
- The City Council will not deploy resources on the sole basis of weather forecasting, an escalating series of triggers will be used to identify when resources should be deployed.
- The City Council will provide sandbags in bulk deliveries to approved Flood Action Groups during a flooding event, sandbags will not generally be provided to individual properties.
- The City Council in liaison with the Environment Agency will support the establishment and maintenance of Flood Action Groups and other relevant community groups with guidance and advice in setting up flood plans and liaising with emergency services.
- The City Council will record all reports of flooding that it receives and will investigate those incidents that are considered significant.

Table 3.2: Assessment Matrix for Objective 4 – Responding to Flooding

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
To protect and improve the quality and condition of water resources in Birmingham.	Will the LFRMS impact on water resources across Birmingham and beyond? Will the LFRMS protect and improve surface and groundwater water quality? Will the LFRMS contribute towards achievement of Good Ecological Potential/Status? Will the LFRMS mobilise known areas of contamination?	**0** No overall effect	**0** No overall effect	**0** No overall effect	**Assessment of effects**: Defining the criteria and procedure for responding to and investigating flooding incidents, is likely to reduce the severity of flooding when it occurs. This is unlikely to directly protect or improve surface and groundwater quality from point and diffuse sources including the mobilisation of historic contamination. **Mitigation**: None **Assumptions**: The objective is likely to reduce the severity of flooding. **Uncertainties**: None identified.
To conserve and enhance biodiversity across Birmingham from the potential impacts of local flooding.	Will the LFRMS help to protect and enhance designated sites in Birmingham and beyond? Will the LFRMS protect and enhance habitats and species across Birmingham and beyond?	**0** No overall effect	**0** No overall effect	**0** No overall effect	**Assessment of effects**: The habitats regulations screening assessment for the strategy concludes that the policies of this objective should be screened out from further consideration as they are general statements that are unlikely to result in adverse effects to internationally designated nature conservation sites. The policies within this objective are unlikely to change the condition status of Sutton Park and Edgbaston Pool SSSI as it is not dependent upon changes in flood risk. The policies of the objective are unlikely to result in wider

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
					habitat and species change. **Mitigation**: None **Assumptions**: The objective is likely to reduce the severity of flooding. **Uncertainties**: None.
To protect and conserve soils and reduce their ability to act as pollution sources and pathways in times of local flooding.	Will the LFRMS protect and conserve soils and increase resilience to degradation? Will the LFRMS reduce the risk to waters from diffuse pollution in times of local flooding? Will the LFRMS conserve and protect the best and most productive agricultural land from the impact of local flooding?	**0** No overall effect	**0** No overall effect	**0** No overall effect	**Assessment of effects**: Defining the criteria and procedure for responding to and investigating flooding incidents, is likely to reduce the severity of flooding when it occurs. However, it is unlikely to protect and conserve soils and the most fertile agricultural land to the impact of flooding, or reduce the risk to waters from diffuse pollution in times of local flooding, but equally it is also unlikely to make the situation worse than existing. **Mitigation**: None **Assumptions**: The objective is likely to reduce the severity of flooding. **Uncertainties**: Most productive agricultural land, historic landfills and mineral sites at risk of surface water and groundwater flooding.
To promote the mitigation of, and adaptation to, climate change on flood risk	Will the LFRMS reduce the risk of flooding from surface, sewer, and groundwater sources?	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: Defining the criteria and procedure for responding to and investigating flooding incidents, is likely to reduce the severity of surface water and groundwater flooding to land and property in the short

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
across Birmingham.	Will the LFRMS contribute to ensuring that new development is sited in accordance with the Sequential Test? Will the LFRMS help to increase resilience to the impacts of flooding through reducing the frequency and severity of flood events? Will the LFRMS help to reduce the impact of flooding on land and property? Will the LFRMS encourage the development of sustainable drainage solutions?				term contributing towards flooding resilience. There is likely to be no overall effect to ensuring that new development is sited out of the flood plain (in accordance with the Sequential Test) and the encouragement of sustainable drainage solutions **Mitigation**: None. **Assumptions**: The objective is likely to reduce the severity of flooding. **Uncertainties**: None.
To safeguard existing and future material assets and critical infrastructure in Birmingham from the potential impacts of local flooding.	Will the LFRMS help to ensure the protection of important infrastructure across Birmingham? Will the LFRMS help to protect utility services such as water, power and	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: Defining the criteria and procedure for responding to and investigating flooding incidents, is likely to reduce the severity of surface water and groundwater flooding to existing and future materials assets and critical infrastructure in the short term e.g. housing, road and rail networks, waste management facilities, utilities and community care facilities.

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
	telecommunications?				**Mitigation**: None. **Assumptions**: The objective is likely to reduce the severity of flooding. **Uncertainties**: None.
To protect the health and wellbeing of local people and communities in Birmingham from the potential impacts of local flooding.	Will the LFRMS have an impact on human health? Will the LFRMS have an impact on recreational resources, and greenspaces in particular?	**+** Minor Positive	**0** No overall effect	**0** No overall effect	**Assessment of effects**: Defining the criteria and procedure for responding to and investigating flooding incidents, is likely to reduce the severity of surface water and groundwater flooding to land and property in the short term contributing towards flooding resilience. Therefore, in the short term, this should improve the health of those currently affected by flooding through for example providing more certainty on the response to flooding and hence reducing anxiety. There is likely to be no overall effect on recreational resources and green spaces from the policies of this objective. **Mitigation**: None **Assumptions**: The objective is likely to reduce the severity of flooding. **Uncertainties**: None.
To safeguard and enhance sites, features and settings of cultural heritage, archaeological,	Will the LFRMS help to protected cultural heritage assets and landscapes across Birmingham?	**+** Minor Positive	**0** No overall effect	**0** No overall effect	**Assessment of effects**: Defining the criteria and procedure for responding to and investigating flooding incidents, is likely to reduce the severity of surface water and groundwater flooding to some features of cultural

SEA Objectives	Guide Questions		Timescale			Commentary/Explanation	
			Short term	Medium term	Long term		
historical value across Birmingham from the potential impacts of local flooding						heritage value (e.g. listed buildings) in the short term. However, there is likely to be no overall effect from the policies of this objective on the setting of cultural heritage features (e.g. Conservation Areas), historic parks and gardens and archaeological deposits across Birmingham. **Mitigation**: None. **Assumptions**: The objective is likely to reduce the severity of flooding. **Uncertainties**: None.	
Key	**++** Significant Positive Effect	**+** Minor positive effects	**0** No overall effect	**-** Minor negative effect	**--** Significant negative effect	**?** Score Uncertain	

3.6 Objective 5 – Managing Flood Risk

3.6.1 **Objective 5:** Managing Flood Risk – define the criteria for how and when flood risk management schemes will be promoted to ensure that they provide value for money whilst minimising the long-term revenue costs and maximise external funding contributions.

3.6.2 **Policies**:

- The City Council will establish and follow an assessment framework for prioritising flood risk management schemes.
- The City Council will seek funding opportunities, both public and private, to deliver flood risk management improvements.
- The City Council will seek to maintain and where possible increase its flood risk management skills and capacity.

Table 3.3 : Assessment Matrix for Objective 5 – Managing Flood Risk

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
To protect and improve the quality and condition of water resources in Birmingham.	Will the LFRMS impact on water resources across Birmingham and beyond? Will the LFRMS protect and improve surface and groundwater water quality? Will the LFRMS contribute towards achievement of Good Ecological Potential/Status? Will the LFRMS mobilise known areas of contamination?	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: By establishing a framework to prioritise flood risk management schemes, minimise long-term costs and maximise external funding contributions, the frequency and severity of flooding from surface water and groundwater is likely to be reduced when compared to the baseline. This will in turn protect and improve surface and groundwater quality from point and diffuse point sources, including the mobilisation of historic contamination and contribute towards achievement of Good Ecological Potential/Status of surface water. **Mitigation**: None **Assumptions**: The ecological potential/status of waterbodies is influenced by point and diffuse pollution sources. **Uncertainties**: The extent of change.
To conserve and enhance biodiversity across Birmingham from the potential impacts of local flooding.	Will the LFRMS help to protect and enhance designated sites in Birmingham and beyond? Will the LFRMS protect and enhance habitats and species across Birmingham and beyond?	**0** No overall effect	**0** No overall effect	**0** No overall effect	**Assessment of effects**: The habitats regulations screening assessment for the strategy concludes that the policies of this objective should be screened out from further consideration as they are general statements that are unlikely to result in adverse effects to internationally designated nature conservation sites. The policy is unlikely to change the condition status of Sutton Park and Edgbaston Pool SSSI as it is not

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
					dependent upon changes in flood risk. The policies of the objective are unlikely to result in wider habitat and species change. **Mitigation**: None. **Assumptions**: The policy is likely to reduce the frequency and severity of flooding. **Uncertainties**: None.
To protect and conserve soils and reduce their ability to act as pollution sources and pathways in times of local flooding.	Will the LFRMS protect and conserve soils and increase resilience to degradation? Will the LFRMS reduce the risk to waters from diffuse pollution in times of local flooding? Will the LFRMS conserve and protect the best and most productive agricultural land from the impact of local flooding?	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: By establishing a framework to prioritise flood risk management schemes, minimise long-term costs and maximise external funding contributions, the frequency and severity of flooding from surface water and groundwater is likely to be reduced when compared to the baseline. There is potential within the framework for flood risk management schemes to be prioritised to protect and conserve soils and the most fertile agricultural land to the impact of flooding, or reduce the risk to waters from diffuse pollution in times of local flooding. **Mitigation**: None. **Assumptions**: The framework to prioritise flood risk management schemes will include the protection of soils from flood risk within the criteria. **Uncertainties**: None.
To promote the	Will the LFRMS reduce	**+**	**+**	**+**	**Assessment of effects**: By establishing a framework to

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
mitigation of, and adaptation to, climate change on flood risk across Birmingham.	the risk of flooding from surface, sewer, and groundwater sources? Will the LFRMS contribute to ensuring that new development is sited in accordance with the Sequential Test? Will the LFRMS help to increase resilience to the impacts of flooding through reducing the frequency and severity of flood events? Will the LFRMS help to reduce the impact of flooding on land and property? Will the LFRMS encourage the development of sustainable drainage solutions?	Minor Positive	Minor Positive	Minor Positive	prioritise flood risk management schemes, minimise long-term costs and maximise external funding contributions, the frequency and severity of flooding from surface water and groundwater is likely to be reduced when compared to the baseline. There is likely to be no overall effect to ensuring that new development is sited out of the flood plain (in accordance with the Sequential Test) and the encouragement of sustainable drainage solutions **Mitigation**: None. **Assumptions**: The objective is likely to reduce the frequency and severity of flooding. **Uncertainties**: None.
To safeguard existing and future material assets and critical infrastructure in	Will the LFRMS help to ensure the protection of important infrastructure across Birmingham?	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: By establishing a framework to prioritise flood risk management schemes, minimise long-term costs and maximise external funding contributions, the frequency and severity of flooding to existing and future

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
Birmingham from the potential impacts of local flooding.	Will the LFRMS help to protect utility services such as water, power and telecommunications?				materials assets and critical infrastructure from surface water and groundwater is likely to be reduced when compared to the baseline. **Mitigation**: None. **Assumptions**: The objective is likely to reduce the severity of flooding. **Uncertainties**: None.
To protect the health and wellbeing of local people and communities in Birmingham from the potential impacts of local flooding.	Will the LFRMS have an impact on human health? Will the LFRMS have an impact on recreational resources, and green spaces in particular?	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: By establishing a framework to prioritise flood risk management schemes, minimise long-term costs and maximise external funding contributions, the frequency and severity of flooding to land and property from surface water and groundwater is likely to be reduced when compared to the baseline. **Mitigation**: None. **Assumptions**: The objective is likely to reduce the severity of flooding. **Uncertainties**: None.
To safeguard and enhance sites, features and settings of cultural heritage, archaeological, historical value across Birmingham from the potential	Will the LFRMS help to protected cultural heritage assets and landscapes across Birmingham?	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: By establishing a framework to prioritise flood risk management schemes, minimise long-term costs and maximise external funding contributions, the frequency and severity of flooding to land and property from surface water and groundwater is likely to be reduced when compared to the baseline. However, there is likely to be no overall effect from the policies of this objective on setting of cultural heritage

SEA Objectives	Guide Questions		Timescale			Commentary/Explanation	
			Short term	Medium term	Long term		
impacts of local flooding						features (e.g. Conservation Areas), historic parks and gardens and archaeological deposits across Birmingham. **Mitigation**: None. **Assumptions**: The objective is likely to reduce the severity of flooding. **Uncertainties**: None.	
Key	**++** Significant Positive Effect	**+** Minor positive effects	**0** No overall effect	**-** Minor negative effect	**--** Significant negative effect	**?** Score Uncertain	

3.7 Objective 6 – Flood Risk and Development

3.7.1 **Objective 6:** Flood Risk and Development – minimise the impact of development on flood risk by developing guidance, policies and standards that manage flood risk and reduce the flood risk to existing communities.

3.7.2 **Policies**:

- The City Council will establish and imbed flood risk management into its development policies to manage flood risk to new and existing communities.
- The City Council will develop a SuDS Policy.
- The City Council will not support the culverting of watercourses and will seek opportunities for the de-culverting and naturalisation of watercourses.

Table 3.4: Assessment Matrix for Objective 6 – Flood Risk and Development

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
To protect and improve the quality and condition of water resources in Birmingham.	Will the LFRMS impact on water resources across Birmingham and beyond? Will the LFRMS protect and improve surface and groundwater water quality? Will the LFRMS contribute towards achievement of Good Ecological Potential/Status? Will the LFRMS mobilise known areas of contamination?	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: By establishing policy, standards and guidance on flood risk and development, the frequency and severity of flooding should be minimised. This will in turn protect surface and groundwater quality from point and diffuse point sources, including the mobilisation of historic contamination and contribute towards achievement of Good Ecological Potential/Status of surface water. **Mitigation**: None **Assumptions**: That the chemical and ecological Potential/Status of waterbodies is dependent upon pollution sources. **Uncertainties**: Water resource availability in CAMS areas
To conserve and enhance biodiversity across Birmingham from the potential impacts of local flooding.	Will the LFRMS help to protect and enhance designated sites in Birmingham and beyond? Will the LFRMS protect and enhance habitats and species across Birmingham and beyond?	**0** No overall effect	**0** No overall effect	**0** No overall effect	**Assessment of effects**: The habitats regulations screening assessment for the strategy concludes that the policies of this objective should be screened out from further consideration as they are general statements that are unlikely to result in adverse effects to internationally designated nature conservation sites. The policy is unlikely to change the condition status of Sutton Park and Edgbaston Pool SSSI as the site's ecological status is not dependent upon changes in flood risk. The policies of the objective are unlikely to result in wider habitat and species change.

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
					Mitigation: None. **Assumptions**: The policy is likely to reduce the frequency and severity of flooding. **Uncertainties**: None.
To protect and conserve soils and reduce their ability to act as pollution sources and pathways in times of local flooding.	Will the LFRMS protect and conserve soils and increase resilience to degradation? Will the LFRMS reduce the risk to waters from diffuse pollution in times of local flooding? Will the LFRMS conserve and protect the best and most productive agricultural land from the impact of local flooding?	**0** No overall effect	**0** No overall effect	**0** No overall effect	**Assessment of effects**: By establishing policy, standards and guidance on flood risk and development, the frequency and severity of flooding from surface water and groundwater caused by new development is likely to be reduced to existing and new communities. The policy, standards and guidance are unlikely to result in the protection and conservation of soils and the most fertile agricultural land to the impact of flooding, or reduce the risk to waters from diffuse pollution in times of local flooding. **Mitigation**: None. **Assumptions**: Standards, policy and guidance relate to existing and new communities only. **Uncertainties**: None.
To promote the mitigation of, and adaptation to, climate change on flood risk across Birmingham.	Will the LFRMS reduce the risk of flooding from surface, sewer, and groundwater sources? Will the LFRMS contribute to ensuring that new development is sited in	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: By establishing policy, standards and guidance on flood risk and development, the frequency and severity of flooding from surface water and groundwater caused by new development helping increase flooding resilience to existing and new communities. The development of a sustainable urban drainage policy is likely to encourage sustainable urban drainage solutions

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
	accordance with the Sequential Test? Will the LFRMS help to increase resilience to the impacts of flooding through reducing the frequency and severity of flood events? Will the LFRMS help to reduce the impact of flooding on land and property? Will the LFRMS encourage the development of sustainable drainage solutions?				that will increase flooding resilience of new development. The development of flood risk management policies will contribute towards ensuring that the new development is sited in accordance with the Sequential Test. **Mitigation**: None. **Assumptions**: Implementation of policy, standards and guidance in the short term. Planning committee decisions follow policy, standards and guidance set by planning officers. **Uncertainties**: None.
To safeguard existing and future material assets and critical infrastructure in Birmingham from the potential impacts of local flooding.	Will the LFRMS help to ensure the protection of important infrastructure across Birmingham? Will the LFRMS help to protect utility services such as water, power and telecommunications?	**+** Minor Positive	**+** Minor Positive	**+** Minor Positive	**Assessment of effects**: By establishing policy, standards and guidance on flood risk and development, the frequency and severity of flooding to important infrastructure from surface water and groundwater caused by new development is likely to be reduced. **Mitigation**: None. **Assumptions**: Implementation of policy, standards and guidance in the short term. **Uncertainties**: None.

SEA Objectives	Guide Questions	Timescale			Commentary/Explanation
		Short term	Medium term	Long term	
To protect the health and wellbeing of local people and communities in Birmingham from the potential impacts of local flooding.	Will the LFRMS have an impact on human health? Will the LFRMS have an impact on recreational resources, and green spaces in particular?	+ Minor Positive	+ Minor Positive	+ Minor Positive	**Assessment of effects**: By establishing policy, standards and guidance on flood risk and development, the frequency and severity of flooding to communities from surface water and groundwater caused by new development is likely to be reduced. Therefore, this should improve the health of those currently affected by flooding through for example providing more certainty on the response to flooding and hence reducing anxiety. There is likely to be no overall effect on recreational resources and green spaces from the policies of this objective. **Mitigation**: None. **Assumptions**: Implementation of policy, standards and guidance in the short term. **Uncertainties**: None.
To safeguard and enhance sites, features and settings of cultural heritage, archaeological, historical value across Birmingham from the potential impacts of local flooding	Will the LFRMS help to protected cultural heritage assets and landscapes across Birmingham?	+ Minor Positive	+ Minor Positive	+ Minor Positive	**Assessment of effects**: By establishing policy, standards and guidance on flood risk and development, the frequency and severity of flooding from surface water and groundwater on the features and setting of cultural heritage and archaeology caused by new development is likely to be reduced. **Mitigation**: None. **Assumptions**: Implementation of policy, standards and guidance in the short term.

SEA Objectives	Guide Questions		Timescale			Commentary/Explanation	
			Short term	Medium term	Long term		
						Uncertainties: None.	
Key	**++** Significant Positive Effect	**+** Minor positive effects	**0** No overall effect	**-** Minor negative effect	**--** Significant negative effect	**?** Score Uncertain	
NB: where more than one symbol is presented in a box it indicates that the SEA has found more than one score for the category. Where a box contains a ?, this indicates uncertainty over whether the effect could be a minor or significant effect. A conclusion of uncertainty arises where there is insufficient evidence for expert judgement to conclude an effect.							

4 Conclusions and Recommendations

4.1.1 It can be seen from the assessment tables in Section 3 above that the Local Flood Risk Management Strategy is unlikely to give rise to any significant adverse effects on the environment and is likely to result in either neutral or beneficial effects in terms of human health, material assets and water resources.

4.1.2 As no significant adverse effects have been identified, no mitigation measures are required.

Appendix A The SEA Regulations

The Environmental Assessment of Plans and Programmes Regulations 2004, SCHEDULE 2

INFORMATION FOR ENVIRONMENTAL REPORTS

1. An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.

2. The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.

3. The environmental characteristics of areas likely to be significantly affected.

4. Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds(**a**) and the Habitats Directive.

5. The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.

6. The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as—

(a) biodiversity;

(b) population;

(c) human health;

(d) fauna;

(e) flora;

(f) soil;

(g) water;

(h) air;

(i) climatic factors;

(j) material assets;

(k) cultural heritage, including architectural and archaeological heritage;

(l) landscape; and

(m) the inter-relationship between the issues referred to in sub-paragraphs (a) to (l).

7. 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.

8. 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.

9. A description of the measures envisaged concerning monitoring in accordance with Regulation 17.

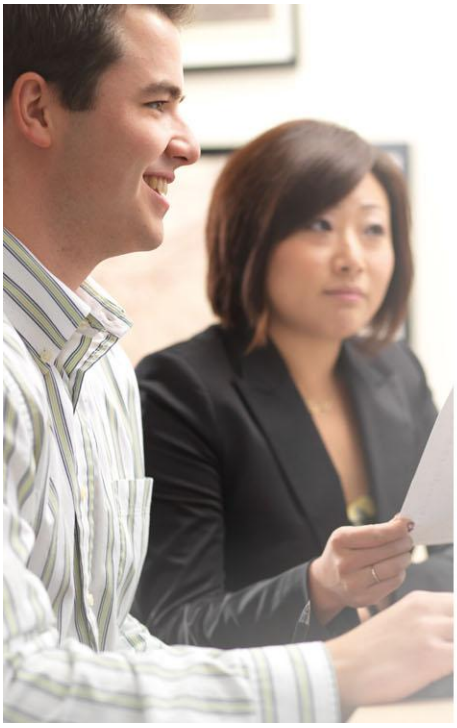
10. A non-technical summary of the information provided under paragraphs 1 to 9.

Appendix B SEA Scoping Report

Birmingham City Council

Strategic Environemntal Assessment Scoping and Habitat Regulations Assessment Screening of the Local Flood Risk Management Strategy for Birmingham

Scoping Report



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September 2013

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Document Revisions

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1	Draft for Comment	28 June 2013
2	Final Draft	12 August 2013
3	Final for Consultation	06 September 2013

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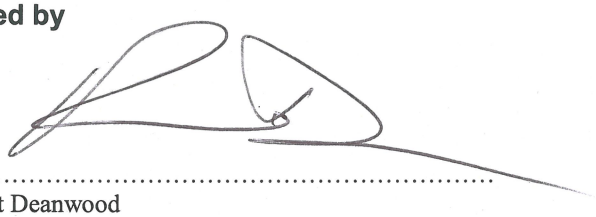

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Birmingham City Council

Strategic Environemntal Assessment Scoping and Habitat Regulations Assessment Screening of the Local Flood Risk Management Strategy for Birmingham

Scoping Report

AMEC Environment & Infrastructure UK Limited

September 2013

ISO 9001 - FS 13881
ISO 14001 - EMS 69090

Non-Technical Summary

Background

Birmingham City Council is required under the Flood and Water Management Act 2010 to develop, maintain, apply and monitor a strategy for local flood risk management in its area. The Strategy will set out the objectives for managing local flood risk and the measures proposed to achieve those objectives. The main partners in delivering a local strategy will include the Environment Agency and Severn Trent Water together with other flood risk management authorities.

Strategic Environmental Assessment (SEA) is a statutory requirement for plans and programmes that could have significant environmental effects. The SEA process identifies, describes and evaluates potential effects, proposing where appropriate, mitigation and/or enhancement measures. The Local Flood Risk Management Strategy (LFRMS) for Birmingham has been identified as a plan which could give rise to significant environmental effects. This is the non-technical summary of the Scoping Report for the SEA of the LFRMS.

The LFRMS for Birmingham

The LFRMS for Birmingham will provide a strategic approach to the appraisal and implementation of flood management actions to manage flood risk. The LFRMS will cover a 25 year period and will consider the impact and consequences of local flood risk together with the interface between the main rivers and local flood risk sources. The strategy will specify[1]:

- the risk management authorities in 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 level of local flood risk;
- the objectives for managing local flood risk (including any objectives included in the Flood Risk Management Plan for Birmingham to be prepared by 2015 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;

[1] Duties specified under the Flood and Water Management Act, 2010

- how and when the strategy is to be reviewed; and
- how the strategy contributes to the achievement of wider environmental objectives.

Key Issues Relevant to the LFRMS

The analysis of the baseline information including a review of relevant plans and programmes led to the identification of a number of issues and problems relevant to the LFRMS, as set out in Table 1. These issues are used to inform the development of the SEA Objectives and the Assessment Framework (see next section).

Table 1 Key Issues and Problems Relevant to the LFRMS

Issue/Problem	Description	Supporting Evidence
Biodiversity and geodiversity	Biodiversity and greenspace resources, including locally and nationally important sites, across the City are mapped and managed. Flood risk management will need to take account of the needs particular vulnerabilities of these resources. Policies and proposals associated with the LFRMS could include a range of direct and indirect impacts, such as construction of flood defences, land use change, changes in flood risk and water levels, all of which have the potential to adversely affect biodiversity features. However, if well managed, these changes could also benefit wildlife, through habitat improvement or creation. Equally, specific proposals in the LFRMS are likely to be influenced by the City's geology and soils, and potential effects on the water table and source protection zones.	Birmingham Nature Conservation Strategy Birmingham SFRA
Population and health	The population of Birmingham is predicted to grow considerably over the next 20 years and the emerging Birmingham Development Plan is responding to this change through the provision of housing and employment land across the City. The locations of this development could influence flood risk strategy and measures adopted. There are significant areas and pockets of deprivation across the City, some of which could be more vulnerable to the incidence and effects of flooding. Overall the LFRMS should benefit health through, for example, providing more certainty on flood risk and the response to it and hence reducing anxiety. However, some of the measures required, for example on flood storage, could affect access to greenspace, in turn influencing quality of life.	ONS population estimates Emerging Birmingham Development Plan
Water resources and quality	Water resources are under pressure in Birmingham and across the regional generally, with reliance on external sources such as Wales. More generally: • Water quality varies across the City's watercourses, notably with stretches of the River Tame in poor condition. • Parts of the river system are inaccessible over much of their length and are of poor amenity value to the local community. • Fly tipping of domestic and commercial waste. • Beneath Birmingham, groundwater is rising, bringing with it contaminants that have previously remained in the ground. • Wildlife habitats in the rivers and at the banksides have been badly damaged. • During storms pollution flushes into the river, causing a loss of oxygen	Catchment Abstraction Management Strategies (CAMS) Humber River Basin Management Plan

Issue/Problem	Description	Supporting Evidence
	and killing fish. • There are increasing development pressures on bank-side locations. Policies and proposals presented in the LFRMS could have an effect on the quality of rivers and watercourses across Birmingham through, for example, construction of flood defence changing flood risk areas and leading to changes in flood frequency and/or mobilisation of pollutants on contaminated land.	
Climate change	Climate change impacts for Birmingham are likely to consist of higher temperatures and more extreme events, including rainfall leading to flooding. The LFRMS will need to take particular account of these potential effects. There are opportunities to adopt more sustainable approaches to flood management generally and directly address potential increases in flood risk which may arise through climate change.	UKCP09 predictions Birmingham Climate Change Action Plan
Flood risk, incidences of flooding and flood defences	Sources of flood risk are from river flooding, surface water flooding, sewer flooding and groundwater flooding. There are around 9,000 properties at risk from fluvial flooding and 30,000 from surface water flooding (1 in 100 year event), with key flooding events occurring in September 1998, April 1999. June 1999, July 2000, June 2005, June 2007, July 2007 and September 2008. Formal flood defences cover approximately 1% of the City. The LFRMS options will offer a strategic response to managing flood risk across Birmingham and beyond, filling the gap between national and local flood risk management.	Birmingham Strategic Flood Risk Assessment River Tame Flood Risk Management Strategy BCC records
Material Assets (housing, economy, key infrastructure, minerals and waste)	Housing condition, access to housing and increases of the housing stock are key issues across Birmingham. LFRMS Strategy and policies will need to take account of the vulnerabilities associated with types of property and particular areas, and the influence that flood risk could have on these. Birmingham's economy is changing in line with national trends away from manufacture and towards the service sector. Flood risk strategy and management will need to take account of particular characteristics associated with the local economy and ensure that flood risk does not disadvantage economic development. Transport infrastructure could be vulnerable to flood risk across the City, as well as other provision such as healthcare. Waste management is a significant issue for the City, and could be affected by increasing flood risk and measures out in place to manage that risk. A key objective of the LFRMS will be to manage flood risk to critical infrastructure and other material assets across the City. The location of infrastructure such as road and rail networks, waste management facilities, utilities and community care facilities could influence the options presented and assessed through the LFRMS according to perceived risk and the potential consequences of flooding.	ONS data Birmingham Housing Development Plan Birmingham Development Plan Birmingham Development Plan LEP Strategy Local Transport Strategy Birmingham Development Plan
Cultural heritage	Cultural heritage is a diverse, City-wide asset which is vulnerable to flooding. Changes to flood risk patterns and its management could have a significant influence on these resources. Policies and proposals associated with the development of the LFRMS could involve construction activities and changes to land use and flooding regimes which could adversely affect cultural heritage assets and their settings. There could also be a range of direct and indirect impacts, flood alleviation works, Sustainable Drainage Systems, land use change, maintenance activities and consenting, all have the potential to adversely affect conservation areas or registered parks and gardens. However, if well managed, these changes could also benefit this cultural heritage.	Birmingham Development Plan Birmingham Conservation Strategy Birmingham Archaeology Strategy
Landscape and townscape	Although much of Birmingham is built up, there is a significant amount of open land within the City. Landscape character is a key contributor to	Birmingham Development Plan Birmingham Conservation

Issue/Problem	Description	Supporting Evidence
	regional and local identity, influencing sense of place, shaping the settings of people's lives and providing a critical stimulus to their engagement with the natural environment. Options associated with the development of the LFRMS could involve construction activities and changes to land use and flooding regimes which could adversely affect Birmingham's landscape and townscape character in certain localities.	Strategy

Proposed SEA Objectives

The following Sustainability Objectives have been developed to help appraise the sustainability performance of the LFRMS:

1. To protect and improve the quality and condition of water resources in Birmingham.
2. To conserve and enhance biodiversity across Birmingham from the potential impacts of local flooding.
3. To protect and conserve soils and reduce their ability to act as pollution sources and pathways in times of local flooding.
4. To promote the mitigation of, and adaptation to, climate change and its effects on flood risk across Birmingham.
5. To safeguard existing and future material assets and critical infrastructure in Birmingham from the potential impacts of local flooding.
6. To protect the health and wellbeing of local people and communities in Birmingham from the potential impacts of local flooding.
7. To safeguard and enhance sites, features and settings of cultural heritage, archaeological, historical value across Birmingham from the potential impacts of local flooding.

Consultation and Next Steps

The assessment process will seek to predict the significant environmental effects of the draft LFRMS. This is done by identifying the likely changes to the baseline conditions as a result of implementing the LFRMS. These changes will be described (where possible) in terms of their geographic scale, the timescale over which they could occur, whether the effects would be temporary or permanent, positive or negative, likely or unlikely, frequent or rare. Where numerical information is not available, the assessment will be based on professional judgement and with

reference to relevant legislation, regulations and policy. More specifically, in undertaking the assessment, consideration will be given to:

- baseline information including existing environmental problems and their evolution;
- the likely activities and potential effects arising from the interventions outlined in the LFRMS;
- the regulatory framework; and
- the SEA objectives and guide questions.

This Scoping Report presents the findings of the initial tasks (Stage A) undertaken for SEA of the LFRMS. It follows closely the advice and guidance provided by the UK Government and has been prepared to meet the requirements outlined within the Quality Assurance Checklist within the ODPM (2005) SA Guidance (see below).

Responses to the following questions are invited:

- Do you agree with the scope of the proposed assessment?
- Do you agree with the main issues identified?
- Do you agree that the objectives cover the breadth of issues appropriate for assessing the effects?

The consultation will run from Friday 13 September 2013 to Friday 25 October 2013. You can post or e-mail your responses to:

Kerry Whitehouse
Birmingham City Council
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Birmingham
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Comments from consultees will be considered and the information in this report will be amended, as appropriate, in advance of its use during the next stages of the SEA process.

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1. Introduction

1.1 Background

Birmingham City Council is required under the Flood and Water Management Act 2010 to develop, maintain, apply and monitor a strategy for local flood risk management in its area. The Strategy will set out the objectives for managing local flood risk and the measures proposed to achieve those objectives. The main partners in delivering a local strategy will include the Environment Agency and Severn Trent Water together with other flood risk management authorities.

Strategic Environmental Assessment (SEA) is a statutory requirement for plans and programmes that could have significant environmental effects. The SEA process identifies, describes and evaluates potential effects, proposing where appropriate, mitigation and/or enhancement measures. The Local Flood Risk Management Strategy (LFRMS) for Birmingham has been identified as a plan which could give rise to significant environmental effects. The Council has appointed AMEC to prepare the scoping stage of the SEA. More information about SEA and the rationale for applying it to the strategy is provided in section 1.4.

AMEC has also been commissioned to undertake the screening stage of a Habitats Regulations Assessment of the LFRMS which is included as an Appendix to this Report.

1.2 Purpose of this Report

This Scoping Report represents the first formal output of the SEA of the LFRMS for Birmingham. The purpose of the report is to provide sufficient information to consultees to enable them to comment on the proposed scope of the SEA, including:

- an overview of the LFRMS for Birmingham;
- significant policy topics or objectives, appropriate to the assessment of the Birmingham's LFRMS, identified following a review of relevant plans, policies and programmes;
- baseline information for each of the SEA topics, with an indication of the source of the data and its relevance to the LFRMS;
- key economic, social and environmental issues relevant to the assessment of the LFRMS based on the review of relevant plans, policy and programmes and baseline information;
- any SEA topics that are proposed to be scoped out of the assessment and explicit justification for why;
- a draft assessment framework (comprising of assessment objectives, guide questions and assessment matrix);
- the intended approach to undertaking the cumulative assessment of the effects of the LFRMS; and

- the proposed structure of the Environmental Report (to present the findings of the SEA).

1.3 The Local Flood Risk Management Strategy for Birmingham

The Flood and Water Management Act 2010 requires Lead Local Flood Authorities (LLFA) to develop, maintain, apply and monitor a strategy for local flood risk management in its area. Local flood risk includes surface runoff, groundwater and ordinary watercourses (including lakes and ponds). Birmingham City Council as a Unitary Authority is the LLFA. Local strategies for flood and coastal erosion risk management must be consistent with the national strategy for flood and coastal erosion risk management.

The LFRMS for Birmingham is to be guided by the following principles which have been established by the National Flood and Coastal Erosion Risk Management Strategy for England[2]:

- community focus and partnership working;
- a catchment and coastal 'cell' based approach;
- sustainability;
- proportionate, risk based approaches;
- multiple benefits; and
- beneficiaries should be encouraged to invest in risk management.

The emerging LFRMS for Birmingham will also need to be consistent with those local plans including:

- The **Trent Catchment Flood Management Plan (TCFMP)** (Dec 2010) which highlights the Birmingham area as an area dominated by urbanisation and suburban areas. The River Tame is the main watercourse within this area. Soil drainage within the area is impeded by loamy clay soil which means that a high percentage of the rainfall that falls on the catchment runs off. Flood risk in the area is generally high, with flooding occurring from the River Tame and its tributaries, surface water run-off, storm water drainage and sewer overflow.
- The **Humber River Basin Management Plan** (Dec 2009) identifies that "*the catchment includes the Rivers Tame, Rea, Cole, Bourne, Blythe, Anker, Sence, Mease and the River Trent from its confluence with the River Tame to the River Dove. The rivers within this catchment pass through mainly urban areas including Birmingham, Solihull, Nuneaton, Tamworth and Burton-upon-Trent. Heavy industry in the area has declined over recent years but pockets remain in urban areas. Due to the highly urbanised nature of a large part of the catchment, the largest inputs to the system come from sewage treatment works. During low flow periods, a large proportion of the river flows is made up of these discharges. By far the largest input comes from Minworth sewage treatment works (STW) which discharges treated effluent from Birmingham into the River Tame at Water Orton. As the water supply for Birmingham comes from the Severn catchment, the Tame catchment is also a net importer of water*."

[2] Environment Agency (2011) National Flood and Coastal Erosion Risk Management Strategy for England http://www.environment-agency.gov.uk/research/policy/130073.aspx

- The **River Tame Flood Risk Management Strategy** was published in May 2011 and identified seven focus areas for flood mitigation options; the document outlines the EAs proposals for the next 100 years (2009-2109).

- The **Strategic Flood Risk Assessment for Birmingham** was updated in January 2012 to support the emerging Birmingham Development Plan. It identified those areas at risk of flooding and considered the long term implications of climate change on flood risk which a specific focus on possible locations for future development, the need for further flood mitigation and resilience measures and input into the Development Plan policies to avoid any new development being the cause of flooding.

- The **Preliminary Flood Risk Assessment for Birmingham** published in May 2011 summarises the historic and predicted flood risk to Birmingham from surface water, ordinary watercourses and groundwater.

- The emerging **Surface Water Management Plan for Birmingham** assesses the surface water flood risk to Birmingham will establish a long term action plan to manage this risk in collaboration with key local partners.

In responding to these characteristics and issues, a strategic approach is to be developed that will appraise and implement flood management actions to manage flood risk. The LFRMS under production will cover a 25 year period and will consider the impact and consequences of local flood risk together with the interface between the main rivers and local flood risk sources. The strategy will specify[3]:

- the risk management authorities in 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 level of local flood risk;

- the objectives for managing local flood risk (including any objectives included in the Flood Risk Management Plan for Birmingham to be prepared by 2015 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;

- how and when the strategy is to be reviewed; and

- how the strategy contributes to the achievement of wider environmental objectives.

1.3.1 Structure of the LFRMS for Birmingham

The proposed LFRMS is structured as follows:

[3] Duties specified under the Flood and Water Management Act, 2010

Glossary

Abbreviations

Executive Summary

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1.3.2 Objectives of the LFRMS for Birmingham

The following draft objectives have been developed for the LFRMS:

- **Stakeholder Responsibilities and Partnership Arrangements** - identify all stakeholders with a role in flood risk management, set out their responsibilities and work with them to adopt a partnership approach to managing local flood risk;
- **Local Flood Risk** - develop a clear understanding of flood risk from surface water, groundwater and ordinary watercourses and set out how this information will be communicated and shared;
- **Asset Management** - outline how local flood risk assets are identified, managed and maintained and develop a clear understanding of riparian responsibilities;

- **Responding to Flooding** - define the criteria and procedure for responding to and investigating flooding incidents, and set out the role of emergency planning, flood action groups and individual property owners;

- **Managing Flood Risk** - define the criteria for how and when flood risk management schemes will be promoted to ensure that flood risk management measures provide value for money whilst minimising the long-term revenue costs and maximise external funding contributions;

- **Flood Risk and Development** - minimise the impact of development on local flood risk by developing guidance, policies and standards that manage flood risk and promote opportunities for collaborative working to reduce the flood risk to existing communities; and

- **Environmental Implications** - adopt a sustainable approach to managing local flood risk by ensuring actions are economically viable, deliver wider environmental benefits and promote the wellbeing of local people.

1.4 LFRMS Strategic Environmental Assessment and Habitats Regulations Assessment

1.4.1 Strategic Environmental Assessment

SEA is a methodical process for assessing the environmental impacts of plans and strategies to ensure that environmental issues are integrated and considered at the earliest possible opportunity of the decision making process whilst also ensuring that sustainable development is central to the plan making process.

European Directive 2001/42/EC[4] (the 'SEA Directive') requires SEA to be carried out on all plans and programmes "*which are subject to preparation and/or adoption by an authority at national, regional or local level*." The aim of SEA is to identify significant environmental effects created as a result of the implementation of the plan or programme on issues such as "*biodiversity, human health, fauna, flora, soil, water, air, climatic factors, material assets including architectural and archaeological heritage, landscape and the interrelationship between the above factors*" (Annex 1(f)). The Directive was transposed into English legislation by the Environmental Assessment of Plans and Programmes Regulations 2004[5] (the 'SEA Regulations'). Under these regulations[6], SEA is a compulsory requirement for certain plans/programmes which are likely to give rise to significant environmental impacts and

[4] European Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment, Article 1

[5] The Environmental Assessment of Plans and Programmes Regulations, 2004, S.I. No.1633, Parts 3 and 4

[6] regulation 5 which defines which plans and programmes should be subject to SEA:
a plan or programme which -
(a)is prepared for agriculture, forestry, fisheries, energy, industry, transport, waste management, water management, telecommunications, tourism, town and country planning or land use; and .
(b)sets the framework for future development consent of projects listed in Annex I or II to Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, as amended by Council Directive 97/11/EC(1). .
(3) The description is a plan or programme which, in view of the likely effect on sites, has been determined to require an assessment pursuant to Article 6 or 7 of the Habitats Directive

which are prepared for water management plans (regulation 5(2)). Accordingly SEA is required for Birmingham's LFRMS under these regulations.

This Scoping Report follows and sets out the requirements of the SEA and has been developed in accordance with the following guidance:

- Flood and Coastal Erosion Risk Management appraisal guidance (Environment Agency, March 2010);
- framework to assist the development of the Local Strategy for Flood Risk Management (LGA, 2011);
- towards a more efficient and effective use of Strategic Environmental Assessment and Sustainability Appraisal in spatial planning (DCLG, 2010); and
- Practical Guide to the Strategic Environmental Assessment Directive (OPDM, September 2005).

Defra guidance for the Environment Agency is that all Flood Risk Management Strategies should be subject to SEA[7]. Similarly, the guidance in the LGA Framework[8] states:

"*Local strategies are statutory plans and are subject to the requirements of SEA. LLFAs should take a proportionate approach to applying SEA to local strategies particularly when environmental effects are not evident in the early stages of plan development. As the details of plans develop, SEA should be reviewed.*"

The SEA is therefore a fundamental component of the LFRMS to ensure that the Birmingham's environmental obligations are adequately addressed throughout the strategy development and implementation process.

1.5 SEA Stages

- The assessment of the LFRMS is an integral part of the plan preparation and has five sequential stages. These main stages and the tasks for each stage are listed in Table 1.1.

[7] Defra (2009) Appraisal of flood and coastal erosion risk management. A Defra policy statement, June 2009 and Environment Agency (2010), Flood and Coastal Erosion Risk Management appraisal guidance

[8] LGA (2011), Framework to assist the development of the Local Strategy for Flood Risk Management 'A Living Document' 2nd Edition, November 2011

Table 1.1 Stages in the SEA Process

SEA Stage	SEA Tasks	
Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope	A1: Identifying other relevant policies, plans and programmes, and environmental protection objectives	Chapter 2 of this report
	A2: Collecting baseline information	Chapter 3 of this report
	A3: Identifying environmental issues and problems	Chapter 4 of this report
	A4: Developing the SEA objectives and framework	Chapter 5 of this report
	A5: Consulting on the scope of the SEA	
Stage B: Developing and refining options and assessing effects	B1: Testing the plan objectives against the SEA objectives	Not applicable at scoping stage
	B2: Developing strategic alternatives	Not applicable at scoping stage
	B3: Predicting the effects of the plan, including alternatives	Not applicable at scoping stage
	B4: Evaluating the effects of the plan, including alternatives	Not applicable at scoping stage
	B5: Mitigating adverse effects	Not applicable at scoping stage
	B6: Proposing measures to monitor the environmental effects of implementing the plan	Not applicable at scoping stage
Stage C: Preparing the Environmental Report	C1: Preparing the Environmental Report.	Not applicable at scoping stage
Stage D: Consulting on the draft LFRMS and the SEA Report	D1: Consulting on the draft LFRMS and Environmental Report with the public and Consultation Bodies	Not applicable at scoping stage
	D2: Assessing significant changes	Not applicable at scoping stage
	D3: Making decisions and providing information	Not applicable at scoping stage
Stage E: Monitoring the significant effects of implementing the LFRMS	E1: Developing aims and methods for monitoring	Not applicable at scoping stage
	E2: Responding to adverse effects	Not applicable at scoping stage

This report presents the findings of Task A1 to A4 of Stage A.

1.5.1 Habitats Regulations Assessment

The potential impact of the LFRMS against the conservation objectives of designated European conservation sites[9] also needs to be assessed. This is known as Habitats Regulations Assessment (HRA)[10]. Regulation 102 of the

[9] A European Site is any classified Special Protected Area (SPA) and any Special Area of Conservation (SAC) from the point where the European Commission and the Government agree the site as a Site of Community Importance. SPAs and SACs have been created under the EC Birds Directive and Habitats Directive. In the UK they form part of a larger European network called Natura 2000. HRA is also required, as a matter of Government policy, for potential SPAs (pSPAs), candidate SACs (cSACs) and listed Ramsar Sites for the purpose of considering development proposals affecting them (National Planning Policy Framework para. 118). As such, pSPAs, cSACs and Ramsar Sites must also be considered by any HRA. Within this report "European site" is used as a generic term for all of the above designated sites.

[10] 'Appropriate Assessment' has been historically used as an umbrella term to describe the process of assessment as a whole. The whole process is now more accurately termed 'Habitats Regulations Assessment' (HRA), and 'Appropriate Assessment' is used to indicate the specific stage of HRA.

Conservation of Habitats and Species Regulations 2010 (as amended) (the 'Habitats Regulations') requires that competent authorities assess the potential impacts of land use plans on the Natura 2000 network of European protected sites.

The HRA determines whether there will be any 'likely significant effects' (LSE) on any European site as a result of the Plan's implementation (either on its own or 'in combination' with other plans or projects) and, if so, whether these effects will result in any adverse effects on the site's integrity.

As the SEA progresses, the results of the HRA will be included in the assessment of effects against the biodiversity topic and objectives.

1.6 Structure of this Report

This Scoping Report is the first step in the SEA process and presents the proposed aims, structure and background for the assessment. The remainder of this report is structured as follows:

- chapter 2 identifies other policies, plan and programmes which are relevant to the Birmingham LFRMS;
- chapter 3 sets out the baseline information which is used to help develop the assessment framework for the LFRMS;
- chapter 4 identifies key environmental issues and problems to be addressed;
- chapter 5 sets out the proposed SEA Objectives and Assessment Framework for use in the assessment;
- chapter 6 sets out how the assessment will be completed and recorded;
- chapter 7 sets out the proposed structure of the Environmental Report; and
- chapter 8 details the consultation undertaken for the SEA Scoping exercise.

2. Review of Policies, Plans and Programmes

2.1 Introduction

The relationship between various policies, plans, programmes and environmental protection objectives may influence the LFRMS. The relationships are analysed to help:

- identify any external social, environmental or economic objectives that should be reflected in the SEA process;
- identify external factors that may have influenced the preparation of the plan; and
- determine whether the policies in other plans and programmes might lead to cumulative or synergistic effects when combined with policies in the plan.

This process enables the LFRMS to take advantage of any potential synergies and to respond to any inconsistencies and constraints. The plans and programmes to be considered include those at the international, national, regional and local scale.

The review aims to identify the relationships between the LFRMS and these other documents i.e. how the strategy could be affected by the other plans' and programmes' aims, objectives and/or targets, or how it could contribute to the achievement of any environmental and sustainability objectives. An understanding of the plans and programmes alongside which the LFRMS sits is important in developing a baseline approach to the assessment. It is also a valuable source of information to support the completion of the social, economic and environmental baseline and aid the determination of the key issues. The completed review of plans and programmes will also be used to provide the policy context for the subsequent assessment process and help to inform the development of objectives that comprise the SEA framework.

The principal documents which form the legislative context for the LFRMS are as follows:

At the European level, the Water Framework Directive (WFD) is the most substantial piece of EC water legislation to date and replaces a number of existing Directives including the Surface Water Abstraction Directive. It establishes a framework for the protection of inland surface waters, transitional waters, coastal water and groundwater and is designed to improve and integrate the way water bodies are managed, including encouraging the sustainable use of water resources. The key objectives at European level are general protection of the aquatic ecology, specific protection of unique and valuable habitats, protection of drinking water resources, and protection of bathing water. In accordance with Article 4(1), the Directive objectives for surface water, groundwater, transitional and coastal water bodies are to: prevent deterioration; reduce pollution; protect, enhance and restore condition; achieve 'good status' by 2015, or an alternative objective where allowed; and comply with requirements for protected areas. The WFD adopts the 'polluters pays principle' in seeking to ensure that the costs and benefits of discharging pollutants to the water environment are appropriately valued, and that implementation of the Directive is achieved in a fair and proportionate way across all sectors.

The Floods Directive 2007/60/EC aims to provide a consistent approach to managing flood risk across Europe. The approach is based on a six year cycle of planning which includes the publication of Preliminary Flood Risk Assessments, hazard and risk maps and flood risk management plans. The Directive is transposed into English law by the Flood Risk Regulations 2009.

In England, the implementation work related to the Water Framework Directive is undertaken by the Environment Agency. The Environment Agency was required to develop a national strategy for England. This describes what needs to be done by all risk management authorities involved in flood and coastal erosion risk management to reduce the risk of flooding and coastal erosion, and to manage its consequences. Every other agency with a flood risk management function across England and Wales must take account of this strategy. There are 11 River Basin Districts in England and Wales which each require (under the Water Framework Directive) a River Basin Management Plan (RBMP) including objectives for surface water, groundwater, transitional and coastal water bodies.

The Flood and Water Management Act 2010 sets out which bodies are responsible for managing flood risks. The Environment Agency (EA) has been given a strategic overview role while local authorities have a new leadership role in local flood risk management. Local Authorities are defined as Lead Local Flood Authorities (LLFAs) under the Act. Local authorities across England and Wales are required to develop, maintain, apply and monitor a strategy for local flood risk management in their areas. These local strategies must include the risk of flooding from surface water, watercourse and groundwater flooding.

- Lead local authorities must establish and maintain a register of structures which have an effect on flood risk management in their areas.
- The Act introduces a requirement to improve the flood resistance of existing buildings by amending the Building Act 1984.
- The Act introduces the provision for residential landlords to be charged the cost of their tenant's unpaid water bills should the landlord fail to pass on the tenants details to the respective water company for the local area.
- The Act introduces the requirements for developers of property to construct Sustainable Drainage Systems (SuDS).
- Local authorities have a duty to adopt these SuDS once completed. By adoption, the Act means that they become responsible for maintaining the systems.

Section 9 of the Flood and Water Management Act 2010 details the statutory requirements for Local Flood Risk Management Strategies. It states that an LLFA must develop, maintain, apply and monitor a strategy for local flood risk management in its area for the following forms of flood risk: surface run-off; groundwater; and ordinary watercourses. The LFRMS must set out:

- the risk management authorities in 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 National Planning Policy Framework (NPPF) (2012) expects the planning system to contribute to conserving and enhancing the natural environment and reducing pollution, and take full account of flood risk. In particular, the planning system is expected to prevent new development from contributing to unacceptable levels of water pollution. Local planning authorities are expected to set out the strategic priorities for their area in the Local Plan including strategic policies to deliver the provision of infrastructure for water supply, wastewater, flood risk and coastal change management. In preparing the evidence base for their Local Plans, they are expected to work with other authorities and providers to assess the quality and capacity of the existing infrastructure and its ability to meet forecast demands. Public bodies have a duty to co-operate on planning issues that cross administrative boundaries particularly those which relate to strategic priorities.

The NPPF expects inappropriate development in areas of flood risk to be avoided and sets out how this should be achieved through the preparation of Local Plans and in determining planning applications. Supporting technical guidance has been provided to ensure the effective implementation of the policy. The Technical Guidance to the NPPF (2012) provides additional guidance to local planning authorities to ensure the effective implementation of the planning policy set out in the NPPF on development in areas at risk of flooding and in relation to mineral extraction.

Table 2.1 sets out the key documents the key documents relevant to the SEA of the LFRMS, whilst a description of these documents together with their relevance to SEA Objectives for the LFRMS is set out at Appendix A.

Table 2.1 Plans, Programmes and Strategies Relevant to the SEA of the Birmingham LFRMS

International
EU (1992) Conservation of Natural Habitats and Wild Fauna and Flora (92/43/EEC, Habitats Directive)
EU (1996) Ambient Air Quality Assessment and Management (96/62/EC, Air Quality Framework Directive)
EU (2000) Directive on Establishing a Framework for Community Action in the Field of Water Policy (2000/60/EC, The Water Framework Directive)
EU (2005) Clean Air Strategy
EU (2008) Directive on Waste (2006/12/EC, Waste Framework Directive)
UNFCCC (1997) Kyoto Protocol to the UN Framework Convention on Climate Change
UNFCCC (2009) Copenhagen Accord (Climate Change)
Council of Europe (2006) European Landscape Convention
Council of Europe (1985) Convention on the Protection of the Architectural Heritage of Europe
EU (2007) Floods Directive
EU (1991) Urban Waste Water Treatment Directive
European Commission (1999) The Landfill Directive
EC (2007) Together for Health: A Strategic Approach for the EU 2008-2013
The Pan-European Biological and Landscape Diversity Strategy (1995)
National
CLG (2012) National Planning Policy Framework (NPPF)
CLG (2012) National Planning Policy Framework Technical Guidance
CLG (2011) The Localism Act
CLG (2011) The Community Infrastructure Levy Regulations
DECC (2008) UK Climate Change Act 2008
DCMS (2007) Heritage Protection for the 21st Century
Defra (2003) The Water Environment (Water Framework Directive) (England and Wales) Regulations
Defra (2007) Guidance for Local Authorities on Implementing Biodiversity Duty
Defra (2011) Biodiversity 2020: A Strategy for England's wildlife and ecosystem services
Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 2)
Defra (2011) Government Review of Waste Policy in England
Defra (2008) Future Water, the Government's Water Strategy for England (Feb 08)
Defra (2009) Safeguarding our Soils: A Strategy for England
Defra (2011) Natural Environment White Paper; The natural choice: securing the value of nature
Defra (2011) Biodiversity 2020: a Strategy for England's Wildlife and Ecosystem Services
Defra & HM Government (2011) Water White Paper; Water for Life
Defra and Environment Agency (2011) National Flood and Coastal Erosion Risk Management Strategy for England
HM Government (2010) The Air Quality Standards 2010
HM Government (2010) Flood and Water Management Act, 2010
HM Government (2012) Draft Water Bill

DfT (2008) Delivering a Sustainable Transport System (DaSTS).
English Heritage (2008) Conservation Principles, Policies and Guidance
English Nature: Climate Change Space for Nature (2006)
Environment Agency (2009) Water for people and the environment - Water resources strategy for England and Wales.
Forestry Commission (2005): Trees and Woodlands Nature's Health Service
HM Government (2006) Climate Change The UK Programme
HM Government (2010) The Conservation of Habitats and Species Regulations 2010
Regional
Severn Trent Water Resources Management Plan (2010)
Severn Trent Water Sewage Management Plan (2009)
Environment Agency Humber River Basin Management Plan (2009)
Environment Agency Trent Catchment Flood Management Plan (2010)
The Greater Birmingham and Solihull Local Enterprise Partnership Strategy (2013)
The 7 Authorities of the West Midlands Metropolitan Area (2011) West Midlands Local Transport Plan
Environment Agency (2009) A Water Resources Strategy Regional Action Plan for the West Midlands Region
Forestry Commission (2004) West Midlands Regional Forestry Framework
Local
Birmingham City Council (2013) Birmingham Development Plan (emerging)
Birmingham City Council (2012) Aston, Newtown and Lozells Area Action Plan
Birmingham City Council & Bromsgrove District Council (2009) Longbridge Area Action Plan
Birmingham City Council (1997) Nature Conservation Strategy for Birmingham
Birmingham City Council (1999) Regeneration Through Conservation: Birmingham Conservation Strategy
Birmingham City Council (2004) Archaeology Strategy
Birmingham City Council (2005) Developing Birmingham: An Economic Strategy for the City 2005-2015
Birmingham City Council (2006) Air Quality Action Plan
Birmingham City Council (2006) Municipal Waste Management Strategy.
Birmingham City Council (2007) Sustainable Management of Urban Rivers and Floodplains SPD
Birmingham City Council (2010) The Birmingham Area Investment Prospectus
Birmingham City Council (2008) Birmingham Private Sector Housing Strategy 2008+ (updated 2010)
Birmingham City Council (2008) Contaminated Land Inspection Strategy for Birmingham Second Edition
Birmingham City Council (2010) Birmingham Climate Change Action Plan 2010+
Birmingham City Council (2012) Level 1 & 2 Strategic Flood Risk Assessment
Birmingham City Council (2013) Birmingham Surface Water Management Plan (emerging)
Birmingham City Council (2011) Birmingham Multi Agency Flood Plan
Birmingham City Council (2011) Preliminary Flood Risk Assessment
Birmingham City Council (2013) Green Living Spaces Strategy (draft)

3. Baseline Review

3.1 Introduction

The baseline information identifies current environmental issues and problems in the area which should be addressed in the LFRMS and provides a basis for predicting and monitoring the effects of implementing the Strategy. The baseline may need to be updated during the SEA process as new information emerges and/or as additional issues come to light. To ensure the data collected was relevant and captured the full range of environmental issues it was categorised under nine thematic topics which cover the topics referred to in Annex 1(f) of the SEA Directive. These are outlined in the Table 3.1.

Table 3.1 Key SEA Topics Covered by the LFRMS Scoping Report

SEA Topic Area	Scoping Report Topics
Biodiversity	Biodiversity and Geodiversity
Human Environment (including population and health)	Population and Human Health
Geology and Soils	Biodiversity and Geodiversity
Water	Water (including river catchments, rivers in Birmingham and the state of Birmingham's rivers)
Air Quality	Air Quality
Climatic Factors	Climatic Factors Flooding (including flood risk)
Material Assets and Resource Use	Material Assets (including: housing; economy; minerals, waste and water; and transport infrastructure)
Cultural Heritage	Cultural Heritage
Landscape	Landscape

Evidence to support the issues has been identified from the most recent Birmingham LDF Annual Monitoring Report[11], and the websites/reports of a number of organisations, such as Birmingham City Council, Birmingham Strategic Partnership, the Environment Agency, Natural England, the Audit Commission and Department of Health.

There is a wealth of information available on sustainability issues for Birmingham and the purpose of this report is not to duplicate it unnecessarily, but to ensure that sufficient information exists to inform the assessment of the policies and to identify key information that may be considered appropriate. It should also identify gaps where they may exist.

[11] Birmingham City Council (2012) **Birmingham Local Development Framework: Annual Monitoring Report 2011**

3.1.1 Context

Birmingham is the United Kingdom's second largest urban conurbation and neighboured by several other large conurbations, such as Solihull, Wolverhampton, and the towns of the Black Country. It is situated just to the west of the geographical centre of England on the Birmingham Plateau - an area of relatively high ground, ranging around 150-300 metres above sea level. With the Clent, Waseley and Lickey Hills towards the south-west of the City, Birmingham slopes gently to the east of the conurbation.

Birmingham is at considerable risk of flooding from Main Rivers, ordinary watercourses, surface water, sewer flooding and groundwater. There is also the potential for canal and reservoir breach and overtopping. It is estimated that there are 11,365 at risk of fluvial flooding and 24,600 properties at risk of surface water flooding.

3.2 Biodiversity and Geodiversity

3.2.1 Biodiversity

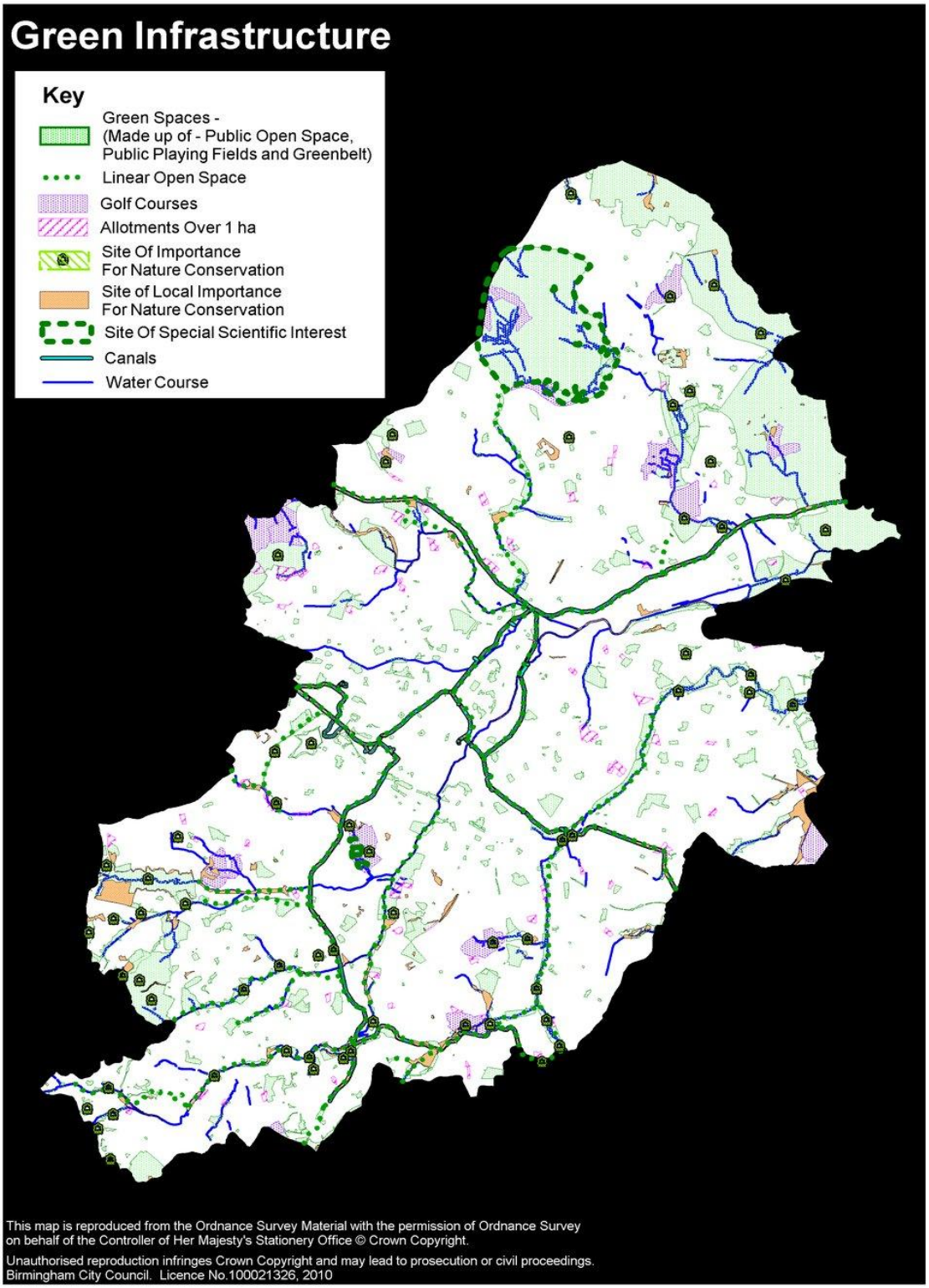
The City has a number of areas that are protected for their nature conservation value. The City's nature conservation sites include two Sites of Special Scientific Interest (SSSIs): Sutton Park and Edgbaston Pool. Sutton Park is also designated as a National Nature Reserve (NNR). There are 10 Local Nature Reserves (LNRs), over 50 Sites of Importance for Nature Conservation (SINCs) and 661.85ha of Sites of Local Importance for Nature Conservation (SINCs) covering various ancient woodlands, grasslands, lakes, streams, and other important wildlife habitats or examples of natural landscape. Within the City Centre there are a number of sites of local importance for nature conservation (SLINCs), essentially the canal network and the River Rea. These areas, as well as the linear corridors along main rail and Metro lines, are key wildlife corridors. Table 3.2 shows the total area covered by different types of nature conservation sites, and Figure 3.1 maps these along with other areas of greenspace.

Table 3.2 Birmingham's Nature Conservation Sites

Type of Area	Total Area (Hectares)	% of City's Area
SSSIs	893.31	3.33
NNRs	811.73	3.03
LNRs	147.73	0.55
SINCs	820.96	3.07
SLINCs	661.85	2.47

Source: Birmingham City Council, AMR (2011)

Figure 3.1 Birmingham's Green Infrastructure



Source: http://consult.birmingham.gov.uk/portal/ps/csd/csdraft?pointId=d2670232e7333

There was no change in the overall condition of the City's two SSSIs - Sutton Park and Edgbaston Pool - during the year to September 2011. Approximately 30% of the area designated as SSSI remains in a favourable condition, and the remaining 70% in an unfavourable (recovering) condition.

The West Midlands Biodiversity Partnership has developed a number of area based projects which look at different ways of protecting biodiversity by reducing fragmentation of habitats and species. These areas are known as Biodiversity Enhancement Areas. The Cannock Chase to Sutton Park Project encompasses an area of approximately 670km^2 extending from the edge of Birmingham northwards into Staffordshire. The Project area is characterised by two core areas of semi-natural habitat: Cannock Chase and Sutton Park. These areas support significant amounts of lowland heath habitat along with a range of additional habitats including acidic and neutral grasslands, scrub, woodland and wetlands. Since the project began a number of developments have been made including:

- research undertaken to identify priorities for habitat restoration and re-creation at a landscape scale;
- engagement with biodiversity stakeholders and with a wider group of land management and land use planning professionals with knowledge of the BEA area using research; and
- development of the project with key partners (RDS, CA and local authorities) has led to integration of BEA biodiversity objectives into existing schemes, plans and policies e.g. Environmental Stewardship Higher Level Scheme, Local Planning Authorities' Local Development Frameworks.

Green Infrastructure (GI) refers to the living network of green spaces, water and other environmental features in both urban and rural areas. It is often used in an urban context to cover benefits provided by trees, parks, gardens, road verges, allotments, cemeteries, woodlands, rivers and wetlands[12]. GI can provide a number of benefits including:

- increasing property and land values;
- attracting and retaining people ensuring stable populations and labour supply;
- creating a focus for social inclusion, education, training, health and well-being;
- developing landscape character and local distinctiveness, grounded in the principles of Landscape Character Assessment;
- safeguarding and enhancing natural and historic assets; and
- increasing contact between people and nature.

The maintenance and enhancement of the GI network has a number of benefits and can provide a number of improvements to local areas and help develop areas that convey a sense of place.

[12] Defra (2011) The Natural Choice: securing the value of nature.

Birmingham is characterised by a large number of well-established parks, many of which were created in the 19th century. The City's greenspace is supplemented by a large linear open space network, which is based primarily on the Rivers Cole and Rea and the City's extensive canal network. The extent of green spaces (excluding areas designated for nature conservation) is show in Table 3.3.

Table 3.3 Green Spaces in Birmingham

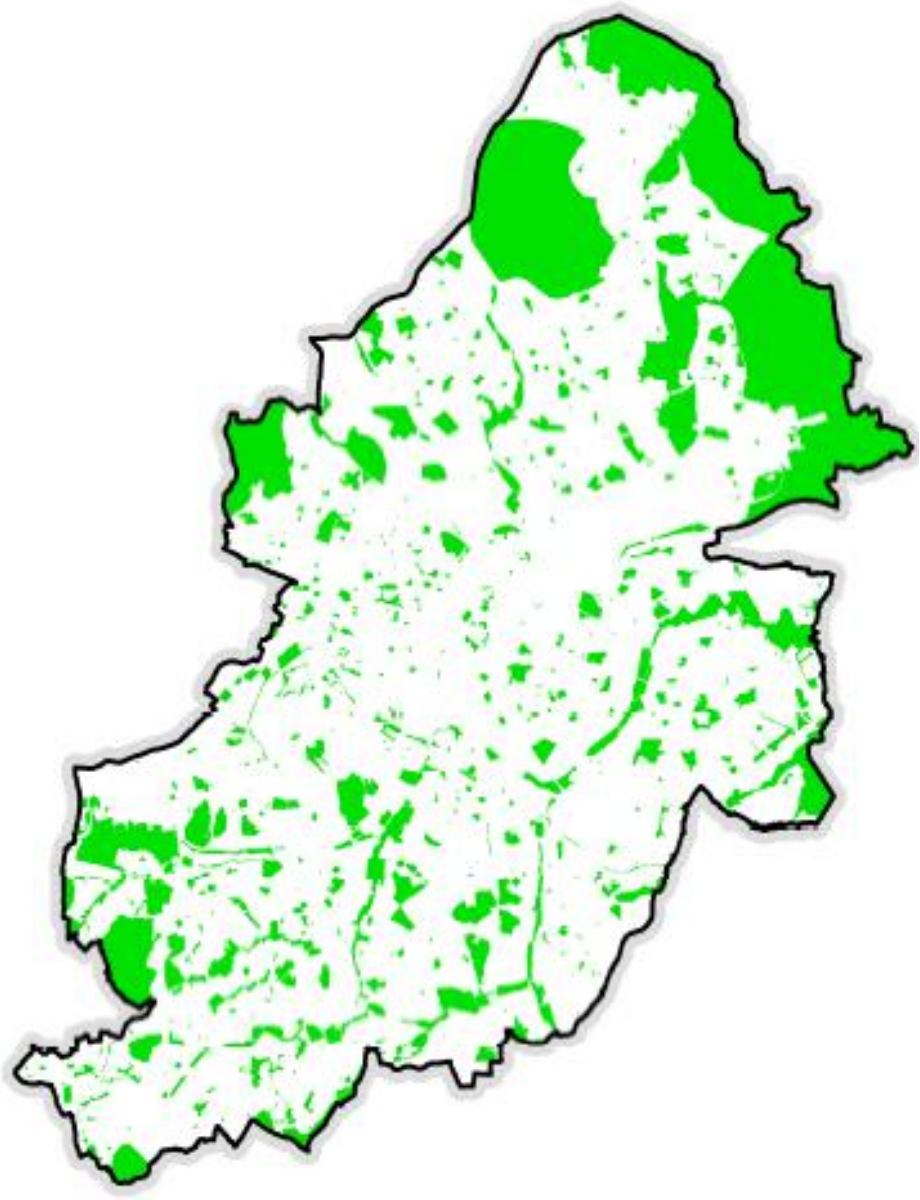
Type of Area	Total Area (Hectares)	% of City's Area
Public Open Space	3,046.55	11.34
Public Playing Fields	337.206	1.26
Private Playing Fields	281.469	1.05
Private Open Space	68.69	0.26
Educational Playing Fields	166.781	0.62
Golf Courses	657.866	2.46
Statutory Common Land	11.2545	0.04
Allotments (All)	273.26	1.02
Green Belt	4,153.11	15.51

Source: Birmingham City Council, AMR 2011

Eight out of the ten Birmingham constituencies exceed the current UDP public open space standard of 2ha per 1,000 population and the remaining constituencies almost meets the standard. Of new residential developments between 01 April 2010 and 31 March 2011, 89% were within 400m of existing open space.

In April 2009, there were 216 eligible open spaces in Birmingham, and of these, six have 'Green Flag' status. Birmingham's green spaces are mapped in Figure 3.2.

Figure 3.2 Green Spaces in Birmingham



Source: http://consult.birmingham.gov.uk/portal/ps/csd/csdraft?pointId=d2670232e7333

3.2.2 Geodiversity

The term geodiversity incorporates all the variety of rocks, minerals and landforms and the processes which have formed these features throughout geological time. The geology of the West Midlands is dominated by the South Staffordshire Coalfield, the exploitation of which has contributed greatly to the industrial and economic development of the area[13]. Upper Carboniferous Coal Measures underlie the main conurbation of Wolverhampton,

[13] http://www.naturalengland.org.uk/ourwork/conservation/geodiversity/englands/counties/area_ID38.aspx

Walsall, West Bromwich and Dudley. Surrounding these shales, sandstones and mudstones are Triassic aged rocks which comprise red mudstones and sandstones. These underlie much of Birmingham and form the solid geology up to Sutton Coldfield. Within the main mass of the Coal Measures are a number of isolated outcrops of older Silurian rock. These shallow water limestones and shales contain a wide range of marine fossils and form the famous outcrops at Wren's Nest and Dudley Castle Hill. There are also a number of igneous intrusions into the Coal Measures. Much of the area has been mantled in thick deposits of boulder clay and sands and gravel deposited by ice sheets and meltwaters during the Ice Ages of the last two million years[14].

The geology underlying the City has a significant influence over the use of SuDS which include a variety of techniques including swales and basins, permeable pavements and ponds and wetlands to mimic natural drainage processes and mitigate the impacts that development has on surface water runoff rates and volumes. The SFRA for Birmingham (2011) notes that the geology beneath Birmingham, is essentially divided into two due to a fault, known as the 'Birmingham Fault', running approximately north-east to south-west and consists of Permian and Triassic sandstones and mudstones. To the west of the fault line the rock strata predominantly consists of red and red-orange sandstones and is indicative of high permeability soils (good to very good drainage), and to the east the rock strata predominately consists of red and red-brown mudstones which are inter-bedded by several silt and sandstone bands and are typically representative of low permeability soils (poor drainage to practically impervious). The SFRA encourages that these characteristics should be considered in the development process where large increases in impermeable area for a site could contribute to a significant and resulting increase in surface water runoff peak flows and volumes. In turn this could contribute to an increase in flood risk elsewhere unless adequate SuDS techniques are implemented as part of a development. Additionally, indirect impacts on the water table and source protection zones need to be taken into account.

3.2.3 Influence of the LFRMS on Biodiversity and Geodiversity

Policies and proposals pursued in the LFRMS could include a range of direct and indirect impacts, with flood alleviation works, SuDS, land use change, maintenance activities and consenting, all having the potential to adversely affect biodiversity . However, if well managed, these changes could also benefit wildlife and recreational opportunities, through habitat improvement or creation. Equally, specific proposals in the LFRMS are likely to be influenced by the City's geology and soils, and potential effects on the water table and source protection zones.

3.3 Population and Human Health

The Office of National Statistics July 2012 estimates Birmingham's population was approximately 1,073,000 which equates to an increase of 88,000 (9%) between 2001 (984,600) and 2011. Birmingham is the only local authority in England and Wales with a population greater than 1 million. Since 2001, the City's population has grown after experiencing declines between 1991 and 2001 due to net out-migration. The gains reflect a shift in the overall balance of migration from negative to positive, coupled with greater natural increases. The main reason for this has been the high levels of international immigration in recent years.

[14] http://www.naturalengland.org.uk/ourwork/conservation/geodiversity/englands/counties/area_ID38.aspx

Information on health for Birmingham can be found in the NHS Health Profile for the area 2011 (DoH, 2012[15]). According to the NHS, life expectancy in Birmingham for males is 76.8 years which is 'significantly worse' when compared to an average across England of 78.6 years. Furthermore life expectancy for females is 81.6 years compared to an average across England of 82.6 years.

Adults in Birmingham are less likely than average to follow healthy eating guidelines, but the proportion of obese adults is not vastly different to the England average. A survey undertaken by Sport England[16] reveals that there is a low rate of participation in sport and other physical activity in Birmingham compared with other local authorities within the West Midlands.

Teenage pregnancy rates are significantly higher for Birmingham (47.4 per 1,000) than the England average (38.1 per 1,000). Binge drinking is lower than the England average; however hospital stays for alcohol-related harm were 'significantly higher in Birmingham for 2010/11 with 2,235 per 100,000 rate of admission episodes for alcohol attributable conditions compared to the national average of 1,895[17]. Rates of sexually transmitted infections are better than the England average. The incidence of malignant melanoma is lower than average (2012). Estimated levels of adult 'healthy eating' and obesity are worse than the England average.

People in routine and manual occupations have poorer health than those in more highly-skilled jobs, and these people are also more likely to smoke. The infant death rate is greater than the England average in this group. Birmingham has a higher than average number of people working in lower grade jobs such as process plant and machine operatives than in the rest of the West Midlands and England.

According to the Index of Deprivation, in 2010 about 40% of Birmingham's residents lived in areas that were in the most deprived 10% in England. Concentrations are very high in wards to the east, north and west of the City Centre and also in the Tyburn and Kingstanding Wards to the north of the M6 motorway. Child poverty in Birmingham is 33.7% which equates to around 82,100 and is higher than the England average of 20.6%[18].

3.3.1 Influence of the LFRMS on Population and Human Health

Overall the LFRMS should benefit health through, for example, providing more certainty on flood risk and the response to it and hence reducing anxiety, improving river corridors and hence encouraging local people out into open spaces. However, some potential mitigation, for example on flood storage, could affect access to greenspace,

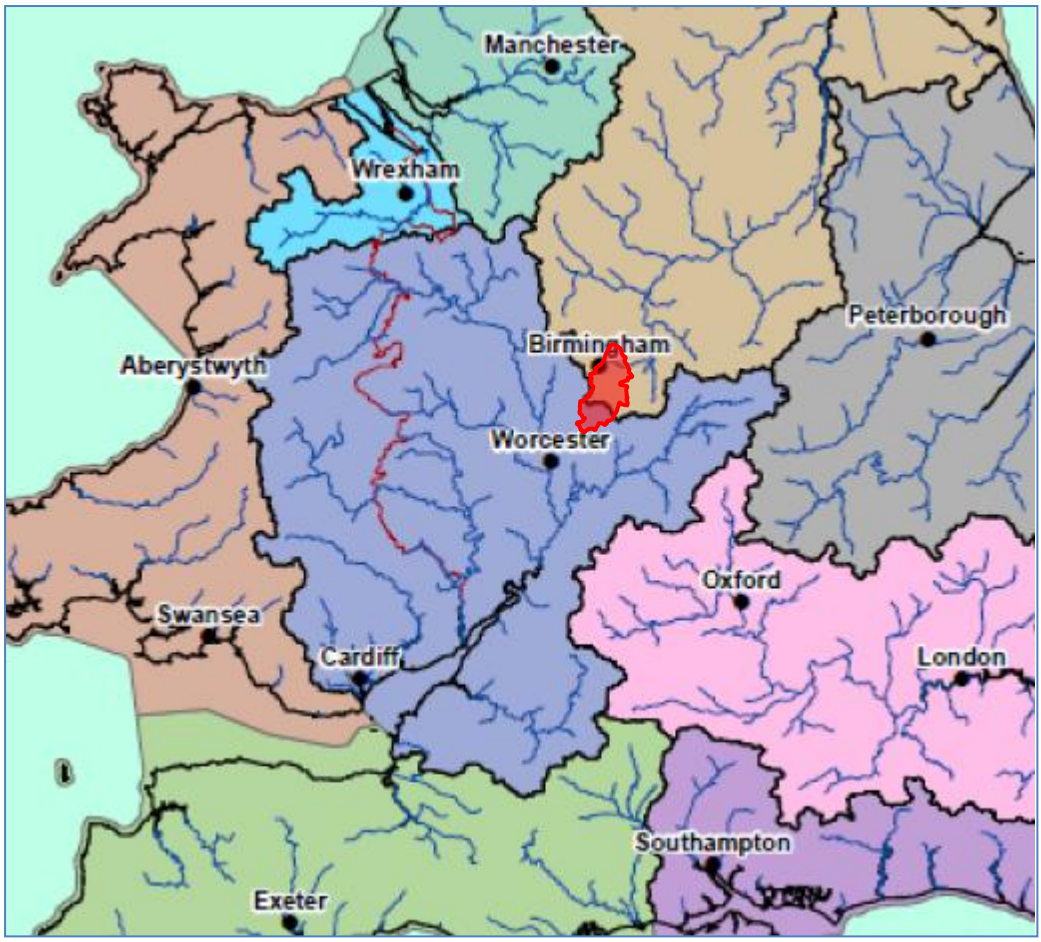
[15]Department of Health Birmingham Health Profile http://www.apho.org.uk/resource/item.aspx?RID=117129
[16] http://www.sportengland.org/research/active_people_survey/active_people_survey_2/regional_results.aspx
[17] Public Health Organisations (2011) Hospital stays for alcohol related harm
[18] Source: http://www.hmrc.gov.uk/stats/personal-tax-credits/child_poverty.htm (2010)

3.4 Water

3.4.1 River Catchments

The urban area of Birmingham sits predominantly within the Humber river basin catchment, a small area to the south west of the City drains to the Severn River basin catchment. (Figure 3.3, with the Humber catchment in brown and the Severn in blue.)

Figure 3.3 River Basin Districts



Source: Environment Agency (http://a0768b4a8a31e106d8b0-50dc802554eb38a24458b98ff72d550b.r19.cf3.rackcdn.com/River_Basin_District_Map_LIT_8050_75c4b2.pdf)

3.4.2 Rivers, Catchments and Watercourses in Birmingham

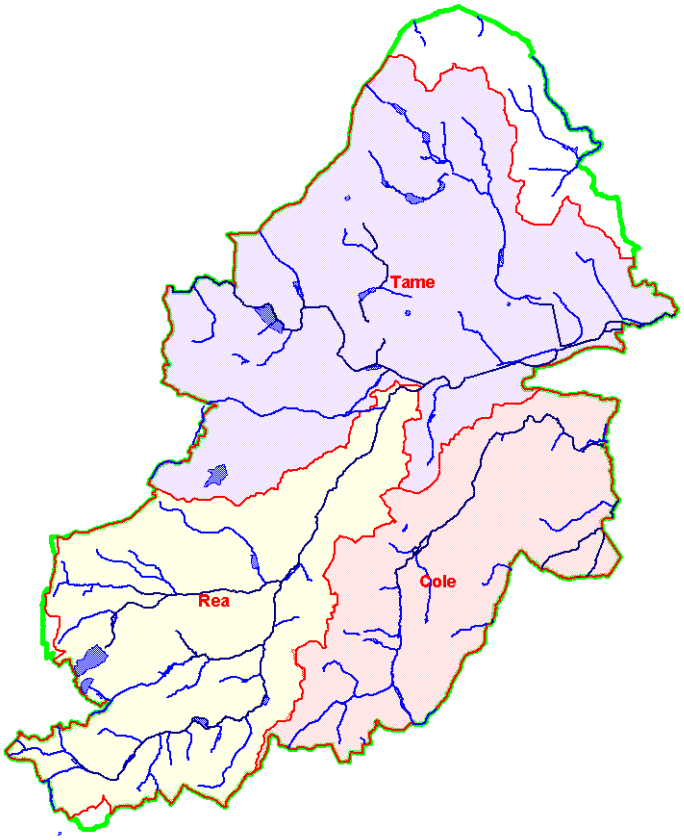
Main Rivers

Birmingham has thirteen main rivers (i.e. larger streams and rivers and watercourses of local significance)[19] which fall within the following catchments:

- River Tame;
- River Rea; and
- River Cole

Figure 3.4 maps these rivers and catchments which are regarded as being very responsive due to the urban nature of Birmingham.

Figure 3.4 Birmingham's River Catchments



[19] Main rivers are usually larger streams and rivers. However, they do include smaller watercourses of local significance. A main river is a watercourse marked as such on a main river map (http://www.environment-agency.gov.uk/cy/gartrefahamdden/llifogydd/38291.aspx)

The hydrological regimes of these catchments are as follows:

River Tame Character

The River Tame is the largest tributary of the River Trent. The River Tame rises on the watershed between the River Severn and River Trent in the area of the Midlands known as the Black Country. The Tame has two main sources, the Wolverhampton and Oldbury arms, which join at Bescot. From here, the river flows eastwards to the north of Birmingham City Centre. The River Rea joins the River Tame close to the Gravelly Hill M6 motorway junction. Continuing eastwards out of the West Midlands conurbation the river then turns north after its confluence with the rivers Blythe, Cole and Bourne and flows into a series of purification lakes at Lea Marston. After the lakes, the Tame continues to flow northwards, entering the River Trent just east of Alrewas. The Trent then flows north, finally flowing into the sea via the Humber Estuary.

River Rea Character

The River Rea rises in the Waseley Hills to the south of Birmingham. It is largely natural in character until it becomes a hard engineered channel at Cannon Hill Park, the exception being at the former MG Rover car plant and associated works at Longbridge where a length of the river flows underground. The reach from Cannon Hill Park to the Ring Road at Highgate, is largely in a deep stone-lined channel behind back gardens and open space. The River Rea is now almost totally hidden from sight after it enters the city centre at Highgate. The river channel is entirely man-made through the city centre all the way to its confluence with the River Tame in Nechells. The heavily urbanised nature of the river means that base flows are depleted in dry weather conditions but with rapid response to rainfall as a result of the sewered run-off. This results in very rapid increase in flows at time of storms.

River Cole Character

The River Cole is about 25 miles long. It rises on the lower slopes at Forhill, one of the south-western ramparts of the Birmingham plateau to enter the River Blythe below Coleshill. Its source is very near the main watershed of Midland England: tributaries are few and very short except in the lower reaches, outside Yardley, so the Cole is only a small stream. Average gradient of the central reaches is 10.5 feet in a mile. There is a fast run-off from the drift-covered clay which makes up its catchment area, and heavy rain produces sudden floods: in the absence of replenishing side-streams these subside as quickly as they rise. The Cole is normally shallow, except where weirs maintain an artificial depth. The River Cole flows out of and back into Solihull on the eastern side of Birmingham. Most of the green corridor remains intact with a wide floodplain remaining in places although often with ground levels raised by fill material. Factory estates and some housing developments encroach upon the floodplain here and there. In common with all urban rivers the Cole is frequently crossed by highways and relies heavily on sewered flows from its catchment area. Unlike the River Rea it is rarely in a hard engineered channel although the earth channel has been affected by realignment and re-profiling.

Ordinary Watercourses

There are 56 ordinary watercourses[20] totalling 147km that flow into the River Tame, River Rea and River Cole, in addition to this there are numerous un-named ditches and streams.

3.4.3 The State of Birmingham's Rivers

The BCC SPD on sustainable management of rivers and floodplains summarises the key issues relating to the state of the City's rivers:

- parts of the river system are in a poor ecological state;
- parts of the river system are inaccessible over much of their length and are of poor amenity value to the local community;
- fly tipping of domestic and commercial waste;
- beneath Birmingham, groundwater is rising, bringing with it contaminants that have previously remained in the ground;
- wildlife habitats in the rivers and at the banksides have been badly damaged;
- during storms pollution flushes into the river, causing a loss of oxygen and killing fish; and
- there are increasing development pressures on bank-side locations.

Across the Humber River Basin[21] as a whole, despite recent progress, a range of challenges still remain, which will need to be addressed to secure the predicted outcomes. They include:

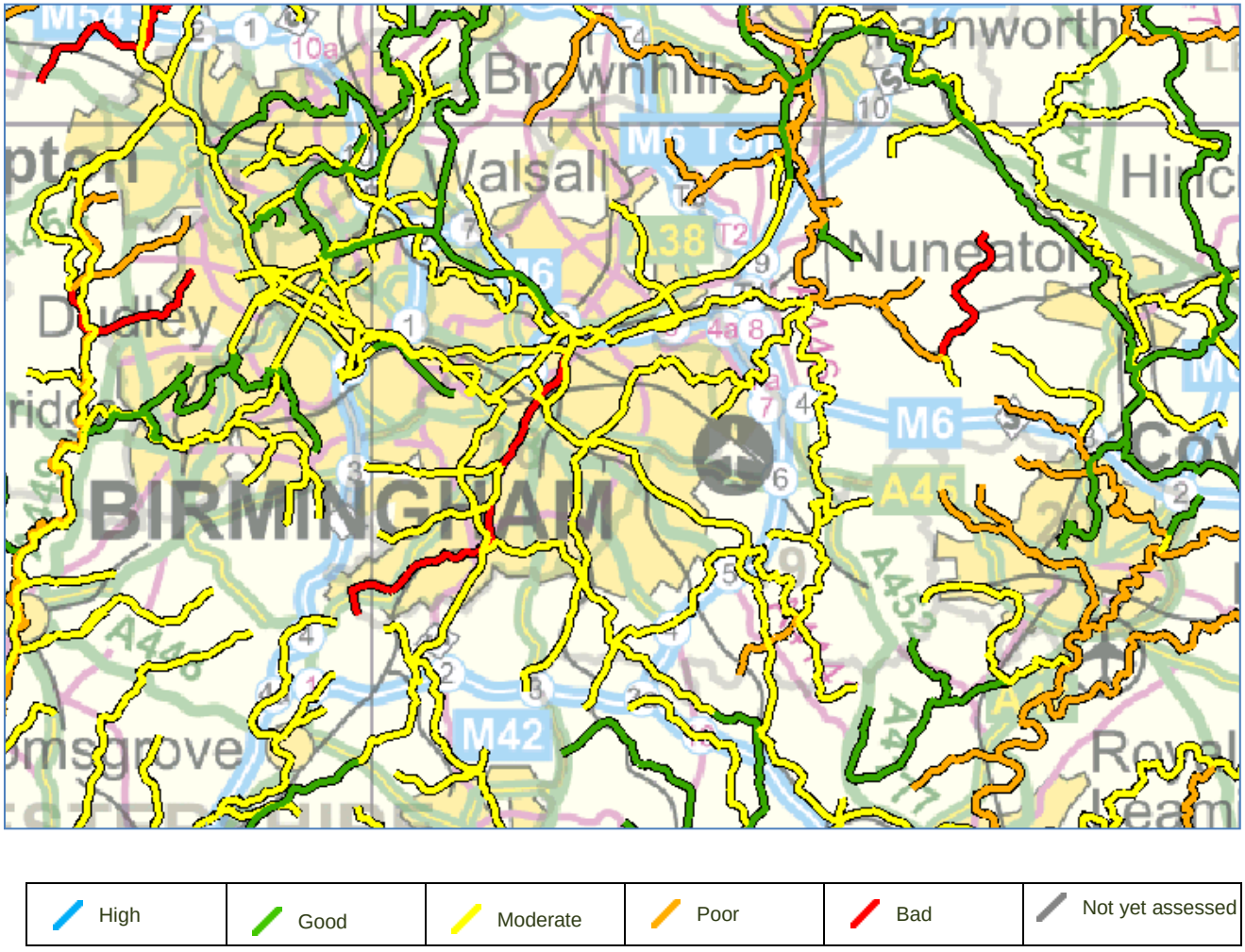
- point source pollution from water industry sewage works;
- diffuse pollution from agricultural activities;
- diffuse pollution from urban sources;
- physical modification of water bodies; and
- disused mines, point and/or diffuse pollution source.

At present, because of these pressures, and the higher environmental standards required by the Water Framework Directive, only 18% of surface waters are currently classified as good or better ecological status/potential. Some 27% of assessed surface water bodies are at good or better biological status now.

[20] An ordinary watercourse is every river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) and passage through which water flows and which does not form part of a main river (http://www.environment-agency.gov.uk/cy/gartrefahamdden/llifogydd/38291.aspx)
[21] Environment Agency (2009) Humber River Basin Management Plan

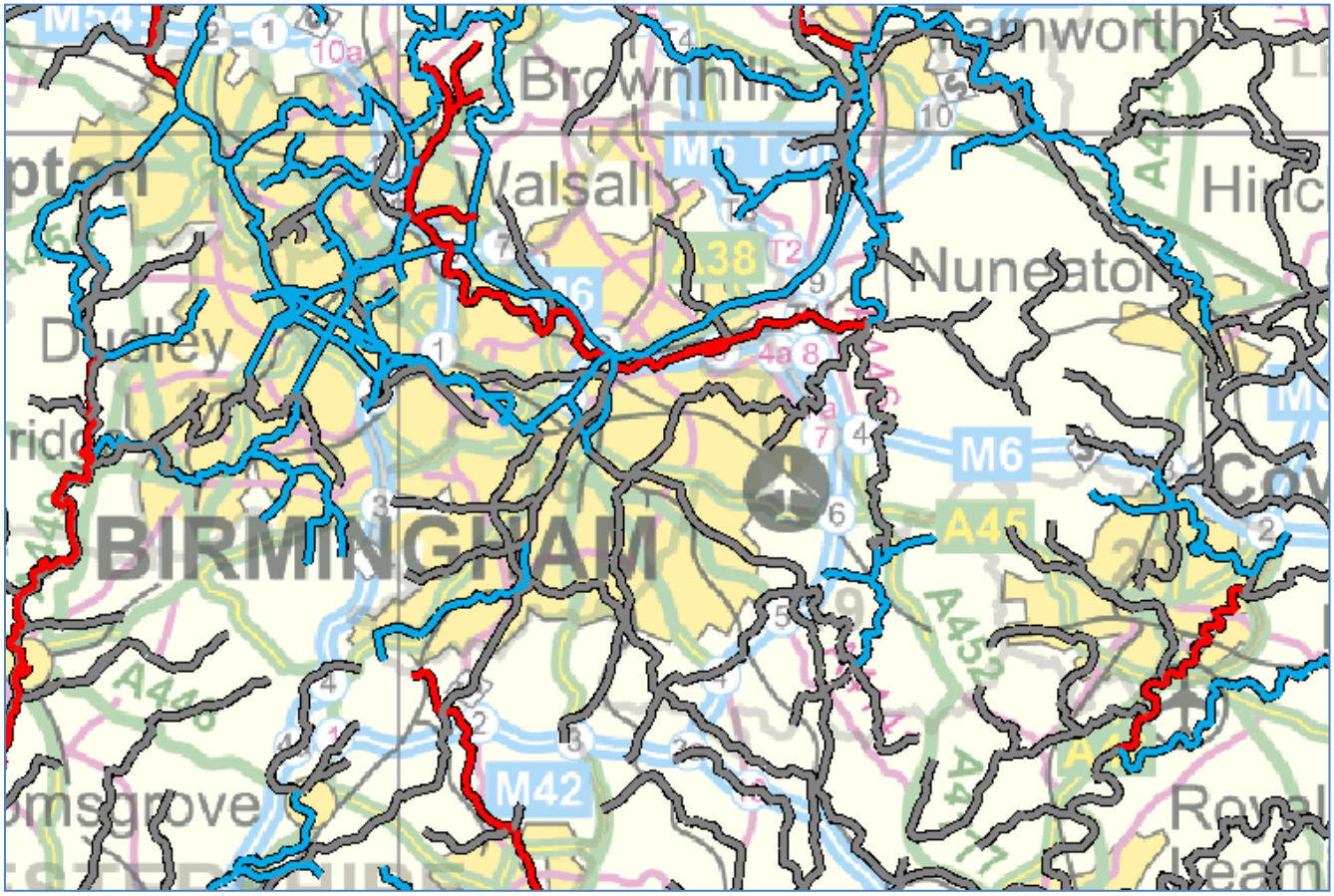
The Environment Agency monitors the chemical and biological quality of rivers. Figure 3.5 and 3.6 show the biological and chemical status of rivers and watercourses in Birmingham and environs. Whilst the overall quality appears to be acceptable, the poor chemical quality of the River Tame clearly stands out.

Figure 3.5 Ecological Quality of Rivers in Birmingham and Environs



Source: Environment Agency (http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=wfd_rivers&layerGroups=default&lang=_e&ep=map&scale=4&x=397767.375&y=327948.0625#x=395579&y=299671&lg=1,7,8,&scale=6)

Figure 3.6 Chemical Quality of Rivers in Birmingham and Environs



Source: Environment Agency (http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=wfd_rivers&layerGroups=default&lang=_e&ep=map&scale=4&x=397767.375&y=327948.0625#x=395579&y=299671&lg=1,7,8,&scale=6)

3.4.4 Reservoirs and Canals

Birmingham has 22 reservoirs as defined under the Reservoir Act 1975 of which 11 large raised reservoirs are the responsibility of Birmingham City Council. The remaining reservoirs are the responsibility of a variety of organisations including Environment Agency (3), Severn Trent Water (5), British Waterways (1) and private companies (2). Of these, two reservoirs are used for drinking water supply and one, a canal feed reservoir at Edgbaston.

Birmingham has an extensive network of canals, the exact length depends on where you draw the city boundaries, but the whole Birmingham Canal Navigations system extends for approximately 160 miles in total. It is one of the most intricate canal networks in the world. These waterways converge in the city centre at Gas Street Basin. The canals within Birmingham include:

- Birmingham & Fazeley Canal;
- Birmingham Canal Main Line;
- Birmingham Canal Old Main Line;
- Grand Union Canal;
- Tame Valley Canal;
- Worcester and Birmingham Canal; and
- Stratford-upon-Avon Canal.

3.4.5 Influence of the LFRMS on Water

Policies and proposals presented in the LFRMS could have an effect on the quality of rivers and watercourses across Birmingham through, for example, flood alleviation works, deculverting, and river enhancements.

3.5 Air Quality

Having reviewed the objectives of the LFRMS it is concluded that significant impacts on air quality as a result of the LFRMS are also unlikely to occur and therefore Air Quality is scoped out of this SEA.

3.6 Climatic Factors

UK Climate Change Projections (UKCP09)[22] suggest that mean summer temperatures could rise by 2.6ºC, summer rainfall could decrease by 17% and winter rainfall could increase by 13% in the West Midlands by the 2050s. These are the central estimates for a medium emissions scenario. By the 2050s central England could have irrigation needs similar to those currently seen in central and southern Europe. Mean monthly river flows could decrease by 50% to 80%. However, by the 2080s, the latest UK climate projections (UKCP09) are that there could be around three times as many days in winter with heavy rainfall (defined as more than 25mm in a day). It is plausible that the amount of rain in extreme storms (with a 1 in 5 annual chance, or rarer) could increase locally by 40%[23]. The impact of wetter winters and more of this rain falling in wet spells may increase river flooding. More intense rainfall causes more surface runoff, increasing localised flooding and erosion. In turn, this may increase pressure on drains, sewers and water quality. Storm intensity in summer could increase even in drier summers.

More generally, according to the UK's Climate Change Risk Assessment[24] the following key impacts associated with climate change are likely:

[22] UKCP09 http://ukclimateprojections.defra.gov.uk/content/view/515/499/
[23] Birmingham City Council (2011) Preliminary Flood Risk Assessment
[24] http://www.sustainabilitywestmidlands.org.uk/media/resources/adaptation_sub-committee_report.pdf

- Flood risk is projected to increase across the UK. Expected annual damages increase from a current baseline of £1 billion to between £1.8 and £5.6 billion by the 2080s for England (not including the effects of projected population growth).

- Risk of increased pressure on the country's water resources. The current public water supply surplus of around 900Ml/day on average is projected to turn into a water supply deficit of around 1,250Ml/day by the 2020s and 5,500Ml/day by the 2050s, with large regional variations.

- Potential health risks related to hotter summer conditions, but potential benefits from milder winters.

- There are projected to be between 580 to 5,900 additional premature deaths per year by the 2050s in hotter summer conditions. Conversely, between 3,900 and 24,000 premature deaths are projected to be avoided per year with milder winters by the 2050s.

- Sensitive ecosystems that have already been degraded by human activity may be placed under increasing pressure due to climate change. The main direct impacts relate to changes in the timing of life-cycle events, shifts in species distributions and ranges, and potential changes in hydrological conditions. While some species would benefit from these changes, many more would suffer.

- Some climate changes projected for the UK provide opportunities to improve sustainable food and forestry production. Some agri-businesses may be able to increase yields of certain types of crops and introduce new crops in some parts of the country, as long as pests and diseases are effectively controlled and sustainable supplies of water are available.

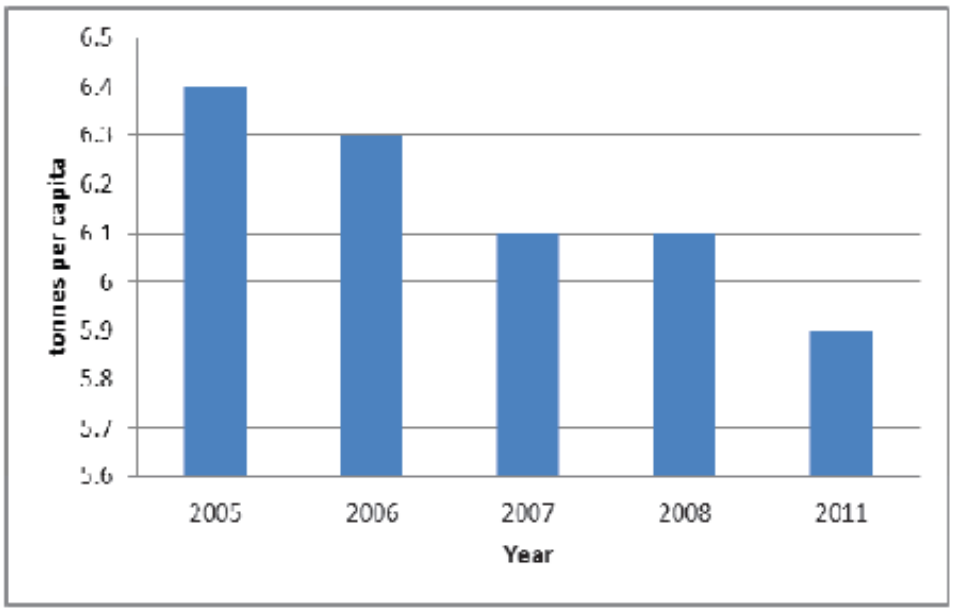
The UK is at risk of both water supply deficits (too little water) and greater risk of flooding (too much water). While this can seem counterintuitive, it arises due to changes in the timing and extent of when rain falls. Water supplies (groundwater and reservoirs) need sustained rainfall over a period of time, particularly in winter, to remain at required levels. The intense rain that can lead to flooding from rivers and surface water does not necessarily replenish these large stores, as the water may flow rapidly downstream before it is captured, and not fall in sufficient quantity over a prolonged period.

Birmingham imports in the region of 22,800GWhr of energy per year costing the city's population and businesses over £1.5bn, with costs predicted to rise along with fuel prices over the coming years[25]. The Climate Change Strategic Framework[26] identifies that 46% of Birmingham's CO_2 emissions come from industry, 33% from domestic energy and 21% from road transport. Between 2005 and 2011, there was a 12.5% decrease in per capita carbon emissions (Figure 3.7). The Birmingham Climate Change Framework provides a key target to produce a 60% reduction in carbon dioxide (CO2) emissions produced in the City by 2026.

[25] Birmingham City Council website 'Renewable Energy'

[26] Birmingham City Council (2009) Cutting CO_2 for a Smarter Birmingham Strategic Framework

Figure 3.7 Change in Per Capita Carbon Emissions 2005-2011 for Birmingham



Source:
http://www.sustainabilitywestmidlands.org.uk/media/resources/Birmingham_Carbon_Monitoring_presentation_Final.pdf

The Framework outlines that Birmingham has limited scope for large-scale renewable energy projects; however energy users can support developments elsewhere through their purchasing decisions. The largest renewable energy scheme currently operating in Birmingham is probably the Tyseley Energy from Waste Plant facility which produced a total of over 95,030.50 tonnes of ash between April 2010 and March 2011 and generates 25MWh per annum, from the thermal treatment of waste. A total of 80,241.22 tonnes of bottom ash that was produced was sent for recycling in Castle Bromwich where metals are removed and recycled with the remaining material used within the construction industry. This is substantially short of the target for renewable energy to account for 15% of energy produced by 2020 in the Climate Change Strategy and Action Plan Consultation 2007. The City has a number of operational 'Combined Heat and Power' (CHP) facilities, such as Birmingham Children's Hospital and Aston University which are part of an award winning CHP scheme, which are able to generate and supply heat and electricity for local consumption. The connection of Birmingham Children's Hospital to the CHP scheme has allowed for the supply of heat to Lancaster Circus.

Developers have also shown an interest in bring forward Anaerobic Digestion (AD) energy generating schemes. As set out in the AMR 2011, Birmingham will work positively with developers to realise the opportunities that AD hold and emphasise the potential of AD technology for use within Birmingham City Centre as it is a technology seen by the Government as a sustainable and viable waste management solution which utilises waste as a valuable resource. Whilst it is acknowledged in the Annual Monitoring Report[1] that the Birmingham City Council currently does not monitor the provision of new renewable energy capacity, it is understood that further consideration is being given by Birmingham City Council to ways of monitoring additional renewable energy capacity installed through new development.

There are 100,000 dwellings in the city which are more than 80 years old according to the Birmingham Sustainability Strategy and Action Plan 2000-2005. As a result the construction form is intrinsically energy-poor. Recent developments, such as the Birmingham High Performance Centre at the Alexander Stadium, have incorporated innovative, energy-efficient design. Although they are not referred to as 100% sustainable energy systems, CHP can be a more efficient energy system generating and supplying heat and electricity for local consumption.

Heating is by far the largest domestic use of energy in Birmingham. Space heating accounts for 62% of use, while water heating accounts 22%. This is exacerbated by a large number of homes that do not meet Decent Homes standards, including 49,250 City Council-owned homes and an estimated 35,000 private sector dwellings. The Climate Change Framework aims that by 2026 Birmingham will provide an improved quality and choice of housing and 'decent' standard for virtually all housing, with efficient heating systems and insulation in line with the best UK cities. Birmingham supports the national commitment that all new homes will be zero carbon by 2016.

The Sustainable Community Strategy sets out a vision for Birmingham in 2026 to become the first sustainable global city in modern Britain. The strategy envisages that in 2026 Birmingham will lead on Climate Change with local energy generation from CHP and cooling schemes will reduce $C0_2$ emissions. If Birmingham is to become the first sustainable global city it needs to dramatically increase deployment in low carbon energy generation technologies. The UK has signed up to the European Renewable Energy Directive, which sets a target of 15% of all energy generated to be sourced from renewable sources by 2020.

3.6.1 Influence of the LFRMS on climatic factors

There are opportunities to adopt more sustainable approaches to directly address potential increases extreme weather events which may arise through climate change.

3.7 Flooding

3.7.1 Flood Risk

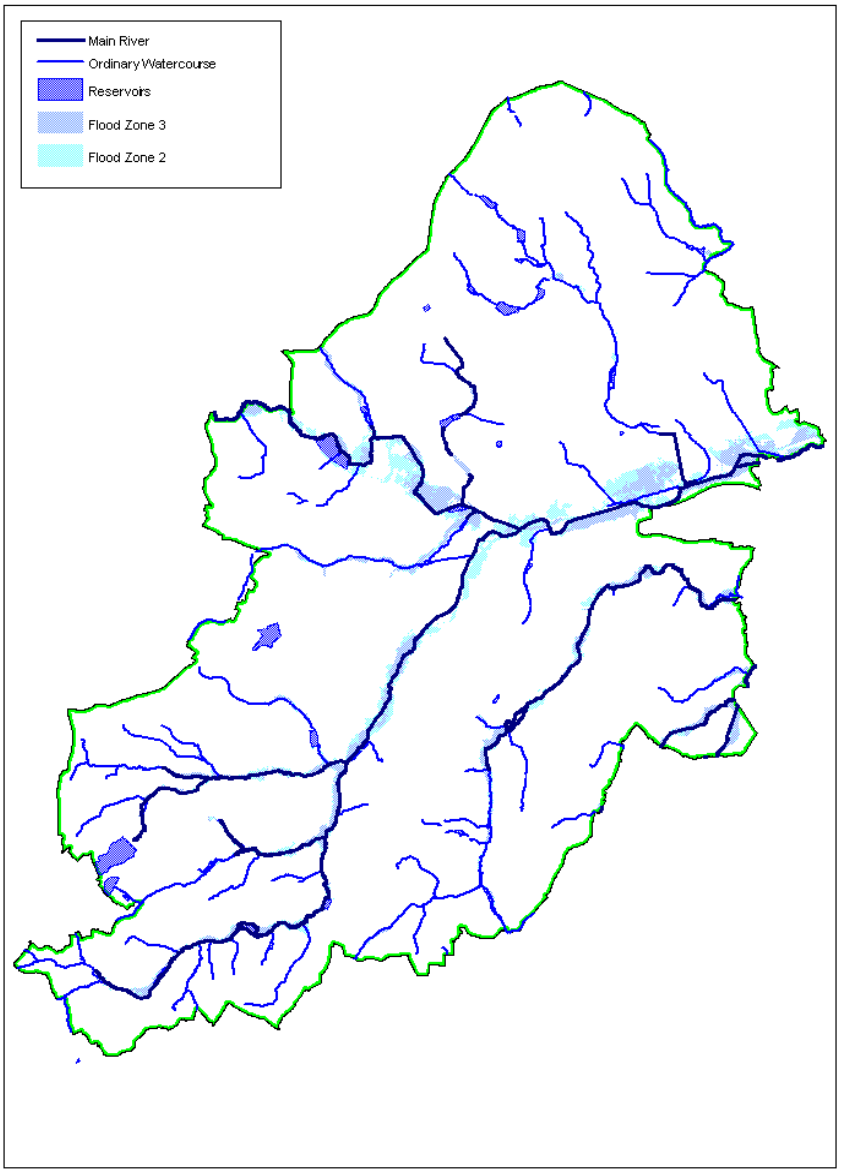
Birmingham is at risk of flooding from Main Rivers, ordinary watercourses, surface water, sewer flooding and groundwater. There is also the potential for canal and reservoir breach and overtopping. It is estimated that there are 11365 at risk of fluvial flooding and 24600 properties at risk of surface water flooding.

The Level 1 revised Strategic Flood Risk Assessment (SFRA) was published in January 2012 by Birmingham City Council. The SFRA assesses and maps all known sources of flood risk including fluvial, surface water, sewer, groundwater and impounded water bodies, taking into account future climate change predictions, and these are to be used as an evidence base to locate future development, primarily in low flood risk areas. The Level 2 Strategic Flood Risk Assessment (April 2012) assesses possible development locations identified in the Strategic Housing Land Assessment in terms of flood zones and the sequential test.

3.7.2 Fluvial Flood Risk

Fluvial flooding occurs when water draining from the surrounding land exceeds the capacity of a watercourse. The Environment Agency produced Flood Zones show the areas potentially at risk of flooding from rivers, ignoring the presence of defences. Figure 3.8 shows the flood zones in Birmingham showing 1 in 100 and 1 in 1,000 year risks associated with Birmingham's rivers and their tributaries.

Figure 3.8 Flood Zones



Many of Birmingham's rivers and streams are susceptible to flooding (whether due to climate change or otherwise) and Birmingham City Council is required to consult the Environment Agency on all planning applications within the floodplain zones defined by the Agency. During 2011/12 Birmingham City Council received 17 responses on

full planning applications from the Environment Agency. Only two of these applications were approved with an outstanding Environment Agency objection, and in these cases it was felt that the Agency's concerns could be adequately addressed through conditions.

3.7.3 Surface Water Flooding

Surface water flooding describes flooding from sewers, drains, small watercourses and ditches that occurs during heavy rainfall in urban areas. It includes:

- Pluvial flooding - flooding as a result of high intensity rainfall when water is ponding or flowing over the ground surface (surface run-off) before it enters the underground drainage network or watercourse, or cannot enter it because the network is full to capacity.
- Sewer flooding[27] - flooding which occurs when the capacity of underground systems is exceeded, resulting in flooding inside and outside of buildings. Normal discharge of sewers and drains through outfalls may be impeded by high water levels in receiving waters.
- Flooding from small open-channel and culverted urban watercourses[28] which receive most of their flow from inside the urban area.
- Overland flows from the urban/rural fringe entering the built-up area, including overland flows from groundwater springs.

Birmingham City Council is currently developing a Surface Water Management Plan. The SWMP process is a framework through which key local partners with responsibility for surface water and drainage in their area work together to understand the causes and effects of surface water flooding and agree the most cost effective way of managing surface water flood risk for the long term. The process of working together as a partnership is designed to encourage the development of innovative solutions and practices. The purpose is to make sustainable urban surface water management decisions that are evidence based, risk based, future proofed and inclusive of stakeholder views and preferences.

The SWMP is the culmination of this collaborative process; a description of the level of risk posed and an agreement about who will do what to better manage these risks. A SWMP will establish a long-term action plan to manage surface water in an area and should influence future capital investment, drainage maintenance, public engagement and understanding, land-use planning, emergency planning and future developments.

National Information on Surface Water Flood Risk

The Birmingham Preliminary Flood Risk Assessment (May 2011) outlines that the Environment Agency has produced two national datasets showing predicted surface water flooding:

- Areas Susceptible to Surface Water Flooding (AStSWF); and

[27] Consideration of sewer flooding in 'dry weather' resulting from blockage, collapse, or pumping station mechanical failure is excluded from SWMPs as this id for the sole concern of the sewerage undertaker

[28] Interactions with larger rivers and tidal waters can be an important mechanisms controlling surface water flooding

- Flood Map for Surface Water (FMfSW).

Areas Susceptible to Surface Water Flooding

The map has been produced using a simplified method that excludes underground sewerage and drainage systems, and smaller over ground drainage systems, excludes buildings, and uses a single rainfall event of a 6.5 hour storm with a 0.5% average probability of being exceeded each year (1 in 200 annual probability) - therefore it only provides a general indication of areas which may be more likely to suffer from surface water flooding.

The maps do not show the susceptibility of individual properties to surface water flooding. The map provides three bandings from 'less' to 'more' susceptible to surface water flooding. The 'more' band will be useful to help identify areas which have a natural vulnerability to:

- flood first;
- flood deepest; and/or
- flood for relatively frequent, less extreme events (when compared to the other bands).

Flood Map for Surface Water

These maps are a development of the Environment Agency's Areas Susceptible to Surface Water Flooding (AStSWF), as they consider:

- more storm events;
- the influence of buildings; and
- the influence of the sewer system.

The Flood Map for Surface Water shows areas where surface water would be expected to flow or pond.

Two rainfall events, one with a 1 in 30 and the other with a 1 in 200 chance of occurring in any year, are modelled and mapped. However, users must note that this is the chance of this rainfall, and not of the resulting flood extent occurring. Consequently it only provides a general indication of areas which may be more likely to suffer from surface water flooding in these rainfall probabilities.

For each rainfall probability, the map provides two bandings which can be used individually to indicate:

- 'Surface Water Flooding' - flooding greater than 0.1m deep; and
- 'Deeper Surface Water Flooding' - flooding greater than 0.3m deep.

The 0.3m threshold is chosen as it represents a typical value for the onset of significant property damages when property flooding may start (above doorstep level) and because it is at around this depth that moving through

floodwater (driving or walking) may become more difficult; both of which may lead users to consider the need to close roads or evacuate areas.

Locally Agreed Surface Water Information

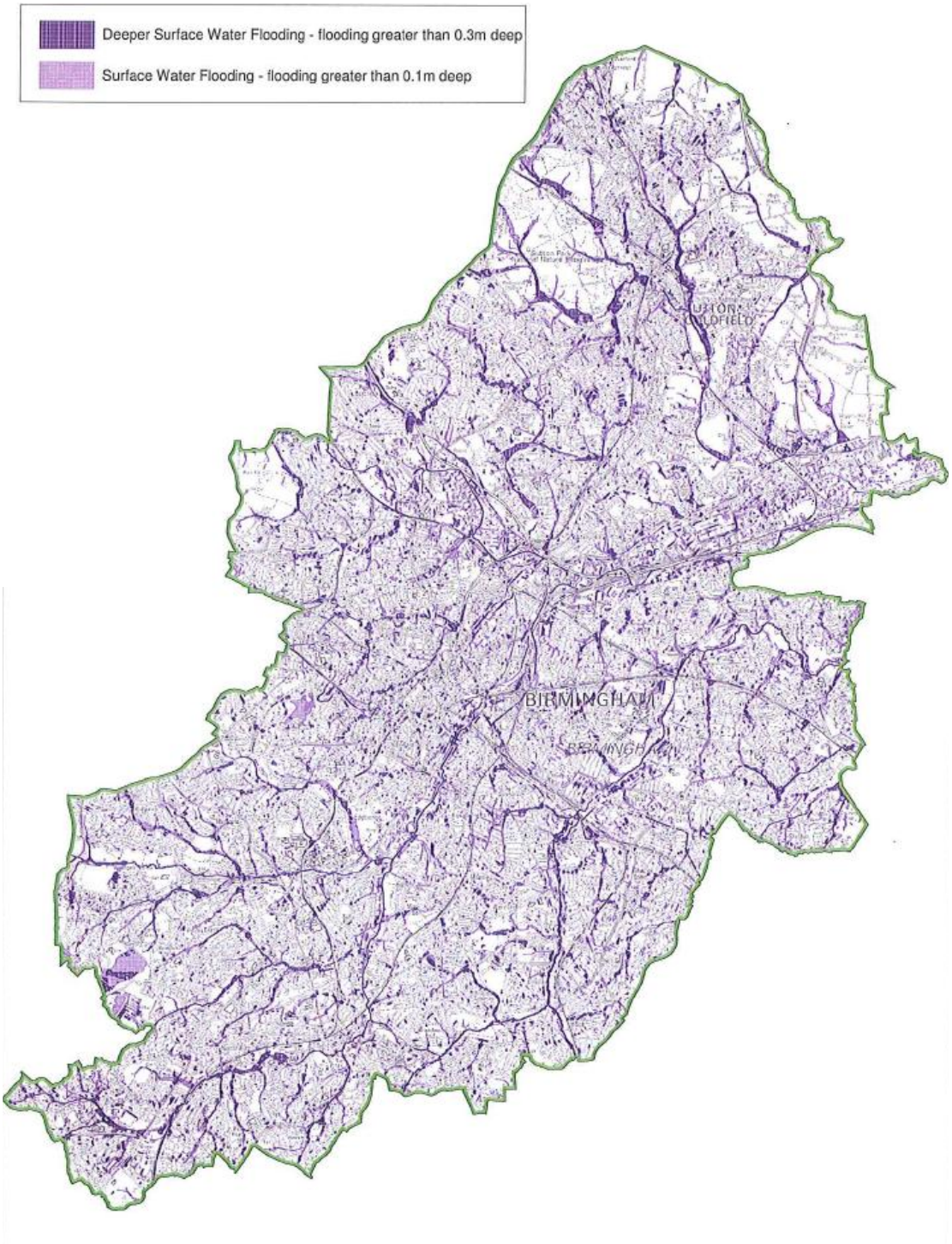
The Environment Agency guidance on surface water flood risk information recommends that LLFAs should review, discuss, agree and record with partners what surface water information best represents local conditions, this is known as 'locally agreed surface water information'.

There is currently no local surface water flood risk information for Birmingham; however a Surface Water Management Plan is currently underway for the City together with a more detailed integrated modelling study for the River Cole catchment. The results of these studies will be used to inform the second cycle of the PFRA process and the production of flood hazard and flood risk maps for the area.

It is however recognised that there is a significant surface water flooding issue in relation to agricultural land on the urban fringe, generally in other LLFAs jurisdiction, resulting in flooding in the Birmingham City Council area. Resolution of such problems will require cross boundary cooperation.

Figure 3.9 illustrates the areas susceptible to surface water flooding across the City.

Figure 3.9 Areas Susceptible to Surface Water Flooding



Source: Birmingham City Council (May 2011) Preliminary Flood Risk Assessment

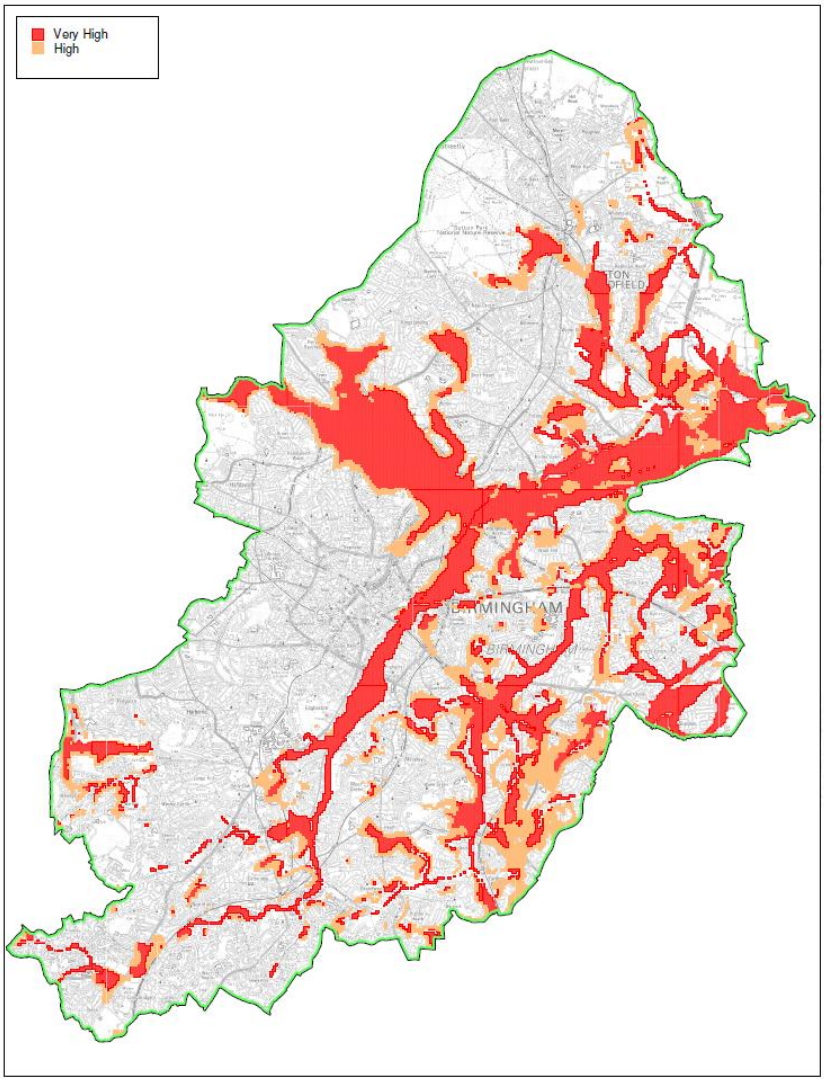
3.7.4 Groundwater Flood Risk

In response to the need for more information on groundwater flooding, the British Geological Society (BGS) has produced the first national hazard or susceptibility data set of groundwater flooding. The data is based on geological and hydrogeological information and can be used to identify areas where geological conditions could enable groundwater flooding to occur and where groundwater may come close to the ground surface.

Although this is not a risk data set in that it does not provide information about the likelihood of a groundwater flood occurring, it can be used to provide an understanding of groundwater flooding.

Areas susceptible to groundwater flooding are shown Figure 3.10.

Figure 3.10 Areas Susceptible to Groundwater Flooding



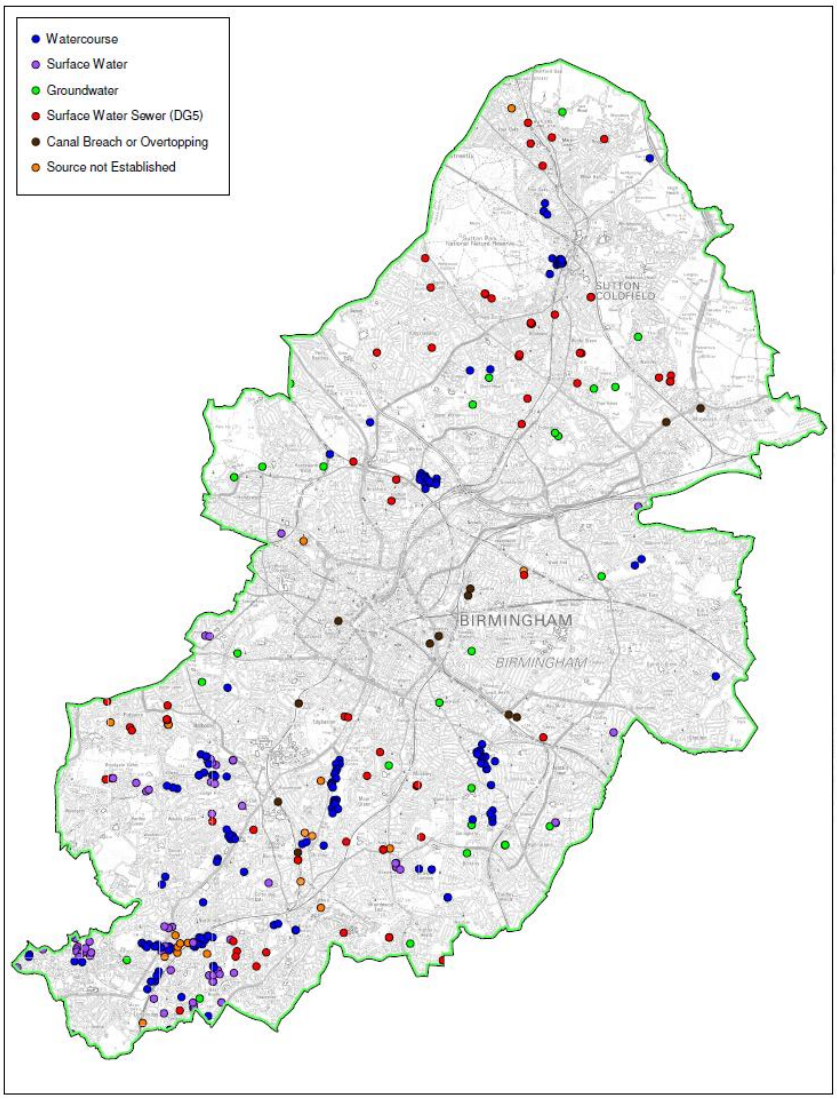
Source: Birmingham City Council (May 2011) Preliminary Flood Risk Assessment

3.7.5 Historic Flood Risk in Birmingham

A number of datasets have been collated to assess the local historic flood risk in Birmingham; this includes flooding from watercourses, surface water and groundwater. However due to the urbanised nature of the Birmingham catchment there are often significant interactions between sources of flooding and it is not always possible to ascertain the source of the flooding.

Historical flooding records provide a source of data that directly indicates both areas and sources of flooding. Recent years have seen a number of flooding events affecting Birmingham (September 1998, April 1999. June 1999, July 2000, June 2005, June 2007, July 2007 and September 2008), all historical flooding data has been collected from BCC, Severn Trent Water and British Waterways. The PFRA mapped historic flood locations across the City, shown in Figure 3.11.

Figure 3.11 Historic Flood Locations across Birmingham by Flooding Source



Source: Birmingham City Council (May 2011) Preliminary Flood Risk Assessment

Influence of the LFRMS on Flooding

There are opportunities to adopt more sustainable approaches to flood management generally and directly address potential increases in flood risk which may arise through climate change.

3.8 Material Assets

3.8.1 Housing

The City covers an area of 26,779ha (267.8km^2), of which 15,200ha is residential. According to the Housing Development Plan[29] Birmingham's residents live in 406,000-410,000 households. The City has about 414,000 self-contained properties. In April 2006, there were about 68,000 Council and an estimated 40,000 registered social landlord social rented homes. Since 2001, the City's population has grown after experiencing declines between 1991 and 2001 due to net out-migration. The gains reflect a shift in the overall balance of migration from negative to positive, coupled with greater natural increases. The main reason for this has been the high levels of international immigration in recent years. These statistics have implications for housing provision. Table 3.4 shows that the number of households in the City increased in the period from 2001 to 2011. Despite the above, the rate of increase in households in Birmingham has been less than the national and regional rates.

Table 3.4 Change in Households in Birmingham, the West Midlands Region and England, 2001 and 2011

Area	2001 Households	2011 Households
Birmingham	390,800	410,700
West Midlands Region	2,153,700	2,294,900
England	20,451,400	22,063,400
Index of Change		
Birmingham		+0.95
West Midlands Region		+0.93
England		+0.92

Source: Census of Population, 2001 and 2011, Office of National Statistics

The average household size in Birmingham is greater than the national average and is greatest in the West Midlands Region according to the 2011 Census with an average household size of 2.6 people. Birmingham has relatively high proportions of households containing one person or with five or more people. Average household size reduced from 2.54 in the period 1991 to 2001, largely as a result of growing numbers of one-person

[29] Source: http://www.birmingham.gov.uk/cs/Satellite?c=Page&childpagename=Housing%2FPageLayout&cid=1223092723273&pagename=BCC%2FCommon%2FWrapper%2FWrapper

households. However, for the period of 2011 to 2011 the average household size (persons) has increased to 2.56[30]. The City has a relatively low proportion of detached housing, and higher proportions of terraced housing and flats.

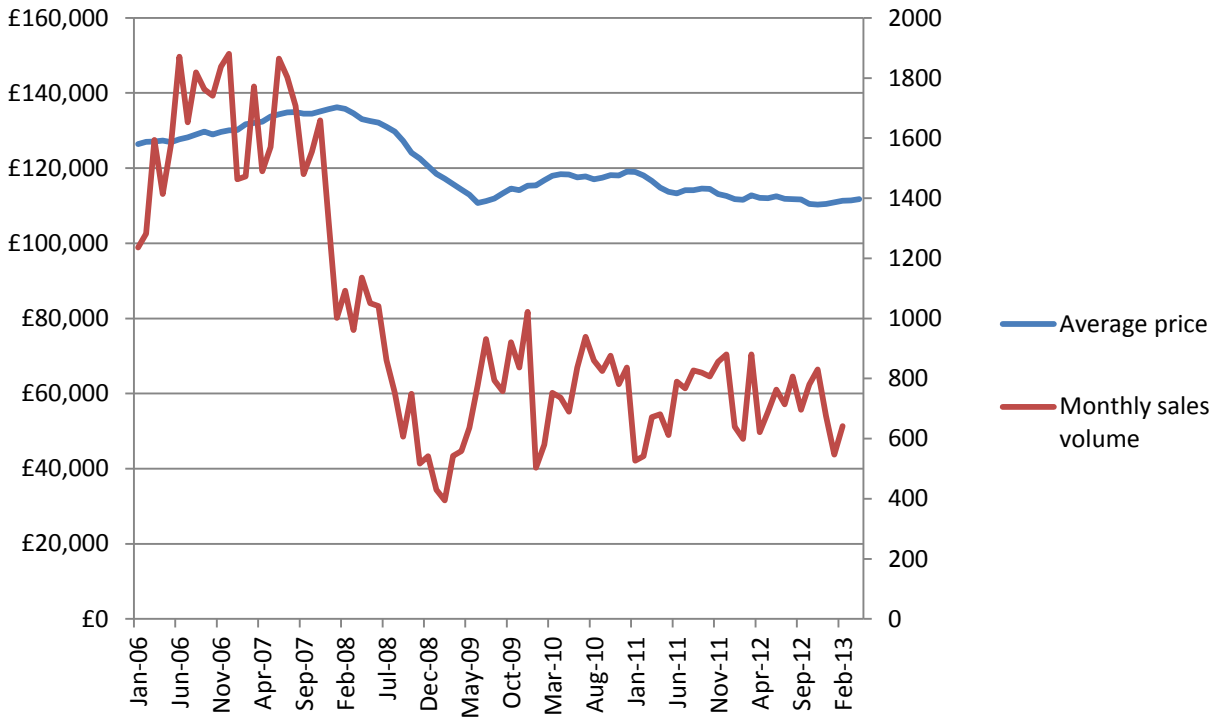
According to the 2011 Census, Birmingham was the most densely populated local authority within the West Midlands region with 4,000 people per square kilometre. This is an increase on the 2011 population density of 3,677 people per square kilometre which equates to an increase of 0.9%. The average housing density has decreased from over 74 dwellings in 2009/10 to just over 59 dwellings per hectare. This could be attributed to factors such as the reluctance of the development industry to commit to apartment schemes at the present time.

In recent years there have been political concerns over high density suburban development. This has manifested itself in a 'Mature Suburbs: Guidelines to Control Residential Intensification - Supplementary Planning Document' and away from the City Centre this has lead to decreasing densities over the past five years.

The mean house price in the City is below the regional average, particularly at the cheaper end of the market. Latest figures from the Land Registry website (April 2013) indicate that the average house price in Birmingham is £111,778. Figure 3.12 indicates that house prices in Birmingham peaked in January 2008 and sharply declined through to 2010, and now have stabilised. Clearly however sales volumes have declined by over 50% since October 2006. This suggests that the affordability of housing for poorer families and first-time buyers has declined due to other national economic conditions.

[30] Office for National Statistics (24 July 2012) **2011 Census: Population and household estimates for England and Wales – supplementary figures part 2**

Figure 3.12 Average House Prices and Sales Volumes in Birmingham 2006-2013[31]



Birmingham has a relatively high proportion of households renting from Birmingham City Council. Statistics from the Housing Strategy Statistical Appendix 2011 show that within Birmingham the number of local authority rented housing is 64,635 and Registered Social Landlord housing is 40,613 which collectively equates to 24.8% of the total housing supply or the local authority. There is a mismatch between the existing supply of affordable housing and the location of demand. The Birmingham Housing Plan (2010 Review) identifies that the vast majority of Birmingham's City Council housing meets the Decent Homes standard. In the private sector, Birmingham has a substantial number of older homes that are in need of repair and modernisation.

Historically, homeless applications in Birmingham have been twice the national average; although they are declining. There were 16,429 applicants for housing on the Local Authority Housing Register as at 01 April 2011 (HSSA 2011). Increasingly, older and disabled people wish to remain in their own homes. This results in strong demand for property adaptations, and an implication of need for to build homes to 'lifetime' standards. There were 8,367 referrals for assistance from Birmingham City Council in 2010/11.

Birmingham still manages its own stock and, notwithstanding Right to Buy, there remain very significant areas of predominantly local authority housing. These areas are however clustered and there are indeed significant pockets of the City (e.g. Edgbaston and Sutton) where affordable housing is in lesser supply and average houses prices are the highest in the City.

[31] Land Registry (2012) http://www.landregistry.gov.uk/public/house-prices-and-sales/search-the-index

3.8.2 Economy

Birmingham's economic prosperity was originally built on manufacturing, but changes in the 1970s and 80s led to a massive decline in this sector. However, highly-skilled, specialist manufacturing remains important to the city. Birmingham has since developed a substantial business and financial services sector through the transformation and growth of the City Centre and has become a major employment centre drawing in workers from across the West Midlands. It is an economic cluster with a particular focus on the banking, finance and insurance and distribution, hotels and restaurants and public service sectors. Birmingham is now a major centre for business conferences.

Despite declines in manufacturing, Birmingham is still a major employment centre drawing in workers from across the West Midlands region. Table 3.5 shows the number of economically active people within Birmingham, and Table 3.6 shows the number of employed residents in Birmingham by Gender and Ethnic Group.

Table 3.5 Economically Active Residents (2012)[32]

	Birmingham (numbers)	Birmingham (%)	West Midlands (%)	Great Britain (%)
All People				
Economically active	449,500	65.7	74.3	76.6
In employment	390,200	57.0	67.6	70.3
Employees	337,900	49.4	58.6	60.3
Self employed	48,400	7.0	8.5	9.5
Males				
Economically active	255,100	75.6	81.1	82.8
In employment	220,500	65.2	73.0	75.5
Employees	179,500	53.2	60.1	61.7
Self employed	39,000	11.5	12.4	13.4
Unemployed (model-based)	34,700	13.6	9.7	8.6
Females				
Economically active	194,400	56.2	67.6	70.4
In employment	169,700	49.1	62.2	65.1
Employees	158,300	45.8	57.0	59.0
Self employed	9,400	2.7	4.7	5.7
Unemployed (model-based)	24,600	12.7	8.0	7.4

[32] http://www.nomisweb.co.uk/reports/lmp/la/2038431965/report.aspx#tabempunemp

Table 3.6 Employed Residents in Birmingham by Gender and Ethnic Group[33]

	2006		2007		2008		2009		2010	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Male	222,500	69.9	221,100	68.9	220,500	67.9	211,000	64.6	215,800	65.8
Female	176,700	54.8	182,000	56.1	177,600	53.9	180,500	54.3	180,700	52.9
White	282,300	70.3	281,300	70.1	284,500	70.1	268,400	67.1	274,200	65.2
Ethnic Minority	115,200	49	121,400	49.8	113,200	45.7	123,200	47.8	121,600	49.1
Total	399,100	62.3	403,000	62.4	398,000	60.9	391,600	59.4	396,600	59.3

At 49.4%, Birmingham's employed residents (excluding self-employed) is noticeably below the Regional rate of 58.6%. The female rate is much lower than the male rate, and both are lower in Birmingham than the national averages; for women there is a 13.2 point difference from the England rate.

Some 34.3% of Birmingham's population is economically inactive (neither working nor seeking work). This is 10.9 points higher than the national rate. The female rate of 43.8% is 19.4 points higher than the male rate. The West Midlands has one of the highest economic inactivity rates in England. Birmingham in particular has a high unemployment rate and low employment rate. Table 3.7 summarises the total number of economic inactivity for those aged between 16-64 in Birmingham. This shows that the highest proportion of the economic inactivity are students at 34.9% which is 9.8% higher than the national average of 25.1%. The non-white economic inactivity rate is 42%, significantly higher than the white rate of 24%. Both rates are above the England averages of 32% and 20% respectively.

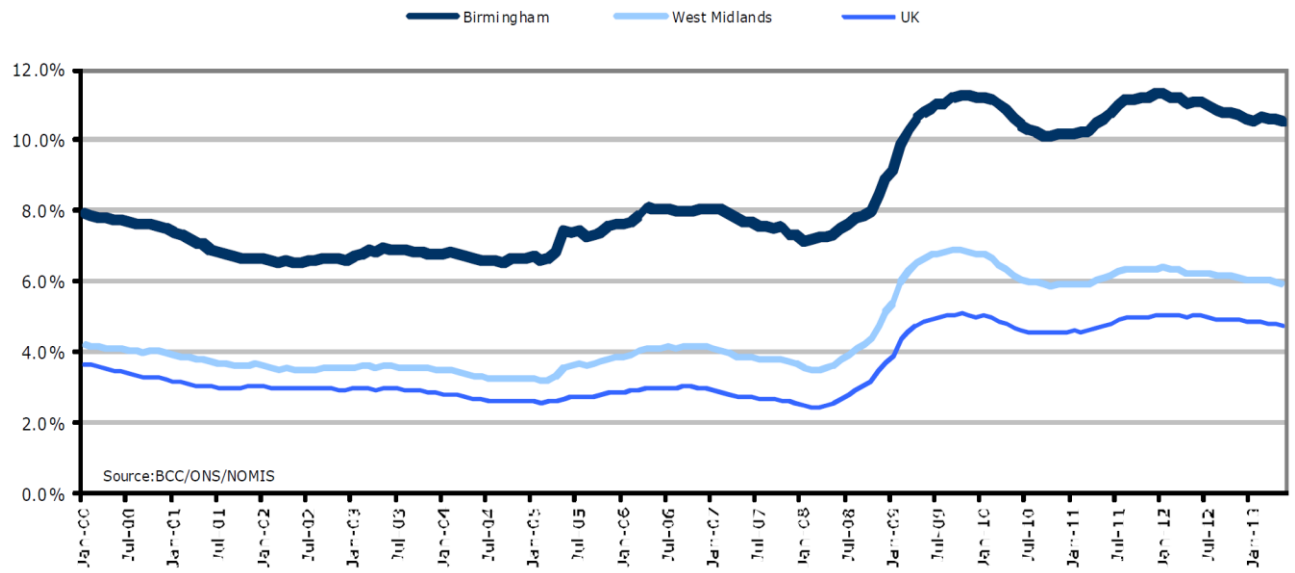
Table 3.7 Economic Inactivity in Birmingham (ONS LFS/APS)

	Birmingham (level)	Birmingham (%)	West Midlands (%)	Great Britain (%)
Student	80,900	34.9	26.5	25.1
Looking after family/home	61,400	26.5	25.9	24.9
Temporary sick	4,700	2.0	1.9	1.9
Long-term sick	56,600	20.1	21.7	22.2
Discouraged	#	#	0.7	0.9
Retired	22,900	9.9	15.9	16.7
Other	13,700	5.9	7.3	8.4
Total	231,800	34.3	25.7	23.4

[33] ONS

Birmingham has seen persistently higher levels of worklessness over the past decade, compared to the West Midlands and the UK, as can be seen from Figure 3.13.

Figure 3.13 Economically Active Unemployment Rates 2000-2013[34]



Employment growth in the city as a whole is set to be relatively subdued over the period 2010-2025 as the economy recovers from the recession and adjusts to a decline in public sector employment. Indeed the forecast level of employment in the city in 2025 is only just returning to the levels seen prior to the recession.

The Greater Birmingham & Solihull LEP is a partnership of businesses, local authorities and universities which supports private sector growth and job creation. It was set up to strengthen local economies, encourage economic development and enterprise, and improve skills across the region. The City Deal between the Government and the Partnership was announced in July 2012 which consists of a package of measures that are to be implemented to drive economic growth designed to exploit the area's economic assets and address its challenges[35]. The first phase of the City Deal is to focus on the delivery of a range of economic benefits for the Greater Birmingham and Solihull area. These include:

- 10,000 additional direct jobs, building on the 40,000 created by the vanguard Enterprise Zone in Birmingham City Centre;
- leveraging in over £15bn of private sector investment over 25 years from £1.5bn of public funding;
- a Single Settlement to cover all economic development funding;

[34] http://www.birmingham.gov.uk/birmingham-economy
[35] http://centreofenterprise.com/about-the-lep/key-projects-and-issue/

- a world-class skills system which meets the needs of employers and fulfils the expectations of employees;
- 3,560 apprenticeships (AGE) grants to be delivered by March 2013;
- improvements to employers' perceptions of 'work readiness' year-on-year;
- in excess of 2,800 additional new homes through the use of public assets;
- at least 100% capital return on current market value of public assets;
- an Institute of Translational Medicine to respond to national unmet need, unlock growth potential in the NHS and create a portal for SMEs and international pharmaceutical companies;
- £35M of largely private sector clinical trial investment and £50M of free drugs;
- 15,000 homes refurbished delivering savings in domestic energy usage of 26 ktonnes pa of CO_2 and at least 40 public buildings refurbished delivering savings in energy usage of 10 ktonnes pa of CO_2; and
- retrofitting to the properties of 1,500 people on pension or disability premium and 2,250 people in fuel poverty.

The City Deal comprises five elements: GBS Finance; Skills; Public Assets; Life Sciences and Green Deal, each of which includes specific commitments from the LEP and Government. Progress against these will be monitored to ensure they are delivered.

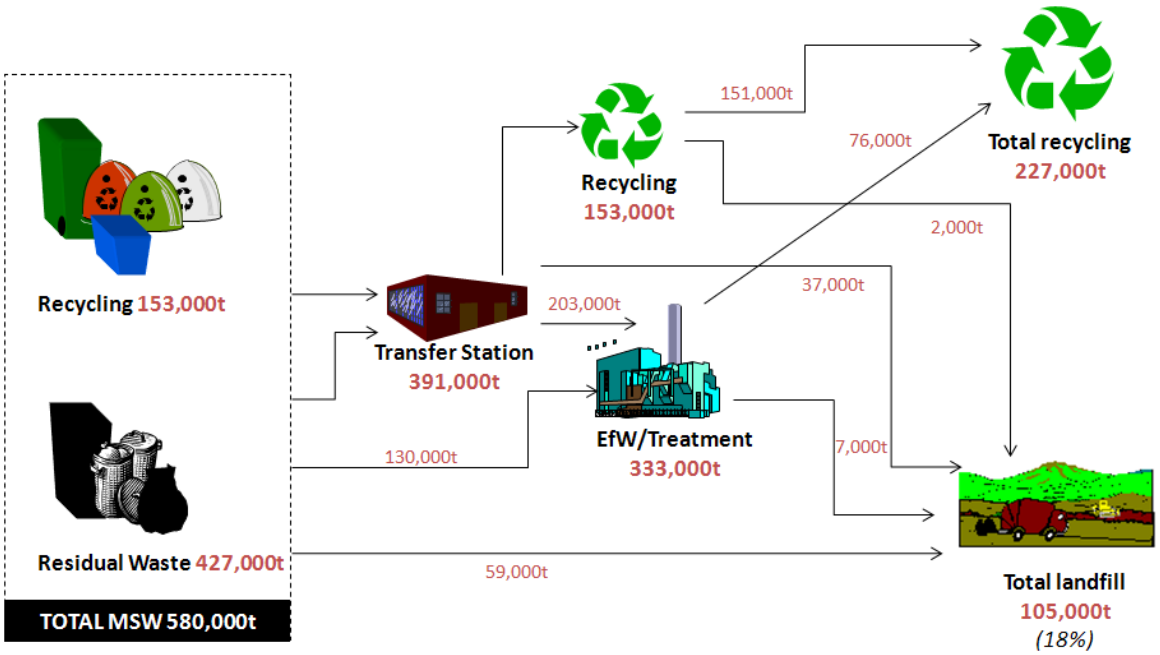
3.8.3 Minerals, Waste and Water

There are no active mineral workings in Birmingham, and no extant planning permissions for mineral extraction. This is due to the lack of naturally-occurring minerals in Birmingham for which there is a demand. As a result, secondary aggregates are derived from a very wide range of materials that may be used as aggregates. Secondary aggregates include by-product waste, synthetic materials and soft rock used with or without processing. According to a CLG Study[36], in 2003, about 4.29 million tonnes of recycled aggregate and about 0.65 million tonnes of recycled soil were produced in the West Midlands.

In 2010/11 there was over 580,000 tonnes of municipal waste collected of which 67.3% was used to recover heat and power from the Tysley EfW facility. In 2009/10, 31.78% of the City's municipal waste was recycled or composted. Municipal waste is a significant part of the waste stream, but only represents a small proportion of the total amount of waste produced in Birmingham (Figure 3.14).

[36] Communities and Local Government (2007) Survey of Arisings and Use of Alternatives to Primary Aggregates in England, 2005: Construction, Demolition and Excavation Waste

Figure 3.14 Destination of Birmingham's Waste Stream



Note: Tonnage figures are rounded to nearest '000 & are based on calendar year 2008 in order to cross match figures with data in the Environment Agency waste data interrogator 2008

Source: http://www.bebirmingham.org.uk/documents/Birmingham_Total_Waste_Strategy_Final_Report_24.11.10.pdf

Birmingham recycling and composting rates have been improving over the past ten years and the current performance (for 2010/11) is 32%. This is up by 0.22% on the previous year and represents significant improvement over the decade.

The percentage of waste sent to landfill within the City has declined between 2002/03-2009/10 from 23% to 12.28%. According to the Municipal Waste Management Strategy, the amount of household waste generated per person is lower in Birmingham than in other metropolitan authorities, and its rate of growth has also been lower than the national growth. Birmingham City Council recovers energy from the majority of its 'residual' municipal waste through the Tyseley Energy from Waste Plant (EfW) [37]. This reduces reliance on landfill as a disposal option The Strategy identifies that Birmingham City Council has sufficient municipal waste treatment capacity up to 2019.

Most of Birmingham is in the area served by Severn Trent Water with a small area to north served by the South Staffordshire Water Company. In 2004 domestic water consumption was 137 litres/head/day[38]. This was lower than the national average in 2011 of 150 litres/head/day (Defra[39]).

[37] Birmingham City Council (2006) *Municipal Waste Management Strategy 2006-2026*
[38] http://www.defra.gov.uk/sustainable/government/progress/regional/summaries/16.htm

The current Water Resources Plan[40], prepared by Severn Trent Water for the Birmingham Water Resource Zone includes the development of four significant new water resources. These developments mean that the growth identified in the Water Resources Plan can be accommodated without the zone going into deficit.

3.8.4 Transport Infrastructure

Rail and Metro

Birmingham New Street Station is a major rail interchange offering direct services to cities across England, Wales and Scotland. Birmingham New Street Station is currently being refurbished and further extensions of the Metro are planned. The Midland Metro is a tram line linking Birmingham Snow Hill to Wolverhampton, via West Bromwich, Wednesbury and Bilston. A two mile extension route is planned from Snow Hill, through the City Centre via Upper Bull Street, Corporation Street, Stephenson Street, Pinfold Street, past the Town Hall and on to Broad Street before terminating at Hagley Road.

Road

Birmingham has a complex road network with around 12 major radial roads and ring roads traversing the city. There are also three busy motorways: the M5, M6 and M42, located towards the west, north and east of the city respectively. Although there has been a recent rise in the use of the car, there has been a reduction in average travel speeds. Much of this is due to outward migration of people, which has in turn led to longer car journeys; there have also been a number of out-of-town developments in recent years which have encouraged additional car journeys to be made. Increased congestion has however resulted in lower average vehicle speeds.

Congestion is a significant issue and demand exceeds available capacity at certain times and in some locations, both on road and rail. Congestion has indirect and cumulative effects on the economy, on people's health and well being and on air quality. Congestion can make deliveries less reliable and deter investment. Congestion also affects the wider transport of goods and services via the M5 and M6 and whilst the opening of the M6 Toll has provided an alternative for some trips, there are still significant peak hour demands that require management.

The Highways Agency (HA) Midlands Motorway Box (MMB) Route Management Strategy highlights a number of problems and issues that affect both the HA and the local authority networks. The MMB network caters for a mixture of commuter and long distance strategic traffic, the M5 and M6 form part of the Trans-European Network, with a peak hour period of around 18 hours. The route has a high regularity of junctions, 13 miles of the route is elevated making it difficult to plan and carry out maintenance and the MMB is sensitive to changes in demand and flow when large scale events are held such as those at the National Exhibition Centre (West Midlands Local Transport Plan 2006).

Road casualties are disproportionately higher in deprived areas. The West Midlands Metropolitan Area is designated as a Centre of Excellence for Integrated Transport specialising in road safety.

39 http://webarchive.nationalarchives.gov.uk/20130123162956/http:/www.defra.gov.uk/environment/quality/water/conservation/domestic/

[40] Severn Trent Water (2010) Water Resources Management Plan

Bus and Coach

Approximately 85% of all public transport trips in Birmingham are handled by the City's buses. The bus network is operated by a number of companies, with services along the main radial routes providing good coverage to the City Centre. There are priority measures in place on a number of these routes, such as Digbeth High Street, while others are planned. Pedestrianisation limits bus traffic to a few key corridors in the City Centre, which reduces capacity and creates significant environmental problems along these routes.

Coach travel is also important, particularly in providing an inexpensive means of longer distance travel for those on low incomes. The City has a number of on-street coach set down and pick up points around the City Centre. The Brewery Street Lorry and Coach Park has capacity for up to 32 18.5/14m vehicles.

Travel Behaviour

Birmingham has a relatively high percentage of households without a car - 38% compared to the English average of 27%[41]. However, despite this fact, just over half of people who both live and work in the City use their car to get to work, only a fifth use the bus, and a tenth walk or work from home[18]. In contrast, over three quarters of people commuting into the city use a car, about a tenth use the train, and a further tenth travel by bus. Table 3.8 shows statistics for people travelling to work in Birmingham.

Table 3.8 Means of Travel to Work in Birmingham, 2001 (Census 2001)

Travel to Work - Method	% of those working		
	Live in Birmingham, works outside	Live and work in Birmingham	Work in Birmingham, live outside
Work at/from home	0	9.5	0
Train	2.9	2.4	10.3
Bus	12.8	22.1	10.2
Car	78.3	52.4	75.5
Walk	2.7	10.4	1.2
Other	3.3	3.2	2.8
Total (100%)	79,000	288,000	162,000

Source: ONS 2001 Census

According to the Birmingham Cordon Surveys, the total number of car trips entering Birmingham City Centre during the morning peak hours (07:30-09:30) has decreased in the past 10 years. However, the number of bus trips remained relatively constant with a slight decrease since 2005, while the number of rail trips has increased since 2001.

[41] Birmingham City Council (2012) Annual Monitoring Report 2011

In 2006/7 some 62.7% of bus users in the West Midlands metropolitan areas were satisfied with services which already exceeds the target of 60% by 2009/10 (West Midlands Local Transport Plan Delivery Report 2006-2008). Bus punctuality[42] in 2006/7 was about 65%, marginally below the target. Performance has tended to vary from year to year and from corridor to corridor (West Midlands Local Transport Plan Delivery report 2006-2008). The Transportation and Street Services Overview and Scrutiny Committee set a target of 83% by 2010/11.

Birmingham draws in workers from across the West Midlands region, and according to the 2001 Census there were about 64,000 more people with a workplace in Birmingham than there were employed residents. Managers, senior officials and professionals make up about 35% of persons commuting into Birmingham, compared with 23% of the City's working residents. Only one tenth of people who both live and work in the City, work from home.

Transport surveys taken across the West Midlands Metropolitan Area in 2001 show that households with a car make 78% more trips than those without a car being 2.25 and 1.26 trips per household per day respectively (West Midlands Local Transport Plan, 2006).

3.8.5 Influence of the LFRMS on Material Assets

The location of infrastructure such as road and rail networks, waste management facilities, utilities and community care facilities could influence the options presented and assessed through the LFRMS according to perceived risk and the potential consequences of flooding. The LFRMS will include objectives to minimise the impact flooding of new development and existing infrastructure and other material assets.

3.9 Cultural Heritage

Birmingham has a wide variety of distinctive historic townscapes, buildings and landscapes. The extent of the City's historic resource is summarised in Table 3.9.

Table 3.9 Birmingham's Historic Built Environment

Type of Resource	Number	Area (Hectares)
Scheduled Ancient Monuments	13	448.64
Statutorily Listed Buildings	1,470	-
Locally Listed Buildings	423	-
Conservation Areas	30	,1223.62
Registered Parks and Gardens	14	-
		Length (Kilometres)
Canals		57.4

Source: Birmingham City Council, AMR (2011)

[42] Birmingham City Council (2007) Building Bus Use: A Report from Overview & Scrutiny

There are currently 30 Conservation Areas in Birmingham, which accounts for 4% of the land area of the City including five within the City Centre. Some Conservation Areas, such as the Jewellery Quarter and Bourneville, are unique and are nationally recognised. Birmingham also has nearly 1,500 statutorily listed buildings and 14 Registered Parks and Gardens of special historic interest. Birmingham City Council applied to the United National, Educational, Scientific and Cultural Organisation for 'World Heritage Site' status in 2011 for the Jewellery Quarter. The City's Listed Buildings range in date from mediaeval churches and houses to important examples of twentieth century architecture. Birmingham also has an extensive network of historic canals, reflecting its key role during the Industrial Revolution in the eighteenth and nineteenth centuries.

The City's archaeological resource is surprisingly varied for such a major urban area. Some remains are recognised as being of national importance, and are protected by scheduling. Known remains range in date from prehistoric earthworks to nineteenth and twentieth century industrial buildings and structures. The Sites and Monuments Record (SMR) maintained by Birmingham City Council includes details of all known archaeological remains within the City. These now total almost 5,171 records.

3.9.1 Influence of the LFRMS on Cultural Heritage

Policies and proposals associated with the development of the LFRMS could involve construction activities and changes to land use and flooding regimes which could adversely affect cultural heritage assets and their settings. There could also be a range of direct and indirect impacts, flood alleviation works, Sustainable Drainage Systems, land use change, maintenance activities and consenting, all have the potential to adversely affect conservation areas or registered parks and gardens. However, if well managed, these changes could also benefit this cultural heritage.

3.10 Landscape and Townscape

Residents of Birmingham are positive about their City; according to the Community Cohesion Strategy[43], opinion polls show that three quarters of people think it is a good place to live. In January 2008, 69% of tourists surveyed felt Birmingham is a good place to visit (Performance Plan 2007/08).

Environmental improvements by Birmingham City Council during the late 1980s and early 1990s, such as the development of the ICC and Centenary Square, Victoria Square and the pedestrianisation of New Street, have improved the overall quality of the environment within the City Centre. There have been notable successes in relation to improving the quality of design and the environment, particularly in the city centre. This was recognised by the award to the city of the RTPI Silver Jubilee Cup in 2004. Birmingham also won the European City of the Future Award at the European Property Awards in Munich in 2005.

Although much of Birmingham is built up, there is a significant amount of open land within the City. Landscape character is a key contributor to regional and local identity, influencing sense of place, shaping the settings of people's lives and providing a critical stimulus to their engagement with the natural environment. The National Character Areas (NCAs) provide a description of landscape character across England[44]. These are used by Natural

[43] Birmingham City Council (2006) Community Cohesion Strategy
[44] http://publications.naturalengland.org.uk/category/587130

England to provide a context for monitoring landscape change through the Countryside Quality Counts (CQC) project[45]. Birmingham falls within two NCAs, Arden to the south and Cannock Chase and Cank Wood to the north. The part of the City which lies within Arden is almost entirely urbanised. The wider landscape to the south is characterised by a farmed woodland landscape of rolling landform with narrow meandering river valleys. The National Character Area description relevant to Birmingham states:

> *"Birmingham has a clearly-defined concentric pattern of development. Much of the landscape is dominated by 19th and 20th century housing, the former in characteristic red brick. Canals, parks, golf courses and the river corridor form the main open spaces, with a substantial parkland area around the University at Edgbaston and some low-density garden suburbs like Bournville. Enclosed within the urban area are fragments of older landscapes like Castle Bromwich Park"*[46].

The change in landscape character in the period 1998-2003 is described in the CQC assessment as:

> *"...development pressure continues to be evident throughout the area, with evidence of expansion around many major settlements such as Nuneaton, Coventry, Bromsgrove and Redditch, and expansion of major roads such as the M6 toll"*[9].

The northern part of the city lies within the Cannock Chase and Cank Wood NCA. Relevant extracts from the JCA are set out below:

> *"Cannock Chase and Cank Wood is a landscape dominated by its history as a former forest and chase and by the presence at its centre of the South Staffordshire Coalfield. It forms an area of higher ground, with the towns and large villages of the Black Country rising out of the lowlands of Shropshire and Staffordshire to the west. In the south it merges with Birmingham and Arden. 9% of the area is woodland, 45% is urban and 9% lies within Cannock Chase AONB. Part of the area lies within the Forest of Mercia (Community Forest) and the Black Country Urban Forest.*
>
> *To the north of Birmingham and west of West Bromwich there are many more areas of open land, primarily in agricultural use, but with a large historic park at Sutton Park and with fragments of heathland, such as Barr Beacon.*
>
> *There are medium-sized fields, generally with good quality hedgerows, patches of ancient enclosure fields and areas of semi-natural vegetation including acid grassland, pools, fens and fragments of ancient woodland. Narrow, hedged lanes are often present and there is a real feeling of countryside despite the nearness of the built-up area"*[47].

The change in landscape character is characterised in the CQC assessment as:

[45] http://www.countryside.gov.uk/LAR/Landscape/CC/cqc.asp

[46] Source: http://www.naturalengland.org.uk/Images/jca097-arden_tcm2-21191_tcm6-5424.pdf

[47] Source: http://www.farmsteadstoolkit.co.uk/downloads/jca/JCA%2067.pdf

"High rate of change to urban (JCA ranked 11th nationally); 46% of JCA is within greenbelt. Marked expansion of fringe into peri-urban around Cannock, Lichfield, Burntwood and Norton Canes. Also development of M6 Toll has had major impact. Character of the area continues to be transformed."

Approximately 15% of Birmingham's land area is designated as Green Belt which lies within the Cannock Chase and Cank Wood JCA. This includes all the open countryside within the City's boundary, as well as other areas extending into the City, for example along river valleys. There are also areas of open space within the built-up areas of the City, such as parks and playing fields, nature reserves and allotments.

Whilst Birmingham is a relatively modern City it has a diverse architectural heritage, with, for example, distinctive Victorian suburbs and remnants of manufacturing activity, as noted under cultural heritage there are 30 Conservation Areas and almost 1,500 listed buildings. There are various local efforts, such as the Lozells and Soho Hill Townscape Heritage Initiative[48], to recognise and improve the City's townscape.

3.10.1 Influence of the LFRMS on Landscape and Townscape

Options associated with the LFRMS could include a range of direct and indirect impacts, flood alleviation works, Sustainable Drainage Systems, land use change, maintenance activities and consenting, all have the potential to affect landscape and townscape. However, if well managed, these changes could also benefit the landscape through habitat improvement or creation.

3.11 Data Limitations

The information presented is a summary of the various sustainability topics specified by the SEA Directive. Other information is presented in other plans and strategy documents on specific topics which have been prepared by Birmingham City Council or other bodies. At this stage there are no immediate data gaps, however limitations identified are set out in Table 3.10.

[48] http://bccdiy.co.uk/pages/lozells-and-soho-hill-townscape-heritage-initiative-birmingham-city-council

Table 3.10 Limitations and Assumptions Made

Nature of data limitation	Commentary	Assumptions made
Data on Sustainable Design, Construction and Maintenance, and Corporate social and environmental responsibility.	No baseline information on this topic has been identified, although there are initiatives in place to encourage measures designed to help meet these objectives.	None
Geographical coverage.	For a limited number of the topics, including certain transport information and landscape character, information is not available for the City Council area and as a result wider geographical areas have been referred to.	It has been assumed that the overall trends and conclusions reached from this information can be applied to the area within Birmingham City.
Date of data collection.	Available data has been collected at different dates. Up to date data has been used wherever possible. Some of the information is based on the 2001 Census and as such is somewhat dated and may not be representative of current circumstances.	2001 Census data has been used as the basis for helping to identify sustainability issues.

4. Issues and Problems Relevant to the LFRMS

The analysis of the baseline information led to the identification of a number of issues and problems relevant to the LFRMS, as set out in Table 4.1. These issues are used in combination with the review of plans and programmes to produce the SEA Objectives and the Assessment Framework as set out in chapter 5.

Table 4.1 Key Issues and Problems Relevant to the LFRMS

Issue/Problem	Description	Supporting Evidence
Biodiversity and geodiversity	Biodiversity and greenspace resources, including locally and nationally important sites, across the City are mapped and managed. Flood risk management will need to take account of the needs particular vulnerabilities of these resources. Policies and proposals associated with the LFRMS could include a range of direct and indirect impacts, such as construction of flood defences, land use change, changes in flood risk and water levels, all of which have the potential to adversely affect biodiversity features. However, if well managed, these changes could also benefit wildlife, through habitat improvement or creation. Equally, specific proposals in the LFRMS are likely to be influenced by the City's geology and soils, and potential effects on the water table and source protection zones.	Birmingham Nature Conservation Strategy Birmingham SFRA
Population and health	The population of Birmingham is predicted to grow considerably over the next 20 years and the emerging Birmingham Development Plan is responding to this change through the provision of housing and employment land across the City. The locations of this development could influence flood risk strategy and measures adopted. There are significant areas and pockets of deprivation across the City, some of which could be more vulnerable to the incidence and effects of flooding. Overall the LFRMS should benefit health through, for example, providing more certainty on flood risk and the response to it and hence reducing anxiety. However, some of the measures required, for example on flood storage, could affect access to greenspace, in turn influencing quality of life.	ONS population estimates Emerging Birmingham Development Plan
Water resources and quality	Water resources are under pressure in Birmingham and across the regional generally, with reliance on external sources such as Wales. More generally: • Water quality varies across the City's watercourses, notably with stretches of the River Tame in poor condition. • Parts of the river system are inaccessible over much of their length and are of poor amenity value to the local community. • Fly tipping of domestic and commercial waste. • Beneath Birmingham, groundwater is rising, bringing with it contaminants that have previously remained in the ground. • Wildlife habitats in the rivers and at the banksides have been badly damaged. • During storms pollution flushes into the river, causing a loss of oxygen and killing fish. • There are increasing development pressures on bank-side locations. Policies and proposals presented in the LFRMS could have an effect on the quality of rivers and watercourses across Birmingham through, for example, construction of flood defence changing flood risk areas and leading to changes in flood frequency and/or mobilisation of pollutants on contaminated land.	Catchment Abstraction Management Strategies (CAMS) Humber River Basin Management Plan

Issue/Problem	Description	Supporting Evidence
Climate change	Climate change impacts for Birmingham are likely to consist of higher temperatures and more extreme events, including rainfall leading to flooding. The LFRMS will need to take particular account of these potential effects. There are opportunities to adopt more sustainable approaches to flood management generally and directly address potential increases in flood risk which may arise through climate change.	UKCP09 predictions Birmingham Climate Change Action Plan
Flood risk, incidences of flooding and flood defences	Sources of flood risk are from river flooding, surface water flooding, sewer flooding and groundwater flooding. There are around 9,000 properties at risk from fluvial flooding and 30,000 from surface water flooding (1 in 100 year event), with key flooding events occurring in September 1998, April 1999. June 1999, July 2000, June 2005, June 2007, July 2007 and September 2008. Formal flood defences cover approximately 1% of the City. The LFRMS options will offer a strategic response to managing flood risk across Birmingham and beyond, filling the gap between national and local flood risk management.	Birmingham Strategic Flood Risk Assessment River Tame Flood Risk Management Strategy BCC records
Material Assets (housing, economy, key infrastructure, minerals and waste)	Housing condition, access to housing and increases of the housing stock are key issues across Birmingham. LFRMS Strategy and policies will need to take account of the vulnerabilities associated with types of property and particular areas, and the influence that flood risk could have on these. Birmingham's economy is changing in line with national trends away from manufacture and towards the service sector. Flood risk strategy and management will need to take account of particular characteristics associated with the local economy and ensure that flood risk does not disadvantage economic development. Transport infrastructure could be vulnerable to flood risk across the City, as well as other provision such as healthcare. Waste management is a significant issue for the City, and could be affected by increasing flood risk and measures out in place to manage that risk. A key objective of the LFRMS will be to manage flood risk to critical infrastructure and other material assets across the City. The location of infrastructure such as road and rail networks, waste management facilities, utilities and community care facilities could influence the options presented and assessed through the LFRMS according to perceived risk and the potential consequences of flooding.	ONS data Birmingham Housing Development Plan Birmingham Development Plan Birmingham Development Plan LEP Strategy Local Transport Strategy Birmingham Development Plan
Cultural heritage	Cultural heritage is a diverse, City-wide asset which is vulnerable to flooding. Changes to flood risk patterns and its management could have a significant influence on these resources. Policies and proposals associated with the development of the LFRMS could involve construction activities and changes to land use and flooding regimes which could adversely affect cultural heritage assets and their settings. There could also be a range of direct and indirect impacts, flood alleviation works, Sustainable Drainage Systems, land use change, maintenance activities and consenting, all have the potential to adversely affect conservation areas or registered parks and gardens. However, if well managed, these changes could also benefit this cultural heritage.	Birmingham Development Plan Birmingham Conservation Strategy Birmingham Archaeology Strategy
Landscape and townscape	Although much of Birmingham is built up, there is a significant amount of open land within the City. Landscape character is a key contributor to regional and local identity, influencing sense of place, shaping the settings of people's lives and providing a critical stimulus to their engagement with the natural environment. Options associated with the development of the LFRMS could involve construction activities and changes to land use and flooding regimes which could adversely affect Birmingham's landscape and townscape character in certain localities.	Birmingham Development Plan Birmingham Conservation Strategy

5. SEA Objectives and the Assessment Framework

5.1 Introduction

This section describes the proposed approach to undertaking the SEA of the LFRMS. It draws on the information presented in chapters 2, 3 and 4 and the associated appendices to define the scope of the assessment (in terms of what is to be assessed and the environmental issues to be considered) and develop the assessment framework. The assessment framework includes proposed objectives and guide questions supported by definitions of significance that will help the reader understand how the assessor will determine the effects of the LFRMS against the SEA objectives.

5.2 Proposed Scope of the Assessment

5.2.1 Environmental Topics

The range of potential environmental effects under consideration has been informed primarily by the SEA Directive and Regulations, using published government guidance. As discussed in Section 3, Annex I of the SEA Directive and Schedule 2 of the SEA Regulation requires that the assessment includes information on the *"likely significant effects on the environment, including 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 issues referred to."*

In Table 5.1 each of the 12 SEA topic areas listed above are considered in-turn, with air quality being a topic proposed to be scoped out.

Table 5.1 Basis for Scoping out Topic Areas from the SEA

SEA Topic Area	Propose to Include in LFRMS SEA	Justification for Proposal to Scope the Topic Out of the SEA
Biodiversity	Yes	Include within SEA framework
Population	Yes	Include within SEA framework
Human Health	Yes	Include within SEA framework
Fauna	Yes	Include within SEA framework
Flora	Yes	Include within SEA framework
Soils	Yes	Include within SEA framework
Water	Yes	Include within SEA framework

SEA Topic Area	Propose to Include in LFRMS SEA	Justification for Proposal to Scope the Topic Out of the SEA
Air	No	No clear relationship with LFRMS
Climatic Factors	Yes	Include within SEA framework
Material Assets	Yes	Include within SEA framework
Cultural Heritage	Yes	Include within SEA framework
Landscape	Yes	Include within SEA framework

5.2.2 Geographic Scope

The SEA will consider potential effects across the Birmingham City Council area. The accompanying HRA considers potential trans-boundary effects in relation to designated European sites.

5.2.3 Short, Medium and Long-Term Timescales

When considering the timing of potential effects of the draft LFRMS, the commentary classifies effects as 'short,' 'medium' or 'long term.' This reflects an intention to capture the differences that could arise at different timescales, consistent with the requirements of the Annex II (2) of the SEA Directive where the assessment of the effects should have regard to 'the probability, duration, frequency and reversibility of the effects'. For the purposes of this assessment, 'short,' 'medium' or 'long term is summarised in Table 5.2.

Table 5.2 Duration of Short, Medium and Long Term

Duration	Length (years)
Short	0 to 10 years
Medium	10 to 25 years
Long	25 years+

5.3 Proposed Objectives and Guide Questions

Establishing appropriate SEA objectives and guide questions is central to assessing the effects of the LFRMS on the environment. The proposed SEA objectives and guide questions reflect the topics to be included within the assessment and have been informed by:

- the review of plans and programmes and the associated environmental protection objectives (see chapter 2 and Appendix A; and

- the baseline information and key issues (chapter 3 and 4).

Broadly, the SEA objectives present the preferred environmental outcome, which typically involves minimising detrimental effects and enhancing positive effects. Associated guide questions have been developed for each SEA objective to provide a detailed framework against which the LFRMS can be assessed. The draft SEA Objectives are as follows:

1. To protect and improve the quality and condition of water resources in Birmingham.
2. To conserve and enhance biodiversity across Birmingham from the potential impacts of local flooding.
3. To protect and conserve soils and reduce their ability to act as pollution sources and pathways in times of local flooding.
4. To promote the mitigation of, and adaptation to, climate change and its effects on flood risk across Birmingham.
5. To safeguard existing and future material assets and critical infrastructure in Birmingham from the potential impacts of local flooding.
6. To protect the health and wellbeing of local people and communities in Birmingham from the potential impacts of local flooding.
7. To safeguard and enhance sites, features and settings of cultural heritage, archaeological, historical value across Birmingham from the potential impacts of local flooding.

Table 5.3 sets out the proposed Framework for assessing the sustainability performance of the LFRMS, specifically evaluating whether there are likely to be any significant effects associated with the strategy and its proposed measures of the strategy.

Table 5.3 Proposed Assessment Objectives and Guide Questions

Topic Area(s)	Sustainability Issue(s)	Proposed SEA Objectives	Proposed Guide Questions	Potential Indicators
Water	The quality of watercourses across Birmingham is generally moderate.	1. To protect and improve the quality and condition of water resources in Birmingham.	• Will the LFRMS impact on water resources across Birmingham and beyond? • Will the LFRMS protect and improve surface, groundwater and coastal water quality? • Will the LFRMS contribute towards achievement of Good Ecological Potential/Status? • Will the LFRMS mobilise known areas of contamination?	• Ecological and chemical status of watercourses and water bodies (Water Framework Directive) • Water resource availability in CAMS Areas • Incidences of environmentally unacceptable flows in rivers • Incidences of pollution

Topic Area(s)	Sustainability Issue(s)	Proposed SEA Objectives	Proposed Guide Questions	Potential Indicators
Biodiversity and Nature Conservation	There are a range of nationally and locally important sites across the City as well as sites outside the City which could be affected by upstream water quality.	2. To conserve and enhance biodiversity across Birmingham from the potential impacts of local flooding.	• Will the LFRMS help to protect and enhance designated sites Birmingham and beyond? • Will the LFRMS protect and enhance habitats and species across Birmingham and beyond?	• Changes in the condition of designated sites • Wider habitat and species change • Requirements for habitat compensation as a result of the LFRMS
Soils	Historic and current landfill sites and areas of made ground that are likely sources of and pathways for contamination and are potentially at risk of flooding and erosion. There is a risk that flooded historic landfills and brownfield sites could have negative effects on water quality, especially where erosion occurs.	3. To protect and conserve soils and reduce their ability to act as pollution sources and pathways in times of local flooding.	• Will the LRMS protect and conserve soils, and increase resilience to degradation? • Will the LFRMS reduce the risk to waters from diffuse pollution in times of local flooding? • Will the LFRMS conserve and protect the best and most productive agricultural land from the impact of local flooding?	• Area / number of incidences where • Agricultural Land Classification Grade 2 or 3 lands are lost due to need for flood defence. • Number of current and historic landfills within floodplains across the City. • Area/number of flooding incidences of current and historic waste and mineral sites
Climate change and flood risk	Climate change predictions for West Midlands suggest that more extreme weather events are likely associated with changes in rainfall, river flows and storminess. Pressure is likely to be placed on existing flood management regimes.	4. To promote the mitigation of, and adaptation to, climate change and its effects on flood risk across Birmingham.	• Will the LFRMS reduce the risk of flooding from surface, sewer, groundwater and fluvial sources? • Will the LFRMS contribute to ensuring that new development is sited in accordance with the Sequential Test? • Will the LFRMS help to increase resilience to the impacts of flooding through reducing the frequency and severity of flood events? • Will the LFRMS help to reduce the impact of flooding on land and property? • Will the LFRMS encourage the development of sustainable drainage solutions?	• Number of homes and business at risk from flooding • Flood risk zones clearly identified • New development permitted in flood risk areas • Developments permitted contrary to EA advice • New development permitted in flood risk areas • Developments permitted contrary to EA advice • Flood defences developed • Sustainable Drainage Systems developed
Material assets	There are a range of key infrastructure assets (such as business, transport and energy and communications) across the City which potentially could be at risk of flooding.	5. To safeguard existing and future material assets and critical infrastructure in Birmingham from the potential impacts of local flooding.	• Will the LFRMS help to ensure the protection of important infrastructure across Birmingham? • Will the LFRMS help to protect utility services such as water, power and telecommunications?	• Number and severity of incidents leading to the disruption of infrastructure such as transport • Number and severity of incidents leading to disruption or damage of utility services
Population and human health	There have been various incidents of flooding in the City over the past decade, from a	6. To protect the health and wellbeing of local people and communities in	• Will the LFRMS have an impact on human health? • Will the LFRMS have an impact	• Number of flood incidents • Number of properties at risk from flooding

Topic Area(s)	Sustainability Issue(s)	Proposed SEA Objectives	Proposed Guide Questions	Potential Indicators
	range of sources. It is estimated that there are 11,365 properties at risk of fluvial flooding and 24,600 properties at risk of surface water flooding.	Birmingham from the potential impacts of local flooding.	on recreational resources, and greenspaces in particular?	• Developments permitted contrary to EA advice • Recreational resources and greenspaces affected by flooding incidents
Cultural Heritage, Landscape	Birmingham has a wide range of buildings and other cultural heritage assets, including but not limited to listed buildings, conservation areas, historic parks and gardens and archaeological deposits.	7. To safeguard and enhance sites, features and settings of cultural heritage, archaeological, historical value across Birmingham from the potential impacts of local flooding.	Will the LFRMS help to protect cultural heritage assets and landscapes across Birmingham?	• Listed buildings affected and at risk from flooding events • Conservation areas affected and at risk from flooding events • Historic parks and gardens affected and at risk from flooding events • Archaeological deposits affected and at risk from flooding events

5.4 Compatibility between the SEA Objectives and the LFRMS Objectives

Testing the compatibility between SEA Objectives and Plan Objectives is a formal requirement of stage B of the SEA process. However, it is helpful to identify at an early stage where there could be conflict between the two sets of objectives of the SEA and those devised for the LFRMS, particularly in respect of economic and social objectives which can sometimes be at odds with environmental objectives. The following Objectives have been set for the emerging LFRMS:

- **Stakeholder Responsibilities and Partnership Arrangements** - Identify all stakeholders with a role in flood risk management, set out their responsibilities and work with them to adopt a partnership approach to managing local flood risk.
- **Local Flood Risk** - Develop a clear understanding of flood risk from surface water, groundwater and ordinary watercourses and set out how this information will be communicated and shared.
- **Asset Management** - Outline how local flood risk assets are identified, managed and maintained and develop a clear understanding of riparian responsibilities.
- **Responding to Flooding** - Define the criteria and procedure for responding to and investigating flooding incidents, and set out the role of emergency planning, flood action groups and individual property owners.
- **Managing Flood Risk** - Define the criteria for how and when flood risk management schemes will be promoted to ensure that flood risk management measures provide value for money whilst minimising the long-term revenue costs and maximise external funding contributions.

- **Flood Risk and Development** - Minimise the impact of development on local flood risk by developing guidance, policies and standards that manage flood risk and promote opportunities for collaborative working to reduce the flood risk to existing communities.

- **Environmental Implications** - Adopt a sustainable approach to managing local flood risk by ensuring actions are economically viable, deliver wider environmental benefits and promote the wellbeing of local people.

Table 5.4 summarises an initial assessment of the potential compatibility between these Objectives and those established for the SEA Framework.

Table 5.4 Compatibility between the SEA Objectives and the Draft LFRMS Objectives

	Draft LFRMS Objectives						
	1 Stakeholder Responsibilities and Partnership Arrangements	2. Local Flood Risk	3. Asset Management	4. Responding to Flooding	5. Managing Flood Risk	6. Flood Risk and Development	7.Environmental Implications
SEA Objectives							
1. To protect and improve the quality and condition of water resources in Birmingham.	+	+	?	?	-	-	+
2. To conserve and enhance biodiversity across Birmingham from the potential impacts of local flooding.	+	+	?	?	-	-	+
3. To protect and conserve soils and reduce their ability to act as pollution sources and pathways in times of local flooding.	+	+	?	?	-	-	+
4. To promote the mitigation of, and adaptation to, climate change and its effects on flood risk across Birmingham.	+	+	?	+	+	+	+
5. To safeguard existing and future material assets and critical infrastructure in Birmingham from the potential impacts of local flooding.	+	+	+	+	+	+	+
6. To protect the health and wellbeing of local people and communities in Birmingham from the potential impacts of local flooding.	+	+	+	+	+	+	+
7. To safeguard and enhance sites, features and settings of cultural heritage, archaeological, historical value across Birmingham from the potential impacts of local flooding.	+	+	?	+	-	-	-

+	Objectives are potentially compatible	?	Uncertain if Objectives are related	0	Objectives are not related	-	Objectives are potentially incompatible

Table 5.4 identifies a number of potential incompatibilities between SEA Objectives and those of the emerging LFRMS, principally related to biodiversity, soils and cultural heritage and the impact of investment decisions on these receptors. Flood risk management and development considerations could adversely affect biodiversity interests through, for example, reductions in water supply or water over-supply channelled from other areas. Equally, where the need flood prevention or mitigation can be show to outweigh the Sequential and Exception Tests or biodiversity designations, the biodiversity interests could be compromised. For soil, there is the potential that water channelled away from certain locations (in order not to mobilise pollutants, for example), will adversely affect other locations. For cultural heritage, aesthetically unappealing flood management structures could adversely affect the setting of valued assets. In all cases, the policies and standards will have to be sensitive to these potential indirect and cumulative impacts. Where incompatibilities are identified, mitigation measures could be developed to help address these, such as the sensitive design of flood risk measures to help protect and enhance biodiversity.

The compatibility assessment will be revisited in more detail as part of the Environmental Report.

6. Completing and Recording the Assessment

6.1 Introduction

In line with the ODPM (now CLG) Practical Guide to the SEA Directive the assessment process will seek to predict the significant environmental effects of the draft LFRMS. This is done by identifying the likely changes to the baseline conditions as a result of implementing the proposed plan (or reasonable alternative). These changes will be described (where possible) in terms of their geographic scale, the timescale over which they could occur, whether the effects would be temporary or permanent, positive or negative, likely or unlikely, frequent or rare. Where numerical information is not available, the assessment will be based on professional judgement and with reference to relevant legislation, regulations and policy. More specifically, in undertaking the assessment, consideration will be given to:

- baseline information including existing environmental problems and their evolution;
- the likely activities and potential effects arising from the interventions outlined in the LFRMS;
- the regulatory framework; and
- the SEA objectives and guide questions.

6.2 Assessing the Environmental Effects of the LFRMS

Table 6.1 illustrates a draft of the SEA matrix developed to comprehensively meet the requirements of the SEA Directive and record the assessment of the effects of the LFRMS. It contains the SEA objectives and questions presented in Table 5.3. The matrix also includes the timescale of the effect and a commentary. These are briefly explained below:

- **Timing of Effect** - Will the effect manifest itself in the short, medium or the long term? The short term is within the first ten years of the LFRMS, the medium term within the lifetime of the LFRMS (i.e. to 25 years), and the longer term beyond this.
- **Commentary** - The commentary text within the matrix and summary text within the report will identify possible mitigation measures associated with the proposals. Where a score is indicated as 'uncertain' the commentary should identify ways in which this uncertainty could be reduced, for example, through additional data collection or further consultation with experts.
- Secondary, cumulative and synergistic effects, as well as the temporary/permanence and likelihood of the effects are identified within the commentary:
  - Secondary or indirect effects are effects that are not a direct result of LFRMS, but occur at distance from the direct impacts or as a result of a complex pathway. Examples of a secondary effect of the LFRMS could include downstream impacts associated with changes to flood management

upstream, such as reduced or increased river flows, or changes to water quality as a result of mobilisation of pollutants.

- Cumulative effects arise, for instance, where several developments each have insignificant effects but together have a significant effect; or where several individual effects of the LFRMS (e.g. the combined effects of flood defences along a stretch of watercourse).

- Synergistic effects interact to produce a total effect greater than the sum of individual effects. Significant synergistic effects often occur as habitats, resources or human communities get close to capacity. In the case of the LFRMS, this could be associated with the development of flood management measures along the course of a river which together produce an unexpected or undesirable effect.

- Temporary effects can occur for example during construction of a development. Whilst these are generally short lived, they may occur over several years with larger development schemes.

- Geographical effects will be noted where the effect is likely to occur differentially within, for example different wards of Birmingham, or outside of Birmingham.

Table 6.1 Draft Assessment Matrix

SEA Objectives	Assessment Questions	Timescale			Commentary/Explanation ((to include secondary, cumulative and synergistic effects)
		Short Term	Medium Term	Long Term	
To protect and improve the quality and condition of water resources in Birmingham.	• Will the LFRMS impact on water resources across Birmingham and beyond? • Will the LFRMS protect and improve surface, groundwater and coastal water quality? • Will the LFRMS contribute towards achievement of Good Ecological Potential/Status? • Will the LFRMS mobilise known areas of contamination?	+	+	++	**Assessment of Effects:** *A description of effects of the LFRMS measure on the SEA objective under consideration will be provided here, with reasoning and justification included.* **Mitigation:** *Measures to offset adverse effects and enhance positive effects will be identified.* **Assumptions:** *Any assumptions that have underpinned the assessment will be highlighted here.* **Uncertainties:** *Uncertainties encountered during the assessment will be noted*:

SEA Objectives	Assessment Questions	Timescale			Commentary/Explanation ((to include secondary, cumulative and synergistic effects)
		Short Term	Medium Term	Long Term	
To conserve and enhance biodiversity across Birmingham from the potential impacts of local flooding.	• Will the LFRMS help to protect and enhance designated sites Birmingham and beyond? • Will the LFRMS protect and enhance habitats and species across Birmingham and beyond?	0	0	0	**Assessment of Effects:** TBC **Mitigation:** TBC **Assumptions:** TBC **Uncertainties:** TBC
3. ……etc.	……	?	?	?	Etc……..

Score Key:	+ + **Significant** positive effect	+ **Minor** positive effect	0 No overall effect	- **Minor** negative effect	- - **Significant** negative effect	? **Score uncertain**

NB: where more than one symbol is presented in a box it indicates that the SEA has found more than one score for the category. Where the scores are both positive and negative, the boxes are deliberately not coloured. Where a box is coloured but also contains a ?, this indicates uncertainty over whether the effect could be a minor or significant effect although a professional judgement is expressed in the colour used. A conclusion of uncertainty arises where there is insufficient evidence for expert judgement to conclude an effect.

S – short term (0 - 10 years), M – medium term (between 10 and 25 years) and L – long term (>25 years)

Each proposal that comes forward from the LFRMS will be considered against each of the SEA objectives. This will be undertaken by the assessment team and will be informed by the baseline data and evidence gathered as part of the Scoping Report. It will also be informed by expert judgement from various technical specialists including key stakeholders and consultees.

6.2.1 Assessment of Strategy Alternatives

Alternatives presented in the LFRMS will be assessed on an objective-by-objective basis. Table 6.2 sets out the proposed framework that will be used to record the findings of this assessment. The first column describes the alternative whilst the second column summarises the expected effects on the SEA objective under consideration. The rationale for this relationship will be explained in more detail in the final column.

Table 6.2 Proposed Assessment Framework (LFRMS Alternatives Assessment)

Alternative	Score	Commentary
1.	-	**Assessment of Effects:** *A description of effects of Alternative 1 on the SEA objective under consideration will be provided here, with reasoning and justification included.* **Mitigation:** *Measures to offset adverse effects and enhance positive effects will be identified.* **Assumptions:** *Any assumptions that have underpinned the assessment will be highlighted here.* **Uncertainties:** *Uncertainties encountered during the assessment will be noted.*
2.	+	**Assessment of Effects:** *A description of effects of Alternative 2 on the SEA objective under consideration will be provided here, with reasoning and justification included.* **Mitigation:** *Measures to offset adverse effects and enhance positive effects will be identified.* **Assumptions:** *Any assumptions that have underpinned the assessment will be highlighted here.* **Uncertainties:** *Uncertainties encountered during the assessment will be noted.*
3.	?	**Assessment of Effects:** *A description of effects of Alternative 3 on the SEA objective under consideration will be provided here, with reasoning and justification included.* **Mitigation:** *Measures to offset adverse effects and enhance positive effects will be identified.* **Assumptions:** *Any assumptions that have underpinned the assessment will be highlighted here.* **Uncertainties:** *Uncertainties encountered during the assessment will be noted.*
Summary		
A brief summary of the effects of all the alternatives on the SEA objective under consideration will be provided.		

Score Key:	**+ +** **Significant** positive effect	**+** **Minor** positive effect	**0** No overall effect	**-** **Minor** negative effect	**- -** **Significant** negative effect	**?** **Score uncertain**

NB: where more than one symbol is presented in a box it indicates that the SEA has found more than one score for the category. Where the scores are both positive and negative, the boxes are deliberately not coloured. Where a box is coloured but also contains a ?, this indicates uncertainty over whether the effect could be a minor or significant effect although a professional judgement is expressed in the colour used. A conclusion of uncertainty arises where there is insufficient evidence for expert judgement to conclude an effect.

S – short term (0 - 10 years), M – medium term (between 10 and 25 years) and L – long term (>25 years)

Note: This draft SEA matrix is for illustrative purposes only. The full matrix will be finalised after comments have been received on the SEA categories, objectives and assessment criteria.

6.2.2 Mitigation

Identifying effective mitigation measures will also be a fundamental part of the SEA. Box 6.1 provides information on types and examples of mitigation measures that might be proposed and includes an overview of the mitigation hierarchy. The mitigation hierarchy is based on the principle that it is preferable to prevent the generation of an impact rather than counteract its effects. It thus suggests that mitigation measures higher up the hierarchy should be considered in preference to those further down the list.

Box 6.1 Mitigation Hierarchy and Example Measures

Mitigation measures should be consistent with the mitigation hierarchy (after DETR 1997[49] and CLG 2006[50]):

- Avoidance - making changes to a design (or potential location) to avoid adverse effects on an environmental feature. This is considered to be the most acceptable form of mitigation.
- Reduction - where avoidance is not possible, adverse effects can be reduced through sensitive environmental treatments/design.
- Compensation - where avoidance or reduction measures are not available, it may be appropriate to provide compensatory measures (e.g. an area of habitat that is unavoidably damaged may be compensated for by recreating similar habitat elsewhere). It should be noted that compensatory measures do not eliminate the original adverse effect, they merely seek to offset it with a comparable positive one.
- Remediation - where adverse effects are unavoidable, management measures can be introduced to limit their influence.
- Enhancement - where there are no negative impacts, but measures are adopted to achieve a positive move towards the sustainability objectives e.g. through innovative design.

Examples of how mitigation measures could be incorporated into LFRMS proposals could include:

- Ensuring that any proposals for flood risk management are scrutinised for cumulative impacts and unintended consequences either at a site level or City-wide.
- Increasing awareness of flood risk amongst property owners and managers in order that they can either obtain flood warnings and/or implement resilience plans.
- Reduce the visual impacts of new defences by ensuring the design is in keeping with local building materials.
- Flood storage areas compromising recreational use of land e.g. playing fields.
- Direct and indirect impacts of flood defence proposals on biodiversity.
- Visual impacts of flood defence proposals.
- Downstream impacts of flood defence proposals.

[49] Department of the Environment, Transport and the Regions (1997) *Mitigation Measures in Environmental Statements*. London: DETR

[50] Department for Communities and Local Government (2006): *Consultation Document - EIA: A guide to good practice and procedures.* London: CLG

7. Proposed Structure of the Environmental Report

The assessment Framework and the evidence base will form the basis of the SEA to be undertaken on the LFRMS, the findings of which will be incorporated into an Environmental Report and be subject to public consultation. The Environmental Report will be structured as follows:

Table 8.1 Structure of the Environmental Report

Chapter	Content
Non-Technical Summary	• An accessible summary of the approach, method and key results of the assessment
Structure of the Environmental Report	• Table signposting the components of the Environmental Report for the purpose of the SEA Directive
Introduction	• Purpose of the SEA • SEA process of and legislation • Structure of the Environmental Report
Background	• Summary of the Birmingham LFRMS • Aims and objectives of the LFRMS • Reasonable alternatives to the LFRMS, given the purpose and objectives of the strategy
SEA Objectives, baseline and context	• Relationship with other policies, plans and programmes and environmental protection objectives • Baseline characteristics • Key environmental, social and economic issues • Limitations • The SEA Framework
Birmingham LFRMS objectives and actions	• Strategic options considered • Comparison of the environmental, social and economic effects of the options • The preferred option and reasoning behind the choice • Environmental, social and economic effects of LFRMS objectives • Environmental, social and economic effects of local level actions
Conclusions and recommendations	• Significant, secondary, cumulative and synergistic effects • Proposed mitigation measures • Proposed monitoring

8. Consultation and Next Steps

This Scoping Report presents the findings of the initial tasks (Stage A) undertaken for SEA of the LFRMS. It follows closely the advice and guidance provided by the UK Government and has been prepared to meet the requirements outlined within the Quality Assurance Checklist within the ODPM (2005) SA Guidance (see below).

Responses to the following questions are invited:

- Do you agree with the scope of the proposed assessment?
- Do you agree with the main issues identified?
- Do you agree that the objectives cover the breadth of issues appropriate for assessing the effects?

The consultation will run from Friday 13 September 2013 to Friday 25 October 2013. You can post or e-mail your responses to:

Kerry Whitehouse
Birmingham City Council
1 Lancaster Circus
Queensway
Birmingham
B4 7DQ

kerry.whitehouse@birmingham.gov.uk

Comments from consultees will be considered and the information in this report will be amended, as appropriate, in advance of its use during the next stages of the SEA process.

The next stage of the SEA process (Stage B) involves considering and assessing options for the LFRMS, and then predicting and evaluating the effects of the objectives and proposed interventions of the LFRMS as they emerge. This assessment will consider ways of mitigating adverse effects and maximising beneficial effects. The assessment process will be reported within an Environmental Report which will be published for consultation alongside the draft LFRMS.

The ODPM SA Guidance contains a Quality Assurance checklist to help ensure that the requirements of the SEA Directive are met. Those relevant to this stage have been highlighted in Table 8.1.

Table 8.1 Quality Assurance Checklist

Quality Assurance Checklist	
Objectives and Context	
The plan's purpose and objectives are made clear.	Will be set out in full in the SEA Report.
Sustainability issues, including international, national, regional and local objectives are considered in developing objectives and targets.	Chapter 2 and Appendix A.
SA objectives are clearly set out and linked to indicators and targets where appropriate.	Chapter 4.
Links with other related plans, programmes and policies are identified and explained.	Chapter 2 and Appendix A.
Scoping	
The environmental consultation bodies are consulted in appropriate ways and at appropriate times on the content and scope of the SA Report.	This Scoping Report is to be consulted upon with the statutory environmental consultees and any other relevant consultees for a period of five weeks.
Scoping	
The assessment focuses on significant issues.	Significant sustainability issues have been identified in this report in chapter 3. This will assist in focussing on the key issues during the assessment process.
Technical, procedural and other difficulties encountered are discussed; assumptions and uncertainties are made explicit.	These are made clear throughout the report where appropriate.
Reasons are given for eliminating issues from further consideration.	These are made clear throughout the Report where appropriate.
Baseline Information	
Relevant aspects of the current state of the environment and their likely evolution without the plan are described.	Chapter 3
Characteristics of areas likely to be significantly affected are described, including areas wider than the physical boundary of the plan area where it is likely to be affected by the plan where practicable.	Chapter 3. Further detail will be provided in the SEA Report.
Difficulties such as deficiencies in information or methods are explained.	These are made clear throughout the Report where appropriate.

Appendix A
Review of Relevant Plans and Programmes

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
International		
EU (1992) Conservation of Natural Habitats and Wild Fauna and Flora (92/43/EEC, Habitats Directive).	The main aim of the Habitats Directive is to promote the maintenance of biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species listed on the Annexes to the Directive at a favourable conservation status, introducing robust protection for those habitats and species of European importance. In applying these measures Member States are required to take account of economic, social and cultural requirements, as well as regional and local characteristics.	Incorporated in SEA Objective 3.
EU (1996) Ambient Air Quality Assessment and Management (96/62/EC, Air Quality Framework Directive).	The Directive ensures that where pollutants exceed certain limit values, Member States take action to reduce pollution down to the limit values. The list of atmospheric pollutants to be considered includes: sulphur dioxide, nitrogen dioxide, particulate matter, lead, ozone, benzene, carbon monoxide, poly-aromatic hydrocarbons, cadmium, arsenic, nickel and mercury. Objectives: • obtain adequate information on ambient air quality; and • maintain ambient air quality where it is good, and improve air quality where it is bad.	Air quality scoped out from the Assessment
EU (2000) Directive on Establishing a Framework for Community Action in the Field of Water Policy (2000/60/EC, The Water Framework Directive).	The Directive establishes an integrated approach to protection, improvements and sustainable use of water bodies, introducing a statutory system of analysis and planning based upon the river basin. The Directive imposes a statutory responsibility on Member States to ensure all water bodies meet certain water quality standards. The four main stages of implementation are: • environmental and economic assessment ('Characterisation') of river basin districts including identification of pressures and impacts; • environmental monitoring based on river basin district characterisation; • setting of environmental objectives; and • designing and carrying out a programme of measures to achieve these environmental objectives. Targets: All water bodies in all Member States are to reach 'Good Ecological Status' by 2015. However, exactly what constitutes 'Good Ecological Status' has not yet been defined.	Incorporated in SEA Objective 2.
EU (2005) Clean Air Strategy.	The strategy aims to extend clean air laws into new sectors - agriculture and transport - that were not covered before, targeting five main pollutants including fine-dust particles which are most harmful to human health.	Air quality scoped out from the Assessment
EU (2008) Directive on Waste (2006/12/EC, Waste Framework Directive).	The directive requires all Member States to take the necessary measures to ensure waste is recovered or disposed of without endangering human health or causing harm to the environment and includes permitting, registration and inspection requirements. The directive also requires Member States to take appropriate measures to encourage firstly, the prevention or reduction of waste production and its harmfulness and secondly the recovery of waste by means of recycling, re-use or reclamation or any other process with a view to extracting secondary raw materials, or the use of waste as a source of energy. The directive's overarching requirements are supplemented by other directives for specific waste streams.	Incorporated in SEA Objective 6.
UNFCCC (1997) Kyoto Protocol to the UN	The protocol shares the Convention's objective (to achieve stabilisation of greenhouse gas concentrations in the atmosphere at safe levels, so that ecosystems can adapt	Incorporated in SEA Objective 6

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
Framework Convention on Climate Change.	naturally, and food supply is not threatened) but strengthens the convention by committing Countries to legally-binding targets to limit or reduce their greenhouse gas emissions.	
UNFCCC (2009) Copenhagen Accord (Climate Change).	The Copenhagen Accord is a treaty that is to take over from the Kyoto Protocol's targets, as of when it expires in 2012, for curbing the growth in greenhouse gas emissions sufficiently to avoid climate change impacts projected by the IPCC. The Copenhagen Accord commits Countries to legally binding targets including: • to reduce global emissions so as to hold the increase in global temperature below 2˚C; • commit developed countries to reducing greenhouse gas emissions; • projects to reduce greenhouse gas emissions in developing countries will be subject to international monitoring if they are internationally funded; • provide developing countries with financial incentives to preserve forests; and • implementation of the Accord to be reviewed in 2015 and an assessment to be made on whether the goal of keeping global temperature rise within 2˚C needs to be strengthened to 1.5˚C.	Incorporated in SEA Objective 6
Council of Europe (2006) European Landscape Convention	Aims to promote the protection, management and planning of Europe's landscapes, both rural and urban, and to foster European co-operation on landscape issues.	Incorporated in SEA Objective 7
Council of Europe (1985) Convention on the Protection of the Architectural Heritage of Europe	This convention commits signatories to protect their architectural heritage by means of identifying monuments, buildings and sites to be protected; preventing the disfigurement, dilapidation or demolition of protected properties; providing financial support by the public authorities for maintaining and restoring the architectural heritage on its territory; and supporting scientific research for identifying and analysing the harmful effects of pollution and for defining ways and means to reduce or eradicate these effects.	Incorporated in SEA Objective 7
EU (2007) Floods Directive	The Floods Directive aims to provide a consistent approach to managing flood risk across Europe. The approach is based on a 6 year cycle of planning which includes the publication of Preliminary Flood Risk Assessments, hazard and risk maps and flood risk management plans. The Directive is transposed into English law by the Flood Risk Regulations 2009.	Incorporated in SEA Objectives 1, 5
EU (1991) Urban Waste Water Treatment Directive.	The Directive aims to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors and concerns the collection, treatment and discharge of: • Domestic Waste Water; • Mixture of Waste Water; and • Waste Water from Certain Industrial Sectors. There are four main principles: planning, regulation, monitoring, and information and reporting.	Incorporated in SEA Objective 2
European Commission (1999) The Landfill Directive.	The Directive aims to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, groundwater, soil and air, and on the global environment, including the greenhouse effect, as well as any resulting risk to human health, from the landfilling of waste, during the whole lifecycle of the landfill.	Incorporated in SEA Objectives 1, 2, 3, 4
EC (2007)Together for Health: A Strategic Approach for the EU 2008-2013	The Strategy aims to provide an overarching strategic framework spanning core issues in health as well as health in all policies and global health issues.	Incorporated in SEA Objective 4
The Pan-European Biological and Landscape Diversity Strategy (1995)	The strategy aims to address degradation of biological and landscape diversity across Europe reinstating these assets where possible.	Incorporated in SEA Objective 3

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
National		
CLG (2012) National Planning Policy Framework (NPPF)	The general thrust of the NPPF is aimed at contributing towards sustainable development through the planning system. There is a presumption in favour of sustainable development "*which should be seen as a golden thread running through both plan-making and decision-taking*." There are three dimensions as to how the government aims to achieve sustainable development which gives rise to the need for the planning system to perform in a number of roles. These roles are based around economic, environmental and social roles.	Incorporated in SEA Objectives 1 - 7
NPPF – Biodiversity, Geodiversity and Soil	The NPPF sets out 12 core planning principles for plan and decision making, including: 'Conserving and enhancing the natural environment'. The planning system should contribute and enhance the natural and local environment by: • protecting and enhancing valued landscapes, geological conservation interests and soils; • recognising the wider benefits of ecosystem services; • minimising impacts on biodiversity and providing net gains in biodiversity where possible, including by establishing coherent ecological networks that are more resilient to current and future pressures; • preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and • remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. Plans and decisions should encourage effective use of brownfield sites and take into account the economic benefits of agricultural land when assessing development, seeking to utilise areas of poorer quality land. Local planning authorities should plan positively for creation, protection, enhancement and management of networks of biodiversity and green infrastructure. Planning and decision making should occur at a landscape scale across local authority boundaries and assess noise, air and light pollution, considering cumulative impacts. Local planning authorities should protect and enhance biodiversity specifically regarding priority species/habitats, protected sites and potential/proposed/possible protected sites.	Incorporated in SEA Objective 3
NPPF – Landscape	The NPPF sets out 12 core planning principles for plan and decision making, including: 'Conserving and enhancing the natural environment'. The planning system should contribute and enhance the natural and local environment by: • protecting and enhancing valued landscapes, geological conservation interests and soils; • recognising the wider benefits of ecosystem services; • minimising impacts on biodiversity and providing net gains in biodiversity where possible, including by establishing coherent ecological networks that are more resilient to current and future pressures; • preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and • remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. Plans and decisions should encourage effective use of brownfield sites and take into account the economic benefits of agricultural land when assessing development, seeking to utilise areas of poorer quality land. Local planning authorities should plan positively for creation, protection, enhancement and management of networks of biodiversity and green infrastructure. Planning and decision making should occur at a landscape scale across local authority boundaries and assess noise, air and light pollution, considering cumulative impacts. Local	Incorporated in SEA Objective 7

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
	planning authorities should protect and enhance biodiversity specifically regarding priority species/habitats, protected sites and potential/proposed/possible protected sites.	
NPPF – Cultural Environment	One of the NPPF's 12 core planning principles for plan and decision making is the conservation and enhancement of the historic environment. Local planning authorities are required to set out a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. Substantial harm to or loss of designated heritage assets of the highest significance, notably scheduled monuments, protected wreck sites, battlefields, grade I and II* listed buildings, grade I and II* registered parks and gardens, and World Heritage Sites, should be wholly exceptional. Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets. Proposals that preserve the setting, reveal the significance of the asset or make a positive contribution should be treated favourably.	Incorporated in SEA Objective 7
NPPF – Water	Among the NPPF's core principles are 'conserving and enhancing the natural environment' and 'meeting the challenge of climate change, flooding and coastal change'; In fulfilling these objectives, the planning system should contribute to and enhance the natural and local environment by: preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability. In preparing plans to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment. Local planning authorities should adopt proactive strategies to mitigate and adapt to climate change, taking full account of flood risk, coastal change and water supply and demand considerations. Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. Local Plans should be supported by Strategic Flood Risk Assessment and develop policies to manage flood risk from all sources, taking account of advice from the Environment Agency and other relevant flood risk management bodies, such as lead local flood authorities and internal drainage boards. 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 impacts of climate change, by: • applying the Sequential Test; • if necessary, applying the Exception Test; • safeguarding land from development that is required for current and future flood management; • using opportunities offered by new development to reduce the causes and impacts of flooding; and. • where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to facilitate the relocation of development, including housing, to more sustainable locations.	Incorporated in SEA Objectives 1, 2, 5, 6
NPPF – Climate Change	One of the core principles of the NPPF is meeting the challenge of climate change, flooding and coastal change and encourages the adoption of proactive strategies to mitigate and adapt to climate change in line with the objectives and provisions of the Climate Change Act 2008, taking full consideration of flood risk, coastal change and water supply and demand. The NPPF also supports low carbon future by helping to increase the use of renewable and low carbon sources in line with the National Policy Statement for Renewable Energy Infrastructure. It seeks to ensure that all types of flood risk is taken into account over the long term at the planning process to avoid inappropriate development in areas at risk of flooding, and to direct development away from areas of highest risk.	Incorporated in SEA Objective 5

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
NPPF - Air Quality	This Directive aims to improve air quality throughout Europe by controlling the level of certain pollutants and monitoring their concentrations. In particular the Directive aims to establish levels for different air pollutants; draw up common methods for assessing air quality; methods to improve air quality; and make sure that information on air quality is easily accessible to Member States and the public.	Air quality scoped out from the Assessment
NPPF - Minerals and Waste	One of the core principles of the NPPF is facilitating the sustainable use of minerals. Policy guidance suggests the need to: Identify policies for existing and new sites of national importance, the definition of Mineral Safeguarding Areas so that locations of mineral sources are not sterilised by other developments, safeguarding of existing and planned mineral infrastructure (rail links, wharfage, storage, processing etc.), environmental criteria to ensure there is not an unacceptable environmental impact and policies for reclaiming land and site aftercare.	Incorporated in SEA Objective 5
NPPF - Economy	One of the NPPF's core planning principles for plan and decision making is building a strong competitive economy. The NPPF highlights the Government's commitment to securing economic growth to create jobs and prosperity, ensuring the planning system does everything it can to support sustainable economic growth. Local planning authorities are required to proactively meet development needs recognising potential barriers to invest (including infrastructure, housing and services) and regularly review land allocations. Economic growth in rural areas should be supported to create jobs and sustainable new developments, including expansion of all types of businesses, diversification of agriculture, supporting tourism and retention of local services. In drawing up local plans, local authorities should: • set out a clear economic vision and strategy for their area which positively and proactively encourages sustainable economic growth; • set criteria, or identify strategic sites, for local and inward investment to match the strategy and to meet anticipated needs over the plan period; • support existing business sectors, taking account of whether they are expanding or contracting and, where possible, identify and plan for new or emerging sectors likely to locate in their area. Policies should be flexible enough to accommodate needs not anticipated in the plan and to allow a rapid response to changes in economic circumstances; • plan positively for the location, promotion and expansion of clusters or networks of knowledge driven, creative or high technology industries; • identify priority areas for economic regeneration, infrastructure provision and environmental enhancement; and • facilitate flexible working practices such as the integration of residential and commercial uses within the same unit.	Incorporated in SEA Objectives 4, 6
NPPF – Housing	Two of the NPPF's core principles is the delivery of a wide choice of high quality homes and requiring good design. Local planning authorities are required to significantly boost the supply of housing through: • affordable and meeting needs of the market, identifying accessible sites for 5, 6-10 and 11-15 years worth of housing/growth; • illustrating the expected rate of housing delivery through a housing trajectory and set out a strategy; • deliver high quality housing, widen opportunities for home ownership and create sustainable inclusive and mixed communities; • making allowance for windfall sites on the basis that such sites are consistently available; • resisting inappropriate development of residential gardens; and • avoid isolated country homes unless they were truly outstanding or innovative in design or enhance the surroundings. Sustainable development in rural areas housing should be located where it will	Incorporated in SEA Objective 4

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
	enhance or maintain the vitality of rural communities. Planning policies and decisions should aim to ensure that developments: • will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development; • establish a strong sense of place, using streetscapes and buildings to create attractive and comfortable places to live, work and visit; • optimise the potential of the site to accommodate development, create and sustain an appropriate mix of uses (including incorporation of green and other public space as part of developments) and support local facilities and transport networks; • respond to local character and history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation; • create safe and accessible environments where crime and disorder, and the fear of crime, do not undermine quality of life or community cohesion; and • are visually attractive as a result of good architecture and appropriate landscaping.	
NPPF - Health	Amongst the planning principles of the NPPF is the promotion of healthy communities. The framework sets out open space, sport and recreation considerations for neighbourhood planning bodies which include an assessment of needs and opportunities; setting local standards; maintaining an adequate supply of open space and sports and recreational facilities; planning for new open space and sports and recreational facilities; and planning obligations. Local and neighbourhood plans should identify community green spaces of particular importance (including recreational and tranquillity) to them, ensuring any development of these areas is ruled out in a majority of circumstances.	Incorporated in SEA Objective 4
NPPF – Transport & Accessibility	Amongst the 12 planning principles of the NPPF are: • promoting sustainable transport; Support sustainable transport development including infrastructure, large scale facilities, rail freight, roadside facilities, ports and airports. Protecting and exploiting opportunities for sustainable transport modes, including designing and locating developments to maximise sustainable modes and minimise day to day journey lengths.	Incorporated in SA Objective 6
NPPF – Quality of Life	One of the 12 core planning principles of the NPPF is: Promoting healthy communities, and Supporting high quality communications infrastructure. The NPPF argues that the planning system can play an important role in facilitating social interaction and creating healthy, inclusive communities. Local planning authorities should create a shared vision with communities of the residential environment and facilities they wish to see. Local policies and decisions should therefore promote: Safe and accessible environments and developments. • Opportunities for members of the community to mix and meet. • Plan for development and use of high quality shared public space. • Guard against loss of facilities. • Ensure established shops can develop in a sustainable way. • Ensure integrated approach to housing and community facilities and services. Local and neighbourhood plans should identify community green spaces of particular importance (including recreational and tranquillity) to them, ensuring any development of these areas is ruled out in a majority of circumstances. The framework sets out open space, sport and recreation considerations for neighbourhood planning bodies. These include an assessment of needs and opportunities; setting local standards; maintaining an adequate supply of open space and sports and recreational facilities; planning for new open space and sports and	Incorporated in SEA Objectives 4, 6

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
	recreational facilities; and planning obligations.	
CLG (2012) NPPF Technical Guidance	Provides technical detail the 'sequential test' to assist with fulfilling the requirements set out in the NPPF on ensuring that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere.	Incorporated in SEA Objective 1
CLG (2011) The Localism Act	The Localism Bill includes five key measures that underpin the Government's approach to decentralisation. • community rights; • neighbourhood planning; • housing; • general power of competence; and • empowering cities and other local areas.	Incorporated in SEA Objectives 1 - 7
CLG (2011) The Community Infrastructure Levy Regulations	The Community Infrastructure Levy is a new levy that local authorities in England and Wales can choose to charge on new developments in their area. The money can be used to support development by funding infrastructure that the council, local community and neighbourhoods want - for example new or safer road schemes, park improvements or a new health centre. The system applies to most new buildings and charges are based on the size and type of the new development.	Incorporated in SEA Objective 6
DECC (2008) UK Climate Change Act 2008.	The 2008 Climate Change Act seeks to manage and respond to climate change in the UK, by: • setting ambitious, legally binding targets; • taking powers to help meet those targets; • strengthening the institutional framework; • enhancing the UK's ability to adapt to the impact of climate change; and • establishing clear and regular accountability to the UK Parliament and to the devolved legislatures.	Incorporated in SEA Objectives 1, 5
DCMS (2007) Heritage Protection for the 21st Century.	This White Paper responds to the public call for change, and to this changing policy context. It sets out a vision for a new heritage protection system. The proposals in the White Paper reflect the importance of the heritage protection system in preserving heritage for people to enjoy now and in the future. They are based around three core principles: • developing a unified approach to the historic environment; • maximising opportunities for inclusion and involvement; and • supporting sustainable communities by putting the historic environment at the heart of an effective planning system.	Incorporated in SEA Objective 6
Defra (2003) The Water Environment (Water Framework Directive) (England and Wales) Regulations	Requires all inland and coastal waters to reach "good status" by 2015. This is being done by establishing a river basin structure with ecological targets for surface waters.	Incorporated in SEA Objective 2
Defra (2007) Guidance for Local Authorities on Implementing Biodiversity Duty	The Duty is set out in Section 40 of the Natural Environment and Rural Communities Act (NERC) 2006, and states that: "*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*". Particular areas of focus include: Policy, Strategy and Procurement; Management of Public Land and Buildings; Planning, Infrastructure and Development; and Education, Advice and Awareness.	Incorporated in SEA Objective 3

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
Defra (2011) Biodiversity 2020: A strategy for England's wildlife and ecosystem	This is a new biodiversity strategy for England that builds on the Natural Environment White Paper and provides a comprehensive picture of the Government is implementing the 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. The Strategy has as its mission to halt overall biodiversity loss, support healthy well-functioning ecosystems, and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people.	Incorporated in SEA Objective 3
Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 2).	The Strategy sets out standards and objectives for the 8 main health-threatening air pollutants in the UK. The standards are based on an assessment of the effects of each pollutant on public health. They are based on recommendations by the Expert Panel on Air Quality Standards, The European Union Air Quality Daughter Directive and the World Health Organisation. Local Authorities are responsible for seven of the eight air pollutants under Local Air Quality Management (LAQM). National objectives have also been set for the eighth pollutant, ozone, as well as for nitrogen oxides and sulphur dioxide.	Air quality scoped out from the Assessment
Defra (2011) Review of Waste Policy in England	Building on waste reduction targets established in the 2007 Waste Strategy, the Review sets out a range of commitments relating to: • sustainable use of materials; • waste prevention, re-use and recycling; • regulation and enforcement; • householders and local authorities working together; • business waste collection; • energy recovery; • landfill; and • infrastructure and planning .	Incorporated in SEA Objective 2
Defra (2008) Future Water, the Government's Water Strategy for England	Objectives: By 2030 at the latest, we have: • improved the quality of our water environment and the ecology which it supports, and continued to provide high levels of drinking water quality from our taps; • sustainably managed risks from flooding and coastal erosion, with greater understanding and more effective management of surface water; • ensured a sustainable use of water resources, and implemented fair, affordable and cost reflective water charges; • cut greenhouse gas emissions; and • embedded continuous adaptation to climate change and other pressures across the water industry and water users. Targets: Key targets are within the objectives above and further a number of sub-targets are included within the document.	Incorporated in SEA Objectives 1, 2, 5
Defra (2009) Safeguarding our Soils: A Strategy for England	The Soil Strategy for England provides a vision to guide future policy development across a range of areas and sets out the practical steps that are needed to take to prevent further degradation of our soils, enhance, restore and ensure their resilience, and improve understanding of the threats to soil and best practice in responding to them. Key objectives of the strategy include: • better protection for agricultural soils; • protecting and enhancing stores of soil carbon; • building the resilience of soils to a changing climate; • preventing soil pollution;	Incorporated in SEA Objective 2

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
	• effective soil protection during construction and development; and • dealing with the legacy of contaminated land.	
Defra (2011) Natural Environment White Paper; The natural choice: securing the value of nature	The Natural Environment White paper sets out the Government's plans to ensure the natural environment is protected and fully integrated into society and economic growth. The White Paper sets out four key aims: (i) protecting and improving our natural environment; (ii) growing a green economy; (iii) reconnecting people and nature; and (iv) international and EU leadership, specifically to achieve environmentally and socially sustainable economic growth, together with food, water, climate and energy security and to put the EU on a path towards environmentally sustainable, low-carbon and resource-efficient growth, which is resilient to climate change, provides jobs and supports the wellbeing of citizens.	Incorporated in SEA Objectives 3, 4
Defra (2011) Biodiversity 2020: a Strategy for England's Wildlife and Ecosystem Services	The Strategy is designed to help to deliver the Natural Environment White Paper and include the following priorities: • creating 200,000 hectares of new wildlife habitats by 2020; • securing 50% of SSSIs in favourable condition, while maintaining at least 95% in favourable or recovering condition; • encouraging more people to get involved in conservation by supporting wildlife gardening and outdoor learning programmes; and • introducing a new designation for local green spaces to enable communities to protect places that are important to them.	Incorporated in SEA Objective 3
Defra & HM Government (2011) Water White Paper; Water for Life	Water for Life describes a vision for future water management in which the water sector is resilient, in which water companies are more efficient and customer focused, and in which water is valued as the precious and finite resource it is.	Incorporated in SEA Objective 2
Defra & Environment Agency (2001) National Flood and Coastal Erosion Risk Management Strategy for England	The strategy describes what needs to be done by all organisations involved in flood and coastal erosion risk management. The strategy sets out a statutory framework that will help communities, the public sector and other organisations to work together to manage flood and coastal erosion risk.	Incorporated in SEA Objective 1
HM Government (2010) The Air Quality Standards 2010	The Regulations largely implement Directive 2008/50/EC on ambient air quality and cleaner air for Europe.	Air quality scoped out from the Assessment
HM Government (2010) Flood and Water Management Act	The Act takes forward a number of recommendations from the Pitt Review into the 2007 floods and places new responsibilities on the Environment Agency, local authorities and property developers (among others) to manage the risk of flooding. • The Environment Agency is responsible for developing and applying a flood risk management strategy for England and Wales. Every other agency with a flood risk management function across England and Wales must take account of this strategy. • Local authorities across England and Wales are required to develop, maintain, apply and monitor a strategy for local flood risk management in their areas. These local strategies must include the risk of flooding from surface water, watercourse and groundwater flooding. • Lead local authorities must establish and maintain a register of structures which have an effect on flood risk management in their areas. • The Act introduces a requirement to improve the flood resistance of existing buildings by amending the Building Act 1984. • The Act introduces the provision for residential landlords to be charged the cost of their tenant's unpaid water bills should the landlord fail to pass on the tenants	Incorporated into Objectives 1-6

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
	details to the respective water company for the local area. • The Act introduces the requirements for developers of property to construct Sustainable Drainage Systems (SUDS). • Local authorities have a duty to adopt these SUDS once completed. By adoption, the Act means that they become responsible for maintaining the systems.	
HM Government (2012) Draft Water Bill	The provisions in the Bill will enable the delivery of Government's aims for a sustainable sector as set out in the Water White Paper in a way that this is workable and clear. This Bill aims to makes steps towards reducing regulatory burdens, promoting innovation and investment, giving choice and better service to customers and enabling more efficient use of scarce water resources.	Incorporated in SEA Objective 2
DfT (2008) Delivering a Sustainable Transport System (DaSTS).	Objectives: • to support national economic competitiveness and growth, by delivering reliable and efficient transport networks; • to reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of tackling climate change; • to contribute to better safety and health and longer life-expectancy by reducing the risk of death, injury or illness arising from transport and by promoting travel modes that are beneficial to health; • to promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society; and • to improve quality of life for transport users and non-transport users, and to promote a healthy natural environment.	Incorporated in SEA Objective 6
English Heritage (2008) Conservation Principles, Policies and Guidance	A framework for the sustainable management of the historic environment based on the following principles: • the historic environment is a shared resource; • everyone should be able to participate in sustaining the historic environment; • understanding the significance of places is vital; • significant places should be managed to sustain their values; • decisions about change must be reasonable, transparent and consistent; and • documenting and learning from decisions is essential.	Incorporated in SEA Objective 7
English Nature (2006) Climate Change Space for Nature	Context for the next 80 years in terms of the likely effects of climate change on biodiversity. Prescribes suggested actions to be taken in preparation for change.	Incorporated in SEA Objectives 1, 4
Environment Agency (2009) Water for people and the environment - Water resources strategy for England and Wales.	Objectives: • enable habitats and species to adapt better to climate change; • allow the way we protect the water environment to adjust flexibly to a changing climate; • reduce pressure on the environment caused by water taken for human use; • encourage options resilient to climate change to be chosen in the face of uncertainty; • better protect vital water supply infrastructure; • reduce greenhouse gas emissions from people using water, considering the whole life-cycle of use; and • improve understanding of the risks and uncertainties of climate change. Target: In England, the average amount of water used per person in the home is reduced to 130 litres each day by 2030.	Incorporated in SEA Objectives 2, 6
Forestry Commission (2005): Trees and Woodlands Nature's	An advisory document which provides detailed examples of how the Woodland Sector (trees, woodlands and green spaces) can significantly contribute to people's health, well-being (physical, psychological and social) and quality of life. Increasing levels of	Incorporated in SEA Objectives 3, 4

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
Health Service	physical activity is a particular priority.	
HM Government (2006) Climate Change The UK Programme	The Climate Change Programme aims to tackle climate change by setting out policies and priorities for action in the UK and internationally. Aims and Objectives: • to reduce carbon dioxide emissions by 20% below 1990 levels by 2010 (more than is required by the Kyoto Agreement); • make agreements with other countries as to how they will tackle climate change together; • report annually to Parliament on UK emissions, future plans and progress on domestic climate change; and • set out the adaptation plan for the UK, informed by additional research on the impacts of climate change.	Incorporated in SEA Objective 1, 5
HM Government (2010) The Conservation of Habitats and Species Regulations	This is the UK transposition of EC Directive 92/43/EC on the conservation of natural habitats and of wild fauna and flora. 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.	Incorporated in SEA Objective 3
Regional		
Severn Trent Water Resources Management Plan (2010)	Guidance on the approach to water management over the period 2010-2035, focused on achieving and maintaining the level of headroom necessary to ensure we can deliver our target levels of service at least cost to customers, whilst minimizing the impact on the environment. This is to be achieved n part by reducing leakage and managing the demand for water, and partly by developing new resources. The Strategy identifies that: "*Our best estimates of future supply/demand pressures show that we will need additional water resources and treatment capacity in the longer term. The schemes being delivered through our wider supply resilience investment strategy will provide a deployable output benefit and these form a key part of our longer term supply / demand plans. However, we have identified the likely need for further leakage reductions and water resource schemes during in the 2025-2035 period. Our analysis shows that the most significant risk to our long term supply/demand balance is the impact of climate change*."	Incorporated in SEA Objectives 2, 6
Severn Trent Water Sewage Management Plan (2009)	Sewerage Management Plans are being developed by Severn Trent Water. They employ a risk based approach to asset management. Hydraulic models will be used to consider the consequence of a flooding or pollution event, not just the likelihood.	Incorporated in SEA Objectives 1, 2
Environment Agency Humber River Basin Management Plan (2009)	Plan prepared under the Water Framework Directive outlining the pressures facing the water environment in the Humber River Basin District and the actions to address them.	Incorporated in SEA Objective 2
Environment Agency Trent Catchment Flood Management Plan (2010)	Strategic planning document that provides an overview of the main sources of flood risk in the Trent catchment and how these can be managed in a sustainable framework for the next 50 to 100 years	Incorporated in SEA Objective 1
The Greater Birmingham and Solihull Local Enterprise Partnership Strategy (2013)	The Greater Birmingham & Solihull LEP is a partnership of businesses, local authorities and universities which supports private sector growth and job creation. Set up to strengthen local economies, encourage economic development and enterprise, and improve skills across the region. The LEP has set out plans to: • increase economic output (GVA) in the area by £8.25 billion by 2020; • create 100,000 private sector jobs by 2020; • stimulate growth in the business stock and business profitability; • boost indigenous and inward investment; • become global leaders in key sectors, including: automotive assembly, low carbon R&D, business and professional services, clinical trials, creative and digital sectors; and • increase the proportion of adults with appropriate qualifications to meet employment needs.	Incorporated in SEA Objectives 1, 4, 6

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
The 7 Authorities of the West Midlands Metropolitan Area (2011) West Midlands Local Transport Plan	The West Midlands Local Transport Plan 2011 - 2026 (LTP) is a statutory document which looks at the transport needs of the Metropolitan Area and sets out a way forward to deliver those needs through short, medium and long term transport solutions. The LTP sets out how our transport network can play its part in the transformation of the West Midlands economy. It demonstrates how this will bring real benefits to people through its contribution to economic revival, creation of jobs, improved accessibility, improved local and national connections by road and rail and better quality of life. The Plan's specific objectives are: • prioritising investment on those interventions which will have greatest economic benefit; • improving the delivery of our transport priorities; • effectively maintaining and managing our transport assets ; • enhancing the efficiency, and reliability of our transport networks for the movement of people and freight; • improving safety and security; and • promoting low carbon corridors and Smarter Choices to influence travel behaviour.	Incorporated in SEA Objective 6
Environment Agency (2009) A Water Resources Strategy Regional Action Plan for the West Midlands Region	The EA Water Resources Strategy for England and Wales, *Water for People and the Environment*, sets out a number of actions that are reflected in the Regional Action Plan. This Plan takes the aims and objectives of the strategy and identifies Regional actions that will enable: • water to be abstracted, supplied and used efficiently; • the water environment to be restored, protected and improved so that habitats and species can better adapt to climate change; • supplies to be more resilient to the impact of climate change, including droughts and floods; • water to be shared more effectively between abstractors; • improved water efficiency in new and existing buildings; • water to be valued and used efficiently; • additional resources to be developed where and when they are needed in the context of a twin-track approach with demand management; • sustainable, low carbon solutions to be adopted; and • stronger integration of water resources management with land, energy, food and waste.	Incorporated in SEA Objectives 1-7
Forestry Commission (2004) West Midlands Regional Forestry Framework	The Framework sets out priorities for activity across the private, public and voluntary sector, and includes priorities and actions based around the following themes: • Tree and Woodland Cover; • Trees Woodland and Forestry Industry; • Wood Energy and Recycling; • Recreation and Tourism; • Health and Wellbeing; • Fostering Social Inclusion; • Enhancing Biodiversity; • Climate Change; and • Green Infrastructure.	Incorporated in SEA Objectives 3, 4
Local		
Birmingham City Council (2013) Birmingham	A Development Plan Document which sets the long-term spatial planning vision and objectives for Birmingham. It contains a set of strategic policies that are required to	Incorporated in SEA Objectives 1-7

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
Development Plan (emerging)	deliver the vision including the broad approach to development.	
Birmingham City Council (2012) Aston, Newtown and Lozells Area Action Plan	To provide a clear vision and strategy for regeneration and development in the Aston, Newtown and Lozells area over the period 2012-2026. The AAP sets out a comprehensive and co-ordinated approach to shaping housing, employment, local centres, community facilities, infrastructure, transport and the environment.	Incorporated in SEA Objectives 1-7
Birmingham City Council & Bromsgrove District Council(2009) Longbridge Area Action Plan	Longbridge will undergo major transformational change redeveloping the former car plant and surrounding area into an exemplar sustainable, employment led mixed use development for the benefit of the local community, Birmingham, Bromsgrove, the region and beyond. It will deliver new jobs, houses, community, leisure and educational facilities as well as providing an identifiable and accessible new heart for the area. All development will embody the principles of sustainability, sustainable communities and inclusiveness. At the heart of the vision is a commitment to high quality design that can create a real sense of place with a strong identity and distinctive character. All of this will make it a place where people will want to live, work, visit and invest and which provides a secure and positive future for local people.	Incorporated in SEA Objectives 1-7
Birmingham City Council (1997) Nature Conservation Strategy for Birmingham	SPG promoting the conservation and enhancement of nature conservation across the City.	Incorporated in SEA Objective 3
Birmingham City Council (1999) Regeneration Through Conservation: Birmingham Conservation Strategy.	A strategy for the protection and enhancement of Birmingham's cultural heritage.	Incorporated in SEA Objective 7
Birmingham City Council (2004) Archaeology Strategy.	The Strategy explains the process when proposed new development is likely to affect archaeological remains. It stresses the importance of early consultation about the archaeological implications of a proposed development and the process of assessment and evaluation to inform decision, making on requirements for preservation or recording of archaeological remains.	Incorporated in SEA Objective 7
Birmingham City Council (2005) Developing Birmingham: An Economic Strategy for the City 2005-2015.	The vision of the Economic Strategy is: "*To build on Birmingham's renaissance and secure a strong and sustainable economy for our people*." The strategy identifies four key areas to focus on: 1) development and Investment; 2) creating a skilled workforce; 3) fostering business development and diversification; and 4) creating sustainable communities and vibrant urban villages.	Incorporated in SEA Objective 6
Birmingham City Council (2006) Air Quality Action Plan.	The Action Plan sets out 41 actions which follow the objectives below: • reducing vehicle emissions; • improving public transport to reduce traffic volumes; • improving the road network to reduce congestion; • using area planning measures to reduce traffic volumes; • reducing air pollution from industry, commerce and residential areas; and • changing levels of travel demand/promotion of alternative modes of transport.	Air quality scoped out from the Assessment
Birmingham City Council (2006) Municipal Waste Management Strategy.	The Strategy sets out the following vision for delivering its municipal waste management services: "*To run a city that produces the minimum amount of waste that is practicable, and where the remainder is re-used, recycled or recovered to generate energy. The material recovered through composting, recycling, re-use and from the energy recovery process will replace the need for extraction of virgin materials.* *The waste management strategy will be sensitive to local needs and will provide a service to help Birmingham become as clean and green a city as it can be.*	Incorporated in SEA Objective 2

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
	Birmingham City Council and the Constituency partners will provide a service that citizens are pleased to support, and where there is malpractice or deliberate misuse of the service, that this is dealt with efficiently to maintain a clean, safe and healthy environment." The Strategy has the following objectives: • the Council will explore ways of reducing the amount of waste sent to landfill to an absolute minimum, recovering value from waste wherever economically and environmentally practicable through energy recovery and measures to increase re-use, recycling and composting; • the City Council and its partners will raise awareness among the wider community to view waste as a resource and will deliver communications activities and work with relevant stakeholders (such as community groups and schools) to promote the cultural change needed to significantly increase recycling and re-use and reduce the overall quantity of waste requiring treatment or disposal; • the City Council will develop recycling and composting system that meet the targets set out in this strategy through methods that are acceptable and accessible to the residents of Birmingham; • the City Council will explore ways of working with other local authorities and will expand its partnership activities with the private voluntary sectors to assist in delivery of this strategy; and • the City Council will work with its partners and other agencies to provide efficient and effective enforcement of its services to contribute to a clean, green, safe and healthy environment.	
Birmingham City Council (2007) Sustainable Management of Urban Rivers and Floodplains SPD	A Supplementary Planning Document which responds to the demands of the Water Framework Directives and sets out policies for development near to river corridors relating to: • Water Quality; • Water Pollution Prevention; • Sustainable Urban Drainage Systems (SUDS) and Surface Water Run-Off; • Character of the River Corridors; • The Floodplain; • Nature Conservation and Landscaping; • The Historic Environment; • Design of Developments; • Access; • Education and Recreation; • Safety and Litter; and • Community Involvement.	
Birmingham City Council (2010) The Birmingham Area Investment Prospectus.	The purpose of the Area Investment Prospectus (AIP) is to capture the key strategic development and investment opportunities around the city as well as outline Birmingham's plans to improve the economic environment and infrastructure required to support the growth generated by these opportunities. The AIP brings together the visions of public and private partners into one overall framework, designed to continue the transformation of Birmingham, and enhance its place as a leading world city and a dynamic regional capital.	Incorporated in SEA Objectives 1 - 7
Birmingham City Council (2008) Birmingham Private Sector Housing Strategy 2008+ (updated 2010).	The strategy details priority issues and actions to increase levels of decent homes in owner-occupied and private rented sector housing; promote domestic energy efficiency and affordable warmth; and address the growing demand from elderly and disabled residents for assistance to live independently in their own homes. It also set out how the council will fulfil its regulatory role in the licensing and inspection of Houses in Multiple Occupation (HMOs) as prescribed by the Housing Act (2004) and promote	Incorporated in SEA Objective 1

Plan, Programme or Strategy	Objectives and Targets identified in the Document	Use in SEA Objectives
	better standards of management within the private rented sector (PRS).	
Birmingham City Council (2008) Contaminated Land Inspection Strategy for Birmingham Second Edition	To identify any contaminated land as defined by the legislation. To take steps to control any risk from any contaminated land identified using voluntary or enforcement action. To liaise with the Environment Agency regarding sites that may be polluting controlled waters or other special sites.	Incorporated in SEA Objective 2
Birmingham City Council (2010) Birmingham Climate change action plan 2010+	Birmingham becoming a 'Low Carbon Transition' city Improving the energy efficiency of the city's **'Homes and Buildings'** Reducing the city's reliance on unsustainable energy through 'Low Carbon Energy Generation' Reducing the city's impact on the non-renewable resources through 'Resource Management' Reducing the environmental impact of the city's mobility needs through 'Low Carbon Transport' Making sure the city is prepared for climate change through 'Climate Change Adaptation' Making sure that this action plan **'**Engages with Birmingham Citizens and Businesses'	Incorporated in SEA Objectives 1, 5
Birmingham City Council (2011) Multi-agency Flood Plan	A plan outlining flood risk, warnings mechanisms, the actions, roles and responsibilities of those organisations and communities with a key response role in the event, or threat of flooding in the Birmingham local authority area.	Incorporated in SEA Objective 1
Birmingham City Council (Jan 2012) Level 1 & 2 Strategic Flood Risk Assessment	Assesses and maps all known sources of flood risk, including fluvial, surface water, sewer, groundwater and impounded water bodies, taking into account future climate change predictions, to allow the Council to use this as an evidence base to locate future development primarily in low flood risk areas. The outputs from the SFRA will also assist in preparing sustainable policies for the long term management of flood risk.	Incorporated in SEA Objectives 1, 5, 6
Birmingham City Council (2013) Birmingham Surface Water Management Plan (emerging)	A study undertaken in consultation with key local partners who are responsible for surface water management and drainage in their area. Partners work together to understand the causes and effects of surface water flooding and agree the most cost effective way of managing surface water flood risk for the long term. The process of working together as a partnership is designed to encourage the development of innovative solutions and practices.	Incorporated in SEA Objectives 1, 2
Birmingham City Council (2011) Birmingham Multi Agency Flood Plan	A Plan outlining flood risk, warnings mechanisms, the actions, roles and responsibilities of those organisations and communities with a key response role in the event, or threat of flooding in the Birmingham local authority area.	Incorporated in SEA Objective 1

Appendix B
Habitats Regulations Assessment Screening

Please see separate Report

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