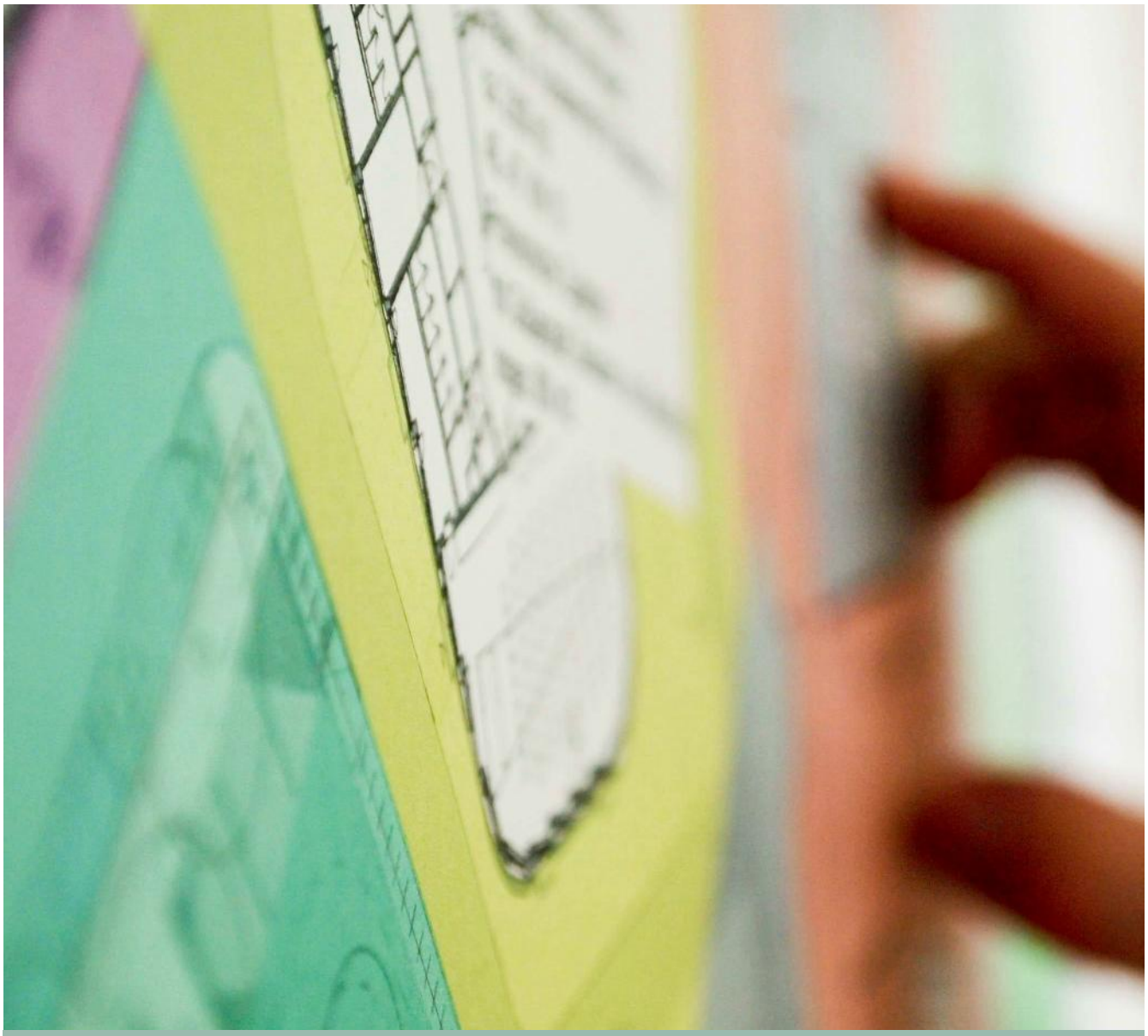


UNITED BY OUR DIFFERENCE

WSP

Windsor and Maidenhead Local Flood Risk Management Strategy: Strategic Environmental Assessment - Draft Environmental Report

Royal Borough of Windsor and Maidenhead

January 2015

Quality Management

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks	Draft for consultation	Final		
Date	October 2014	January 2015		
Prepared by	Russell Buckley	Russell Buckley		
Signature		 russell.buckley@wspgroup.com Author 2015.01.05 18:39:31 Z		
Checked by	Victoria Wilson	Victoria Wilson		
Signature		 Wilson, Victoria I have reviewed this document 2015.01.12 09:10:06 Z		
Authorised by	Victoria Wilson	Victoria Wilson		
Signature		 Wilson, Victoria I am approving this document 2015.01.12 09:10:21 Z		
Project number	62003420	62003420		
Report number	1	1		
File reference	London	London		

Windsor and Maidenhead Local Flood Risk Management Strategy: Strategic Environmental Assessment - Draft Environmental Report

Royal Borough of Windsor and Maidenhead

January 2015

Client

Royal Borough of Windsor and Maidenhead

Consultant

Russell Buckley
WSP House
70 Chancery Lane
London
WC2A 1AF
Tel: +44 (0)20 7406 7190
Fax: +44 (0)20 7314 5111

www.wspgroup.com

Registered Address

WSP UK Ltd
01383511
WSP House, 70 Chancery Lane, London, WC2A 1AF

WSP Contacts

russell.buckley@wspgroup.com

Table of Contents

1. Introduction

1.1. Purpose of this Report

1.1.1. The Royal Borough of Windsor and Maidenhead (RBWM) is in the process of developing its Local Flood Risk Management Strategy (LFRMS). As part of the work, a Strategic Environmental Assessment (SEA) is required. WSP UK Ltd has been appointed by RBWM to carry out the SEA and prepare this report.

1.1.2. The purpose of the SEA is:

"*To provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans with a view to promoting sustainable development*" (SEA Directive Article 1).

1.1.3. This Draft Environmental Report is a consultation document for the statutory consultation bodies with environmental responsibilities in England (the Environment Agency, Natural England and English Heritage) and the public. This report sets out the results of an assessment of the Draft LFRMS.

1.1.4. A separate Scoping Report was produced and consulted on in August - September 2013. The Environment Agency, Natural England and English Heritage were consulted at that stage. The Scoping Report sets out the results of Stage A of the SEA Process and provides details on the proposed approach to later stages of the work.

1.2. Background to the SEA

1.2.1. SEA became a requirement when the European Directive 2001/42/EC 'on the assessment of the effects of certain plans and programmes on the environment' (known as the 'SEA Directive') was implemented in Member States in July 2004. The Directive was transposed in England through the Environmental Assessment of Plans and Programmes Regulations, 2004.

1.2.2. Under the Flood and Water Management Act (2010) ('the Act') local authorities were given a new role to manage local flood risk in their area. The Act requires Lead Local Flood Authorities (LLFAs), which include RBWM, to produce a LFRMS. These strategies must be consistent with the National Flood and Coastal Erosion Risk Management Strategy. They will set out a vision for the management of flood risk and, although the Act specifies some of the key elements that must be included in the LFRMS, it is intended that they will be locally specific, reflecting key local issues and enabling communities to be more involved in decision-making regarding flood risk management.

1.2.3. The Act defines local flood risk as flood risk from:

- Surface runoff;
- Groundwater; and
- Ordinary watercourse (those that do not form part of a 'Main River').

Guidance on the production of LFRMSs[1] refers to the need for them to be subject to SEA, stating that "*the local FRM Strategy is likely to require statutory SEA, but this requirement is something the LLFA must consider*".

1.2.4. Given the uncertainty around the need for SEA and the likely delays and costs associated with screening, RBWM has decided to take a pragmatic approach and subject the LFRMS to SEA. It is also noted that the guidance recognises that: "*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 detail of plans develops, SEA should be reviewed*".

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

1.3. Key elements of the LFRMS Document

1.3.1. Under the Act, RBWM now has a key role in the management of flood risk and this includes a duty to develop and maintain a local strategy for flood risk management.

1.3.2. The purpose of this strategy is to explain how RBWM will manage flood risk from surface water, groundwater and ordinary watercourses, now and in the future. It will provide details of other organisations that are responsible for managing flood risk and what those responsibilities are.

1.3.3. The Strategy provides a set of 7 local flood risk management objectives and 31 associated management measures that will ensure that the objectives are achieved within Windsor and Maidenhead. It will also help individuals, communities and businesses understand flood risk and what action they can take to reduce the impacts of flooding.

The Act requires LFRMSs to specify:

- The risk management authorities within the authority's area. In the Borough these are:
  - RBWM as Lead Local Flood Authority;
  - RBWM as Highway Authority;
  - The Environment Agency; and
  - Thames Water.
- In addition, the following stakeholders also have a key role:
  - RBWM Planning Authority;
  - Residents and businesses;
  - Town and Parish Council's;
  - The Highways Agency;
  - The Thames Regional Flood and Coastal Committee;
  - Thames Valley Local Resilience Forum;
  - RBWM Flood Forum;
  - The Parish Food Group
  - Residents Associations; and
  - Developers.
- The flood and coastal erosion risk management functions that may be exercised by those authorities in relation to the area;
- The assessment of local flood risk for the purpose of the strategy;
- The objectives for managing the 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;
- How and when the strategy is to be reviewed; and
- How the strategy contributes to the achievement of wider environmental objectives.

1.3.4. Lead Local Flood Authorities (LLFA's) must consult risk management authorities that may be affected by the strategy as well as the general public about its LFRMS.

1.4. Scope of the SEA

1.4.1. The SEA Directive identifies a range of factors that need to be considered. The Directive makes it clear that this list is not exhaustive. The factors identified are as follows:

- Biodiversity; Fauna & Flora
- Population;
- Human Health;
- Soil;
- Water;
- Climatic Factors;
- Material Assets;
- Cultural Heritage;
- Landscape.

1.4.2. The SEA Directive and associated guidance do not define the range of issues that need to be considered under each topic but it is significant that the Directive includes reference to 'population', 'human health' and 'material assets'. These topics suggest that the Directive takes a wide definition of the term 'environment' to include impacts on people and the built environment, as well as the natural environment.

1.4.3. This approach is consistent with the concept of Sustainable Development. The most widely used and recognised definition of Sustainable Development is taken from the report 'Our Common Future' produced by the World Commission on Environment and Development in 1987 (Brundtland Report).

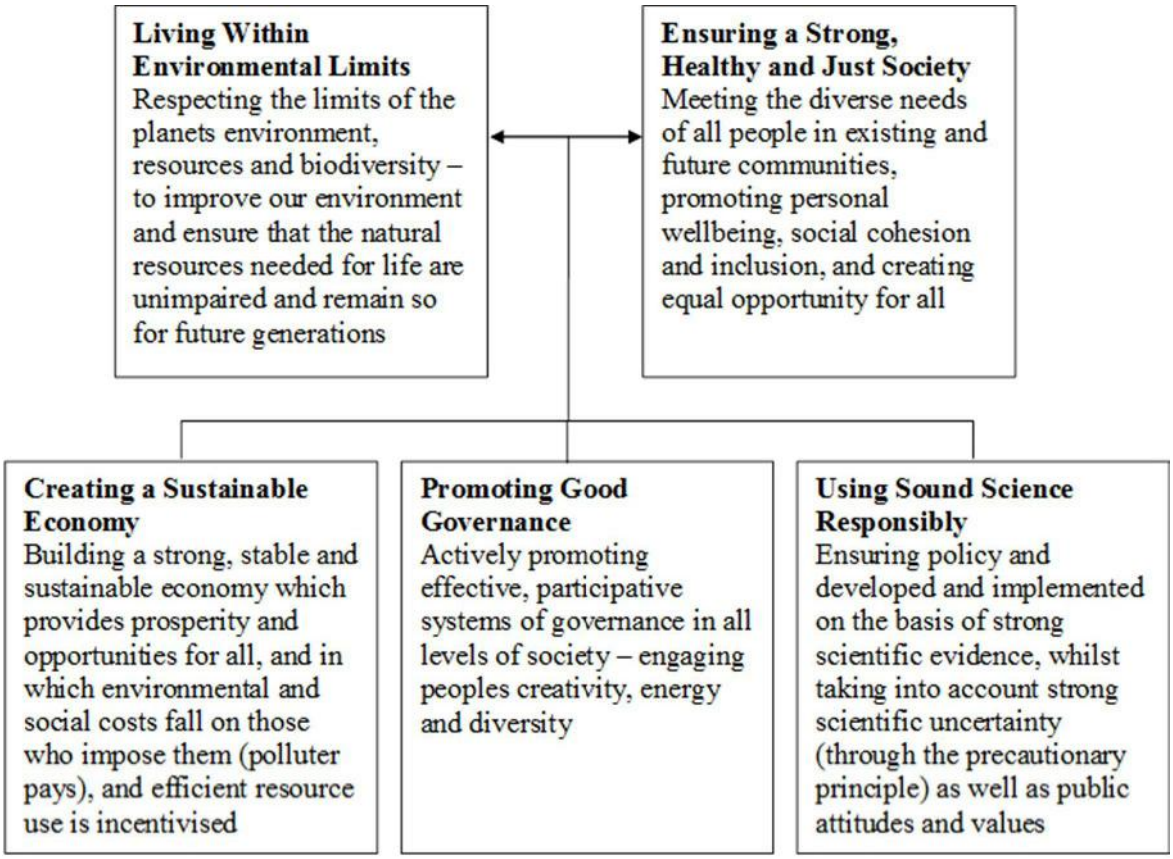
> *"Development that meets the needs of the present without compromising the ability of future generations to meet their own needs."*

1.5. Sustainable Development

1.5.1. The government outlined the United Kingdom's approach to sustainable development in the 'UK Government Sustainable Development Strategy' (March 2005). Within this document the Government identifies five guiding principles with which the United Kingdom's sustainable development strategy would be developed:

- Living within Environmental Limits;
- Ensuring a Strong Healthy and Just Society;
- Achieving a Sustainable Economy;
- Promoting Good Governance; and
- Using Sound Science Responsibly.

1.5.2. The guiding principles are further explained in the diagram below which is taken from the Government's strategy.



1.5.3. The previous Government also produced a definition of sustainable communities:

"Places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all"

1.5.4. Sustainable communities embody the principles of sustainable development, they:

- Balance and integrate the social, economic and environmental components of their community;
- Meet the needs of existing and future generations; and
- Respect the needs of other communities in the wider region or internationally also to make their communities sustainable.

1.6. Overview of the SEA Process

1.6.1. The SEA process consists of the following stages:

- Stage A: Setting the context and objectives, especially the baseline and deciding the scope;
- Stage B: Developing and refining options;
- Stage C: Appraising the effects of the LFRMS;

- Stage D: Consulting on the Strategy and the SEA Report; and
- Stage E: Monitoring Implementation of the Strategy.

1.6.2. The tasks associated with these stages are shown in Figure 1.1 at the end of this section.

1.6.3. This Draft Environmental Report covers Stages B and C (in addition to summarising the results of Stage A).

1.7. Habitat Regulations Assessment (HRA)

1.7.1. In addition to SEA, as part of the work for the LFRMS consideration must be given to the potential for significant effects on sites of European importance for nature conservation. WSP UK Ltd has been appointed by the Council to consider the need for HRA and prepare a separate report.

1.7.2. The purpose of the HRA report is to:

- Confirm the study area and the European sites that need to be considered;
- Consider the policy context within which the work will be undertaken;
- Confirm the overall methodology;
- Identify the issues to be considered; and
- Contribute to an audit trail for HRA related work.

1.8. Structure of this Report

1.8.1. The tasks undertaken in this report and their location are given in Table 1.1.

Table 1.1 – Report Structure

Structure of the Environmental Report	Information to include
Chapter 2 – Appraisal Methodology	Purpose of the SEA and the Environmental Report The LFRMS objectives Reasonable alternatives Appraisal of the LFRMS Difficulties in undertaking the SEA When the SEA was carried out Who carried out the SEA Who was consulted, when and how
Chapter 3 – Environmental Objectives, Baseline and Context	Overview of the area Review of relevant policies, plans and programmes Review of the baseline Review of key issues
Chapter 4 – The SEA Framework	The SEA Framework Relationship between the SEA Directive topics and the objectives
Chapter 5 – Results from the Assessment	Assessing the LFRMS Assessing the LFRMS against Defra's high level themes Outcomes of the SEA of the LFRMS Secondary, cumulative and synergistic effects Conclusions and recommendations

Structure of the Environmental Report	Information to include
Chapter 6 – Next Steps	Monitoring Post-consultation issues

1.8.2. Throughout this report a series of grey boxes are used to demonstrate which element of the SEA Directive the report is complying with.

1.9. How to Comment on this Report

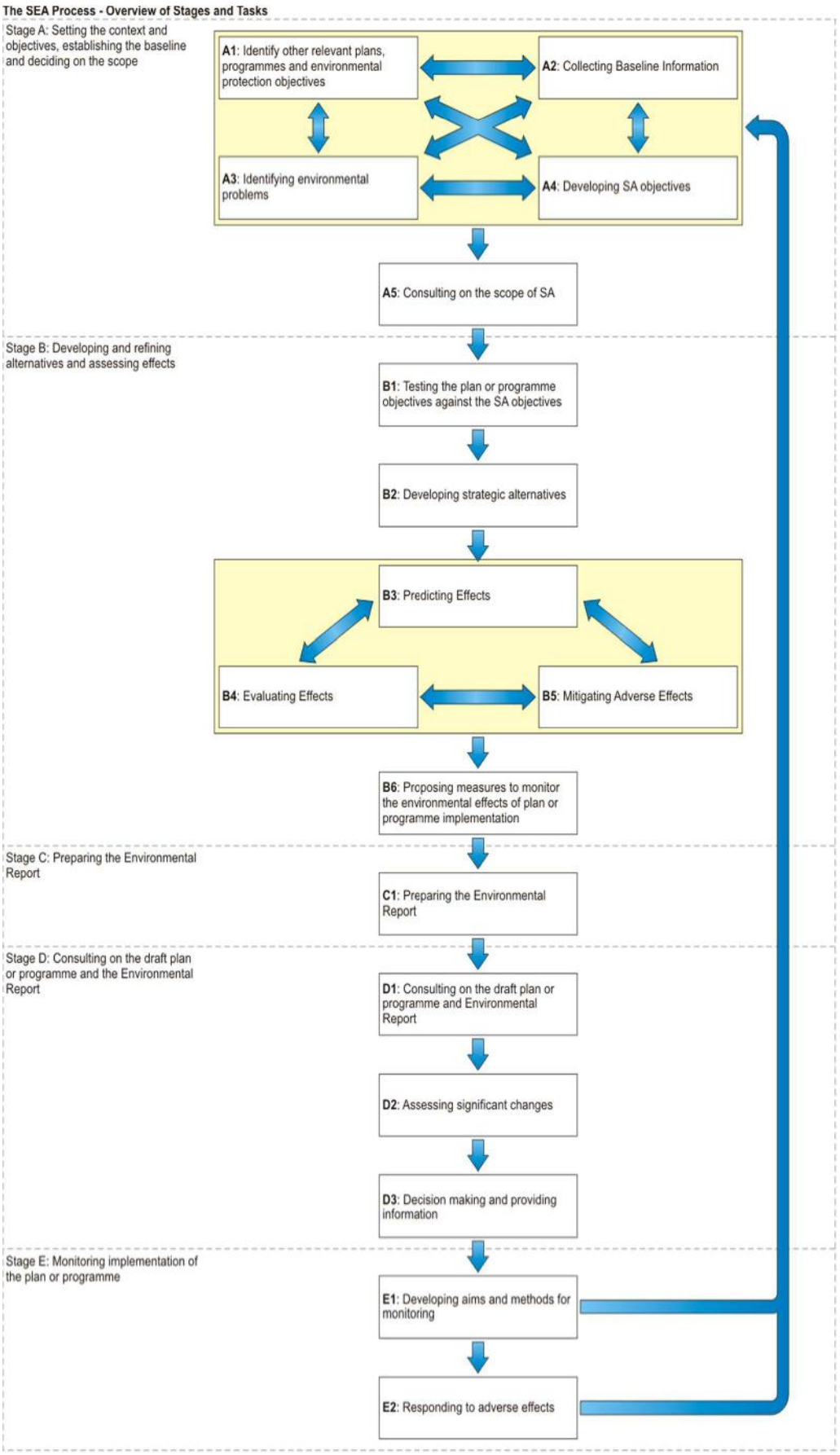
1.9.1. Please send comments to:

Simon Lavin
Flood Risk Manager
Strategic Asset Management Team
Royal Borough of Windsor & Maidenhead
Town Hall
St Ives Road
Maidenhead
Berkshire
SL6 1RF

Projects.&Contracts@RBWM.gov.uk

If you would like to discuss any aspect of this report before responding please contact Russell Buckley, Principal Consultant, WSP on 020 7314 7190.

Figure 1.1 – The SA process



2. Appraisal Methodology

2.1. Introduction

2.1.1. This Chapter sets out the approach that has been taken to assessing the LRFMS, including consultation undertaken and difficulties encountered.

2.2. Purpose of the SEA and the Environmental Report

2.2.1. As noted in the introduction to this report a LFRMS must be screened for SEA. Given the uncertainty around the need for SEA and the likely delays and costs associated with screening, RBWM has decided to take a pragmatic approach and subject its emerging LFRMS to SEA. This Draft Environmental Report sets out the method used to undertake the work, summarises the baseline information and presents the findings of the assessment.

Methods used to evaluate the effects are described, including how significance of effects has been approached.	*Practical Guide to the SEA Directive Appendix 9.*
The Environmental Report should consider "reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme" and give "an outline of the reasons for selecting the alternatives dealt with"	*Article 5.1 and Annex I (h) of the SEA Directive*
Alternatives include 'do minimum' and/or 'business as usual' scenarios wherever relevant.	*Practical Guide to the SEA Directive Appendix 9.*
The environmental effects (both adverse and beneficial) of each alternative are identified.	*Act Regulation 12(2)(b)* *Act Schedule 2(8)*
Inconsistencies between the alternatives and other relevant plans, programmes or policies are identified and explained.	*Act Regulation 12(2)(b)* *Act Schedule 2(8)*
Realistic alternatives are considered and the reasons for choosing them are documented.	*Act Regulation 12(2)(b)* *Act Schedule 2(8)*

2.3. The LFRMS objectives

2.3.1. The objectives of the LFRMS are an integral part of flood risk management for the Borough. They have been produced to be consistent with the 5 objectives of the National Flood and Coastal Erosion Risk Management Strategy for England (2011):

1. understanding the risks of flooding and coastal erosion, working together to put in place long-term plans to manage these risks and making sure that other plans take account of them;
2. avoiding inappropriate development in areas of flood and coastal erosion risk and being careful to manage land elsewhere to avoid increasing risks;
3. building, maintaining and improving flood and coastal erosion management infrastructure and systems to reduce the likelihood of harm to people and damage to the economy, environment and society;

4. increasing public awareness of the risk that remains and engaging with people at risk to encourage them to take action to manage the risks that they face and to make their property more resilient; and
5. improving the detection, forecasting and issue of warnings of flooding, planning for and co-ordinating a rapid response to flood emergencies and promoting faster recovery from flooding.

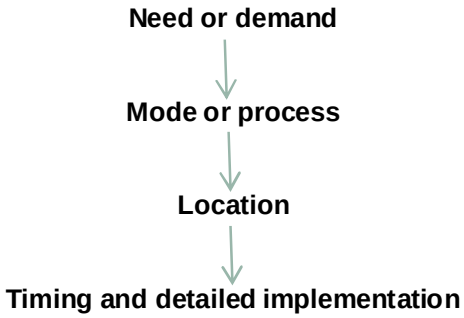
2.3.2. The objectives of the LFRMS are considered to be robust and effectively deliver the requirements of the National Flood and Coastal Erosion Management Strategy for Windsor and Maidenhead. They will be subject to public consultation and potentially amended in light of the outcomes of the consultation exercise.

2.4. Reasonable alternatives

The Do Nothing Scenario

2.4.1. The do nothing scenario would see none of the benefits of the proposed LFRMS as set out in Section 5 of this report realised. Given that flood risk in Windsor and Maidenhead presents a real risk to people and property, proactive steps need to be taken to address flood risk in the borough. As such, the do nothing scenario is considered significantly less desirable in principle. In addition, the LFRMS is required to be prepared under the Flood and Water Management Act 2010 and to not prepare the LFRMS would be in breach of this legislation.

2.4.2. The consideration of alternatives in SEA typically considers the hierarchy of alternatives:



2.4.3. This approach is most suited to plans that either have policies that will lead to specific development project, or allocate land for development. The LFRMS is a legislative requirement that acts borough-wide and doesn't address the detailed implementation of measures 'on the ground'. Rather it addresses strategic priorities. As such, the particular mode or process, or the 'how it should be done?' is where there are potential options.

2.4.4. Table 2.1 identifies the additional alternatives identified that were not included in the draft LFRMS, along with a commentary on their likely environmental effects and the reason that they weren't included. Full assessment matrices have not been prepared for the assessment of alternatives as it would not be a like for like comparison with the assessment of the draft LFRMS, which assessed the combined measures under each objective.

Table 2.1 – Assessment of reasonable alternatives

Measure / Action	Likely environmental effects	Reason it wasn't included
Establish a formal group with key organisations and local communities in relation to flood risk management by (date unconfirmed)	This would have contributed to SEA Objectives 4 and 5 of the SEA Framework (see Table 4.2), relating to flood risk and water quality respectively. Improved cross coordination between groups would be expected to lead to	It was considered that the organisations involved, including RBWM, would have had insufficient resources available to undertake this.

Measure / Action	Likely environmental effects	Reason it wasn't included
	mutual learning and improved flood risk management practices.	
Promote schemes that provide the best long-term benefits to residents	This would have contributed to a significant benefit against SEA Objective 2, improving health and wellbeing, due to its focus on improving the lives of residents.	Not within the scope of the LFRMS.
Promote value for money schemes (capital costs, maintenance)	This would not have led to any significant environmental effects as it is a purely fiscal matter.	This was taken as a given in day-to-day business that need not be reiterated.
Actively encourage Flood Risk Management activities for residents, landowners and businesses, especially riparian owners. Action should be concentrated in the highest priority areas/wards initially	This would have contributed to a significant benefit again SEA Objective 2, improving health and wellbeing, as residents would be better prepared for flood events.	This was refined down to producing advice specifically for riparian land owners.

2.4.5. So as can be seen, the reasonable alternative identified would have been expected to lead to environmental benefits, however they were not taken forward for other reasons, such as their being further refined, their being outside the scope of the LFRMS or there being insufficient resources available to take the alternative forward.

2.5. Appraisal of the draft LFRMS

2.5.1. The LFRMS is structured as follows:

- Section 1: Introduction;
- Section 2: Legislative Context;
- Section 3: Roles and Responsibilities;
- Section 4: Understanding Flood Risk within the Royal Borough of Windsor and Maidenhead;
- Section 5: Managing the Likelihood and Impact of Flooding;
- Section 6: Funding and Delivery;
- Section 7: Action Plan;
- Section 8: Review and Development of the Strategy;

2.5.2. Those sections of the LFRMS that provide background and contextual information do not need to be assessed. The assessment has focussed on the objectives of the draft LFRMS and the associated measures, both of which are set out in Section 7.

2.6. Difficulties in undertaking the SEA

Difficulties such as deficiencies in information or methods are explained.	*Practical Guide to the SEA Directive Appendix 9.*

Technical, procedural and other difficulties encountered are discussed; assumptions and uncertainties are made explicit.	*Article 5 and Annex I(h)*

2.6.1. This Report is required to identify any limitations and assumptions. Assumptions with regards to assumed or 'built-in' mitigation are identified in Section 3 of this Report. No limitations beyond those associated with the strategic nature of an SEA have been identified in undertaking the work.

2.6.2. The difficulties encountered related to the strategic nature of the LFRMS and preliminary nature of many of the actions it contains, which made it difficult to identify the potential environmental effects. This simply reflects the strategic nature of the document.

2.7. When the SEA was carried out

2.7.1. A Draft Scoping Report was prepared for consultation. The draft SEA Scoping Report was made available from 7 August 2013 – 11 September 2013 for a five week period of consultation. The appraisal of the LFRMS was undertaken between May 2014 and October 2014.

2.8. Who carried out the SEA

2.8.1. This Environmental Report has been prepared by WSP UK Ltd.

2.9. Who was consulted, when and how

Consultation Authorities are consulted in appropriate ways and at appropriate times on the content and scope of the Environmental Report. There is evidence that scoping responses have been reflected in the ER.	*Article 5.4*
Explains who was consulted, at which stage in the assessment process, and what methods of consultation were used.	*Practical Guide to the SEA Directive Appendix 9.*

2.9.1. The three English statutory consultees were consulted on the Draft Scoping Report. The comments received have been taken into account in undertaking this Draft Environmental Report and are summarised in Appendix D.

3. Environmental Objectives, Baseline and Context

3.1. Introduction

3.1.1. This section of the report and associated appendices present the results of Task A1 (Identifying other relevant plans, programmes and sustainability objectives), Task A2 (Collecting baseline information) and Task A3 (Identifying sustainability issues and problems).

3.2. Overview of the Area

3.2.1. The Royal Borough of Windsor & Maidenhead is a unitary authority in Berkshire covering approximately 19,818 hectares.

3.2.2. In 2011 the Census showed that RBWM had a population of 144,600, in comparison to 133,626 in 2001. The population of RBWM has grown by 8.2% in ten years; this growth however is not universal across all age groups. Overall the age structure of the Borough's population is similar to the national average, apart from having relatively fewer young people aged 15 to 24 years. This is partly due to a lack of universities within the immediate vicinity, which means that many students live away from home, but also high house prices represent a barrier to young people setting up home in the Borough. The proportion of the Borough's population aged 65 years or over is in line with the national age structure, but is higher than the rest of Berkshire, and is forecast to rise significantly in the medium to long term .

3.2.3. The Borough is situated 25 miles to the west of London. There are 21 recognised settlements within the Borough. The Borough includes the large settlements of the historic Windsor and Maidenhead. There are also a number of smaller settlements within the Royal Borough including Cookham, Ascot, Sunninghill, Sunningdale, Eton, Old Windsor, Horton, Datchet and Wraysbury, which are covered by 15 parish councils (including Eton Town Council).

3.2.4. The Borough is a prosperous area with a thriving local economy and low unemployment record. The Borough has excellent communications being located near to Heathrow, the motorway network (including M4, M40 and M25) and the national rail network. About 83% of the Borough lies in the Green Belt. The river Thames is one of the Borough's most significant landscape features.

3.2.5. The northern and eastern boundaries of the Royal Borough of Windsor and Maidenhead are delineated by the River Thames. Many of the key population centres within the Borough are situated along the length of the river, and not surprisingly a considerable proportion of the Borough is affected by flooding.

3.2.6. Significant fluvial flooding from the River Thames has affected the Borough no less than ten times within the past 100 years, most recently in 2014. Substantial investment has been made in recent years in an endeavour to alleviate the risk of flooding, including (but not limited to) the Maidenhead, Windsor & Eton Flood Alleviation Scheme and the Cookham Flood Alleviation Scheme remedial works, improving the standard of protection provided to properties within the Borough.

3.2.7. It is essential to recognise that the River Thames flood defences provided do not fully remove the risk flooding to properties within the Borough. In many areas, the standard of protection provided by the defences is less than 1% Annual Exceedance Probability (AEP) (1 in 100). More importantly however, it is recognised that there is a risk to properties situated behind the defences as a result of groundwater flooding, exacerbated by high river levels. Localised flooding as a result of local catchment runoff and/or sewer system failure following heavy rainfall is also a known risk to properties in the Borough, including defended areas, evidenced very clearly by the events of the summer of 2007.

3.2.8. In addition to the River Thames, a risk of flooding has also been identified in association with watercourses Colne Brook, River Colne, The Cut, Strand Water, and White Brook (refer adjoining flood zone maps). A number of smaller local watercourses also pose a potential risk of flooding, including Bourne Ditch, the Battle Bourne, Wraysbury Drain, and Horton Drain.

3.2.9. These rivers and drains affect fewer properties within the Borough than the River Thames. They are far more susceptible to flash flooding as a result of localised intense rainfall however, and with changing climate patterns it is expected that storms of this nature will become increasingly common. It is vitally important that planning decisions recognise the potential risk that these watercourses pose to property, and that development is planned accordingly so that future sustainability can be assured.

3.2.10. Finally a number of key water supply reservoirs are situated within, or immediately adjoining, the Royal Borough of Windsor and Maidenhead. These reservoirs are situated above ground, and a sudden failure of the embankments retaining the stored water would have a catastrophic effect on properties situated in the path of the resulting flood wave.

3.2.11. The reservoirs are however very stringently managed and monitored by Thames Water, and the potential risk of failure is considered very small. The possible failure of the underground system is in contrast a very real risk, as experienced recently within the Borough at Datchet and St Leonard's in which an underground pipe collapse resulted in the flooding of a number of properties. It is notoriously difficult to measure in real terms the potential risk of a structural failure of this nature occurring.

3.2.12. The overloading of the sewer system due to inflows exceeding the underground system capacity (i.e. resulting in surcharging) is also a known problem in some areas.

3.2.13. In summary, there are a number of potential sources of flood risk affecting properties within the Royal Borough of Windsor and Maidenhead. In addition to the relatively large number of properties falling within Zone 3 High Probability (i.e. at risk of river flooding), many more are potentially at risk of localised runoff, groundwater flooding and/or sewer overload. Flooding can affect lives and livelihoods, and it is absolutely essential that future development (particularly residential development) is not placed within areas of the Borough within which the safety of residents cannot be assured in times of flood.

3.3. Review of Relevant Policies, Plans and Programmes (Task A1)

3.3.1. The SEA Directive requires consideration of the following:

> The "relationship [of the plan or programme] with other relevant plans and programmes" (Annex I(a))
>
> "The environmental protection objectives, established at international, [European] Community or[national] 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" (Annex I (e))

3.3.2. The review of policies, plans and programmes (PPPs) for the purpose of the SEA identifies relevant objectives that relate to the plan being assessed. This is an important step in identifying potential policy conflicts early in the strategy making process so that it can be adapted to reduce or eliminate the conflict. It also provides the opportunity to identify the synergistic benefits that the strategy might have.

3.3.3. It is relevant to note here that the LFRMS must itself demonstrate how it contributes to the achievement of wider environmental objectives. Section 9 of the Flood and Water Management Act details the statutory requirements for Local Flood Risk Management Strategies and include this as a requirement. The SEA team and authors of the LFRMS have worked together to ensure that relevant objectives are reflected in both the Strategy and the SEA.

3.3.4. The review of plans and programmes in the context of the SEA seeks to be selective and adopts the principle that local documents are identified first, then documents at the regional level, then

documents at the national level (if they have not been enacted through a policy document at the local or regional level) and then documents at the European level (if they have not been enacted at the national level). This approach helps reduce the number of documents that need to be reported on and to focus the assessment.

3.3.5. Appendix A sets out the review of relevant policies, plans and programmes, including key objectives. These have been used to inform the SEA assessment process. It has been reviewed and updated following comments on the SEA Scoping Report from the Statutory Consultees. The key documents that have been identified are:

- **The Natural Environment and Rural Communities Act (2006)** – This places a duty on flood authorities to have regard, so far as is consistent with the proper exercise of their functions, to conserve biodiversity, including restoring or enhancing species populations or habitats;
- **The Natural Environment White Paper (The Natural Choice: Securing the Value of Nature), 2011** - The first Government White Paper dealing with the natural environment in over 20 years, marking the most significant shift in environmental policy for a generation "*by 2060, our essential natural assets will be contributing fully to robust and resilient ecosystems, providing a wide range of goods and services so that increasing numbers of people enjoy benefits from a healthier natural environment.*";
- **The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 enabled the EU Water Framework Directive (2000)** – The Directive came into UK law in 2003 and aims to protect and enhance water quality. It requires River Basin Management Plans to be drawn up in order to improve the water environment. The Regulations establish River Basin Management Districts in England;
- **Flood and Water Management Act (2010)** – This Act sets out the statutory requirement for Lead Local Flood Authorities (LLFAs) to produce a strategy for managing local flood risk. It therefore provides the legal basis for the production of the RBWM LFRMS;
- **National Flood and Coastal Erosion Risk Management Strategy (2011)** – The Flood and Water Management Act requires all LFRMSs to be in conformity with this Strategy, which encourages more effective risk management by enabling people, communities, business, infrastructure operators and the public sector to work together to achieve better understanding of the risks of flooding both, nationally and locally, so that investment in risk management can be prioritised more effectively. As such, the RBWM LFRMS must have regard to the contents of the Strategy;
- **Guidance for Risk Management Authorities on Sustainable Development in Relation to their Flood and Coastal Erosion Management Functions (2011)** – Section 27 of the Flood and Water Management Act 2010 requires certain flood and coastal erosion risk management authorities (including district councils) to aim to make a contribution towards the achievement of sustainable development when exercising their flood and coastal erosion risk management functions. It also requires the Secretary of State to issue guidance on how those authorities are to discharge this duty and explain the meaning of sustainable development in this context: this document does that and includes ten themes of sustainable development that apply to flood and coastal erosion risk management (FCERM). The ten themes in the guidance are considered to be relevant to the scope of this SEA, essentially the SEA provides an opportunity to ensure that the LFRMS will contribute to achievement of these objectives;
- **The National Planning Policy Framework (2012)** – The NPPF has replaced the suite of planning policy statements and planning policy guidance which previously presented national policy in relation to Development and Flood Risk. The NPPF sets out the considerations that local planning authorities need to take account of in order to avoid new development increasing flood risk;
- **River Basin Management Plan Thames River Basin District (2009)** - This plan is about the pressures facing the water environment in this river basin district and the actions that will address them. It has been prepared under the Water Framework Directive, and is the first of a series of six-year planning cycles;

- **Thames Catchment Flood Management Plan (2009) -** The CFMP identifies flood risk management policies to assist all key decision makers in the catchment. It was produced through a wide consultation and appraisal process; however it is only the first step towards an integrated approach to Flood Risk Management.
- **Strategic Flood Risk Assessment Strategy, Berkshire 5 Flood Risk Management Partnership, July 2012** - This report has set the legislative context and requirements for the local authorities in relation to their new responsibilities and duties under the Floods and Water Management Act. It sets out an overarching strategy for the authorities to aid in their collaborative working and helps them have a consistent approach in relation to managing flood risk. The strategy highlights priority areas based on existing modelling data and historic flood records for both urban and rural areas and guides the local authority on possible flood risk mitigation measures that can be incorporated to reduce this risk subject to their detailed local strategy concluding them necessary. The Strategy also provides possible funding roots that the local authorities could potentially use to alleviate the flood risk in highlighted areas;
- **Windsor and Maidenhead Preliminary Flood Risk Assessment** (2011) - The Flood Risk Regulations implement the European Floods Directive and provide an approach to managing flood risk in England and Wales. They place a number of requirements on Lead Local Flood Authorities, such as RBWM. They establish a four stage activity cycle that includes production of a LFRMS. The first stage in the cycle is the preparation of a Preliminary Flood Risk Assessment (PFRA). The PFRA is a high level screening exercise which involves collecting information on past and future floods. The PFRA identified that there are no Indicative Flood Risk Areas (areas deemed to be at nationally significant risk of surface water flooding) within the RBWM area.
- **Maidenhead Waterways Framework Planning Brief** (2009) **-** a planning brief which provides a framework for future planning decisions along the waterway corridor stretching from the Cliveden Reach of the River Thames, through Maidenhead, to Bray Marina. Its purpose is to aid the restoration of the waterway, including the achievement of the emerging Maidenhead Waterway Project. It aims to ensure that future policy and the design of development proposals contribute to the overall aim of restoring the waterway and avoid obstacles to the delivery of the Maidenhead Waterway Project.
- **Royal Borough of Windsor and Maidenhead Strategic Flood Risk Assessment (SFRA) Level 1** (2014) **-** A Strategic Flood Risk Assessment has been produced for the Borough, in consultation with the Environment Agency, to inform the preparation of the Local Development Framework. The primary purpose of the SFRA is to determine the variation in flood risk across the District. As a result, the Borough has been delineated into zones of low, medium and high probability of flooding.
- **The Royal Borough of Windsor and Maidenhead Local Plan (2003)** - The Local Plan provides, within one document, detailed planning guidance for the whole area. A large area of the Royal Borough lies within the flood plains of the Rivers Thames and Colne. The boundaries of the areas liable to flood have been derived in the main from a comprehensive flood study using physical and mathematical modelling techniques, undertaken by the Environment Agency. It corresponds to the area where there is a 1 in 100 chance of flooding occurring in any one year; and
- **Royal Borough of Windsor and Maidenhead: Borough Local Plan Preferred Options Consultation** (January 2014) – The Preferred Options proposes options on Managing Flood Risk and Waterways. This includes restricting uses of the functional floodplain, the incorporation of Sustainable Urban Drainage Systems into new redevelopment and use of the sequential test.

3.4. Review of the Baseline

3.4.1. The collection of baseline data serves three primary roles. Firstly, it is used to identify key environmental issues for the area affected by the strategy, which in turn informs the development of objectives. This is so that any environmental issues identified can be taken into account. Secondly, the baseline data is used to help assess potential effects on the environment. Thirdly, once the

baseline has been established it is possible to extrapolate the future environmental baseline and how it might evolve without the plan.

3.4.2. The SEA Directive requires that the Environmental Report provides information on:

> "relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme" and "the environmental characteristics of areas likely to be significantly affected" (Annex I (b), (c))

3.4.3. Appendix B sets out the review of the baseline data against the topic areas in Annex 1 (f) of the SEA Directive. The review also sets out the known gaps in the data and the difficulties encountered in its collection. The collection of baseline data was a desk-based exercise and was drawn from a variety of sources. The baseline data has been updated to incorporate comments received from the statutory consultees following consultation on the SEA Scoping Report.

3.5. Review of Key Issues

3.5.1. Key issues have been identified from the review of the relevant PPPs, other SEAs undertaken in the area and the baseline data. Table 3.1 below sets out the key issues against each topic area and considers the role of the LFRMS in helping to address these. In identifying key issues we have taken into account the 'zone of influence' of the LFRMS. This means answering the question 'given the purpose and scope of the LFRMS how might it impact on a particular topic, both directly and indirectly?'

Table 3.1 Key Issues by SEA Topic		
Topic (s)	Key Issues	Role of the LFRMS in addressing the issue
Biodiversity / Flora and Fauna	The District has a number of designated sites of international, national, regional and local conservation importance. **Special Areas of Conservation (SAC):** Chiltern Beechwoods, Thursley, Ash Pirbright and Chobham, and Windsor Forest and Great Park. **Sites of Special Scientific Interest (SSSI):** RBWM currently has 11 SSSI's covering 8.4% of the borough. **Special Protection Areas (SPA):** South West London Water Bodies, and Thames Basin Heaths. **Local Nature Reserves:** There are six sites within RBWM. **Ancient Woodland:** There are approximately 107 Semi Ancient Natural Woodland sites within RBWM, covering a total of 1,051 hectares. **Biodiversity Action Plan Habitats:** There is approximately 3,223 hectares of BAP habitats within RBWM, which broadly correlate with Habitats of Principal Importance[2]. There are 104 Wildlife Heritage Sites (1,439 hectares) in RBWM.	Any policies in relation to maintenance should have regard to potential impacts on biodiversity flora and fauna, the LFRMS could have a role in putting such measures in place, particularly in instances where measures do not require planning permission. The LFRMS has a role in ensuring that future responses contribute to protecting and enhancing biodiversity, flora and fauna. Creation of new floodplain grasslands and/or wet woodlands that are designed to flood. Need to understand how flood risk areas correlate with designated areas.
Population	25.6% of residential and 26.4% of commercial properties in the borough are at risk of flooding, including 9,511 residential and 51 commercial properties that are at higher risk (1 in 100 years).	The LFRMS should help to ensure that the District is able to accommodate planned new development without increasing local flood risk.
Human Health	Flooding can have a great impact on people's psychosocial needs and mental health.[3]	The LFRMS will have a role in reducing flood risk. Following up on people's mental health needs following

[2] The UK Biodiversity Action Plan was drawn up between 1995-1999 to identify targets for conservation action in the UK. The BAP was superseded by the UK Post-2010 Biodiversity Framework in 2012 – however, the habitats originally identified in the UK BAP largely correspond to the habitats identified as Habitats of Principal Importance (HPI) by the Secretary of State (in response to requirements under S41 of the Natural Environment and Rural Communities Act 2006).

[3] The Effects of Flooding on Mental Health, Health Protection Agency, 2011

Table 3.1 Key Issues by SEA Topic		
Topic (s)	Key Issues	Role of the LFRMS in addressing the issue
		flood risk events falls outside the remit of the LFRMS.
Soil	Flooding can lead to soil erosion. In relevant locations soil erosion can contribute to higher phosphate levels in water bodies.	The LFRMS will have a role in helping to avoid damage to soils, for example as a result of rapid surface run-off causing soil erosion.
Water	Water Framework Directive target of 'good surface water status' requires both the ecological status and the chemical status of a surface water body need to be at least 'good'. The borough lies in one of the driest parts of the country and has a high demand for water, so groundwater sources need to be protected.	The LFRMS could have a role in achieving Water Framework Directive targets and reflect the catchment approach to planning.
Climatic factors	More intense weather conditions have implications for the location of development, design of buildings and the control of flood risk.	The LFRMS will need to take account of projected long – term changes in weather patterns and the potential for more frequent and severe flooding.
Material assets	Although Material Assets are listed as a topic to be addressed in SEA, there is no definition as to what they might encompass. A common interpretation of Material Assets includes housing and infrastructure relating to areas such as energy, water and transport networks, it also includes social infrastructure such as schools, hospitals and other public buildings. Relevant assets include[4]: ■ Housing infrastructure ■ Health infrastructure ■ Social Infrastructure; ■ Previously Developed Land; ■ Minerals and Aggregates; ■ Transport and Transport Infrastructure;	The LFRMS will have a role in ensuring that existing and planned material assets are resilient to future flood events do not contribute to increased flood risk in the future and, if possible, provide benefits in terms of reducing future flood risk in the wider area.

[4] Adapted from *Strategic Environmental Assessment Guidance for Practitioners SEA Topic: Material Assets,* Countryside Council for Wales, 2007.

Table 3.1 Key Issues by SEA Topic		
Topic (s)	Key Issues	Role of the LFRMS in addressing the issue
	▪ Water Infrastructure; ▪ Energy Infrastructure; ▪ Environmental Infrastructure; ▪ Tourism and Recreation Infrastructure; ▪ Telecommunications; ▪ Flood defence infrastructure and ▪ Waste and Waste Infrastructure.	
Cultural heritage	The Borough has a number of heritage assets; Listed Buildings Grade I and II, and a Conservation Area, some of which may be at risk of flooding. ▪ Beenham's Heath – Condition 'At Risk'. ▪ Church of St Michael and All Angels – Condition 'Poor'. Large village church built on the foundations of a Norman church in 1808, extended in 1826-7 and again in 1888. It is mainly constructed of brick with stone and Roman cement detailing, with tiled roofs. The church is at risk due to defective valley and parapet gutters, rainwater goods, stone and brickwork. The church has been offered a grant from the Heritage Lottery Fund towards these repairs which, when completed, will enable it to be removed from the Heritage at Risk Register. ▪ Noahs Boathouse – Condition 'Poor'. An early and pioneering example of Modern Movement architecture by one of the major figures in the movement. The building floods regularly and is derelict. The roof is leaking and the concrete is spalling. ▪ Royal Mausoleum – Condition 'Fair'. Damp problems are placing external and internal historic fabric at risk, including the internal paintings. The original rainwater drainage is inadequate and poorly designed, running within the wall fabric, and is difficult to maintain. Environmental monitoring has been carried out, and temporary remedial works for rainwater disposal have been implemented.	Any policies in relation to maintenance should have regard to potential impacts on cultural heritage, the LFRMS could have a role in putting such measures in place, particularly in instances where measures do not require planning permission. Need to understand how areas at flood risk correlate with designated features and the Historic Environment Character Zones.
Landscape	The Borough stretches across the Thames Valley floodplain and comprises diverse urban and rural landscapes, including National Trust and Crown Estate land. 83% of the borough is Green Belt. This and the presence of particular areas of landscape character, plus	Need to understand how flood risk correlates with Areas of Outstanding Natural Beauty (AONB) and landscape character areas.

Table 3.1 Key Issues by SEA Topic		
Topic (s)	Key Issues	Role of the LFRMS in addressing the issue
	land at risk of flooding, heavily constrains opportunities for the location of development. There are two Areas of Special Landscape Importance (ASLIs) including Windsor Great Park. These also constrain development opportunities. The River Thames is one of the borough's most significant landscape features and has an important role in providing leisure and tourist attractions. There is a lack of some types of public open space in the borough.	

4. The SEA Framework

4.1. Introduction

4.1.1. The SEA Framework sets out the objectives, criteria, assumed mitigation and proposed 'scoring' system used for assessing the measures proposed by the LFRMS. The SEA scoring system ranges from 'significant negative' to 'significant positive'. The assessment process takes into account a variety of factors including baseline data and the plan policy context, but ultimately any score awarded is a matter of professional judgement. Table 4.2 presents the SEA Framework.

4.2. The SEA Framework

4.2.1. The Framework draws on the objectives used for the Borough's development plan, Local Transport Plan and also reflects WSP UK's experience of developing frameworks for other plans and programmes. For example landscape and built heritage have been given their own objectives rather than a combined objective.

4.2.2. It should be noted that when compiling the Framework consideration was given to the 'zone of influence' of the LFRMS'. For example, the LFRMS has a specific zone of influence in relation to health associated with flood risk but cannot influence other public health issues such as obesity and heart disease.

4.2.3. The SEA Framework defines what are considered to be significant positives through to significant negatives for each objective, with the aims of achieving transparency in the assessment process and consistency across the assessment of different elements of the LFRMS. In setting out the definitions, due regard has been made to the assumed mitigation. The purpose of the assumed mitigation is to highlight policies and regulations external to the LFRMS that any development would need to comply with. As such, issues addressed by the assumed mitigation have been taken as a given when undertaking the assessment.

4.2.4. The criteria that support the objectives are intended as a reference to the sort of effects that a given objective may have. They are not intended to be used as a checklist against which all measures will be judged. Whilst all of the criteria will have been considered when assessing potential effects, not all of the criteria are referred to in the supporting commentary. This is because in the interests of brevity, the commentary seeks to discuss the most relevant issues for each objective. To comment on every issue for every objective (whether relevant or not) would be impractical, unreadable and due to the sheer volume of comments produced would not effectively inform the decision-making process. Ultimately the aim of the SEA is to help identify potential significant effects (both positive and negative) and suggest mitigation and enhancement.

4.2.5. In developing the framework the Department for the Environment, Food and Rural Affair's (Defra) guidance on what sustainable development means in the context of flood risk has been taken into account. Key points from the guidance are:

1. **Risk Management.** Manage flood and coastal erosion risks to people and property, the economy and the environment;
2. **Adaptation**. Take account of climate change and other long-term uncertainties in decision making;
3. **Resilience.** Develop infrastructure and buildings which perform satisfactorily under a wide range of lifetime flood and coastal erosion loadings, without suffering permanent loss of functionality during extreme events;
4. **Integration.** Develop solutions that integrate flood and coastal erosion risk management as part of integrated catchment management and coastal zone management;

5. **Engagement.** Work with all those affected by flooding and coastal erosion, empowering those affected to take appropriate actions to reduce risks;
6. **Appraisal.** Adopt appraisal methods that are rigorous, coherent and open and consider long term social, environmental and economic costs and benefits;
7. **Environment.** Protect natural and heritage assets and enhance the environment where it is most degraded;
8. **Consumption & Production**. Promote sustainable consumption and production in all flood and coastal erosion risk management activities;
9. **Knowledge.** Develop the knowledge, skills and awareness to improve our understanding of risk and to promote sustainable solutions; and
10. **Well-being and social justice**. Ensure that FCERM activities continue to contribute to community well-being and address issues of social justice.

4.3. Relationship between the SEA Directive topics and the Objectives

4.3.1. Table 4.1 below shows the relationship between the topics in the SEA Directive and the Objectives in the SEA Framework. It was proposed to scope out 'Air quality' on the grounds that the LFRMS is unlikely to significantly affect this topic. We understand that this approach is consistent with the Strategic Environmental Assessment undertaken for another recent SEA of a Local Flood Risk Management Strategy[5] .

Table 4.1: SEA Topics & Objectives

Topic	Objective(s)
Biodiversity, Flora and Fauna	Objective 1
Population	Objective 2 and Objective 5
Human Health	Objective 2
Soil	Objective 3
Water	Objective 4
Climatic factors	Objectives 5 and 6
Material assets	Objective 7
Cultural heritage	Objective 8
Landscape	Objective 9

[5] Kirklees Local Flood Risk Management Strategy Strategic Environmental Assessment Report, LUC, June 2012

Table 4.2: SEA Framework			
Proposed SEA Headline objectives	**Sub-Objectives/Criteria**	**Assumed mitigation**	**Approach to scoring for LFRMS**
1. To conserve and enhance the borough's biodiversity.	Will LFRMS help avoid a net loss, damage to, or fragmentation of designated wildlife sites and the populations of qualifying habitats and species? Will LFRMS help promote opportunities for people to come into contact with flourishing wildlife places whilst encouraging respect for and raising awareness of the sensitivity of these sites? Will the LFRMS impact on wildlife corridors? Will the LFRMS help ensure that new infrastructure incorporates ecological enhancements?	The Conservation of Habitats and Species Regulations 2010 protect listed species. It is assumed that there will be on-going monitoring of the condition of statutory designated sites by Natural England.	++ Measures that promote landscape scale biodiversity enhancements Measures ensure that new infrastructure incorporates ecological enhancements. Measures help promote opportunities for people to come into contact with flourishing wildlife places.
			+ Measures avoid net loss, damage to, or fragmentation of designated wildlife sites and the populations of qualifying habitats and species.
			- Measures potentially harm locally designated habitats
			-- Potential harm to nationally designated habitats. AND / OR Lead to fragmentation of existing corridors/ spaces
2. To improve health and well- being and reduce inequalities	Will the LFRMS contribute to community well-being Will the LFRMS contribute to social justice	Emergency Plans will be prepared for major events, including severe weather events. Communities are already being supported by the Borough in preparing their own plans to manage flood risk, as advocated by the Environment Agency.	++ LFRMS demonstrably reduces health risk associated with flooding events
			+ LFRMS will indirectly reduce health risk associated with flooding events
			- LFRMS will indirectly increase health risk associated with flooding event.
			-- LFRMS demonstrably increases health risk associated with flooding events
3. To protect soils and	Does the LFRMS reduce soil	A Good practice guide for handling	++ Measures directly support the Local Geodiversity Action Plan and/or protect

Table 4.2: SEA Framework			
Proposed SEA Headline objectives	**Sub-Objectives/Criteria**	**Assumed mitigation**	**Approach to scoring for LFRMS**
Geodiversity	erosion? ▪ Does the LFRMS support the Berkshire Local Geodiversity Action Plan? Does the LFRMS encourage the recycling and recovery of soils in construction?	soils was published by MAFF in April 2000 and provides advice in relation to soil stripping, replacement and decompaction	soils + Measures indirectly support the Local Geodiversity Action Plan and/or protect soils - Measures would indirectly work against the Local Geodiversity Action Plan and/or fail to protect soils - - Measures would directly work against the Local Geodiversity Action Plan and/or fail to protect soils
4. To maintain and improve the water quality of the borough's rivers and ground waters, and to achieve sustainable water resources management.	Will the LFRMS help to protect foul drainage, sewage treatment facilities and surface water drainage? Will the LFRMS help improve the ecological status of groundwater and surface water?	River Basin Management Plan provides the context for working towards targets in the Water Framework Directive. Environmental Permitting (England and Wales) Regulations 2010 provide protection against pollution of rivers and groundwaters. It is assumed that Environment Agency Pollution Prevention Guidelines for construction works will be adhered to, including: ▪ PPG 1: General Guide to the Prevention of Pollution of Water Resources; ▪ PPG 5: Works in, Near, or Liable to Affect Water Courses; ▪ PPG 6: Working at Construction and Demolition Sites; and ▪ PPG 8: Safe Storage and Dis-	++ Measures will directly help to improve water quality + Measures indirectly improve water quality - Measures indirectly worsen water quality -- Measures directly impact on water quality

Table 4.2: SEA Framework			
Proposed SEA Headline objectives	**Sub-Objectives/Criteria**	**Assumed mitigation**	**Approach to scoring for LFRMS**
		posal of Oils.	
5. To reduce the risk of flooding and the resulting detriment to public well-being, the economy and the environment.	Will the LFRMS contribute to a catchment based approach to managing flood risk? Will the LFRMS help reduce flood risk? Will the LFRMS encourage infrastructure and new building to adopt sustainable drainage and other relevant mitigation measures?	The National Planning Policy Framework and Core Strategy provide the policy context for development and flood risk.	++ Policies avoid areas at risk of flooding and mitigate against any increase in flood risk associated with new development
			+ Policies adopt sequential approach to flood risk and mitigate against any increase in flood risk associated with new development
			- Potential for development within area of high flood risk and failure to mitigate against any increase in flood risk
			-- Potential for development within area of very high flood risk and failure to mitigate against any increase in flood risk.
6. To address the causes of climate change through reducing emissions of greenhouse gases and ensure that the borough is prepared for its impacts	Will LFRMS encourage developments / infrastructure that is energy efficient in design and construction? Will the LFRMS ensure new infrastructure is adapted to the unavoidable effects of climate change?	National Planning Policy Framework and Core Strategy provide policy context in relation to climate change adaptation and mitigation.	++ Measures directly encourage sustainable design and construction. ++Measures directly promote climate change adaptation for infrastructure and new development, ++ Measures enable adaptation in existing developed areas
			+ Measures encourage sustainable design and construction. +Measures encourage climate change adaptation for infrastructure and new development, + Measures encourage adaptation in existing developed areas.
			- LFRMS somehow indirectly works against climate change adaptation or mitigation.

Table 4.2: SEA Framework			
Proposed SEA Headline objectives	**Sub-Objectives/Criteria**	**Assumed mitigation**	**Approach to scoring for LFRMS**
			-- LFRMS directly works against climate change adaptation or mitigation.
7. To protect material assets	Does the LFRMS protect the infrastructure listed in Table 2.1	The National Planning Policy Framework and Core Strategy provide the policy context for development and flood risk.	++ Measures directly protect infrastructure
			+ Measures indirectly protect infrastructure.
			- Measures would indirectly increase infrastructure's vulnerability to flood risk
			-- Measures would directly increase infrastructure's vulnerability to flood risk
8. To conserve and enhance the built, cultural and historic environment	Does the LFRMS protect such assets and/or their setting?	Any measures promoted through the LFRMS that constitute development may require Planning permission in addition to listed building, conservation area or scheduled monument consent	++ Measures would directly protect an asset and/or its setting
			+ Measures would indirectly protect an asset and/ or its setting
			- Measures would indirectly impact on an asset and/ or its setting
			-- Measures would directly impact an asset and/ or its setting
9. To conserve and enhance the character of the landscape	Does the LFRMS conserve and enhance the landscape?	None identified	++ Measures protect/enhance landscape assets
			+Measures protect other elements of the landscape.
			- Potential negative impact on other elements of the landscape.
			-- Measures which would be detrimental to elements of the landscape.

5. Results from the Assessment

5.1. Introduction

5.1.1. This section sets out the results of the assessment. It sets out the proposed mitigation and enhancement measures and identifies the conclusions[6].

5.2. Assessing the LFRMS

5.2.1. The LFRMS has 7 objectives, each with associated measures/actions. The measures/actions have been designed to act as a cohesive set of measures that function together to deliver the objective. For this reason, the SEA assesses the LFRMS Objectives – including the associated management measures – against the SEA Objectives as this most closely reflects how the LFRMS is intended to function in practice and allows for a better understanding of the interactions between the management measures.

5.2.2. The Objectives of the LFRMS, and the associated a management measures, are as follows:

- **LFRMS Objective 1):** Develop a clear understanding of flood risk within the Royal Borough of Windsor and Maidenhead and increase public awareness:
  - **M/A 1:** Develop investigations policy and implement this policy when investigating flood events;
  - **M/A 2:** Develop and maintain a live database of flood incidents in the borough**;**
  - **M/A 3:** Develop a flood incident database on GIS; and
  - **M/A 4:** Undertake catchment studies, or surface water management plans, in vulnerable catchments.
- **LFRMS Objective 2):** Establish and maintain effective partnerships with key organisations and local communities, to deliver a sustainable, cost effective approach to flood risk management that reduces flood risk and delivers wider environmental and social economic benefits where possible:
  - **M/A 5**: Continue to work with the Environment Agency, Thames Water and other LLFAs engaged in the Berkshire 5 Strategic Flood Risk Management Partnership;
  - **M/A 6**: Continue to engage with the Environment Agency, Thames Water and local communities via the Borough Flood Forum and Parish Flood Group;
  - **M/A 7:** Develop a collaborative approach to flood risk management within the Borough working with professional partners to identify potential flood alleviation schemes;
  - **M/A 8:** Publish roles and responsibilities of local RMAs on the Borough website;
- **LFRMS Objective 3)**: Ensure that land use planning and application decisions take full account of flood risk, avoiding development in inappropriate locations, minimising and preventing an increase in flood risk wherever possible:
  - **M/A 9**: Develop and apply robust spatial planning policy relating to flood risk from all sources, ensuring that the policy is current, and can easily be taken into account during the planning process;

[6] Defra Guidance for risk management authorities on sustainable development in relation to their flood and coastal erosion risk management functions, October 2011

- **M/A 10**: Ensure that new strategic development sites consider flood risk on and off site and provide betterment wherever possible;
- **M/A 11**: Undertake appropriate review and assessment of flood risk implications and drainage provisions of new development as part of the planning process;
- **M/A 12**: Develop a procedure to allow the efficient and effective implementation of the SAB and SuDS; and
- **M/A 13**: Develop a guidance document for SuDS setting out local standards that will be required for SuDS within the Borough in addition to the National Standards requirements.

- **LFRMS Objective 4):** Develop plans to reduce existing flood risk taking account of people, communities and the environment:
  - **M/A 14:** Develop and implement a procedure relating to the "designation" of third party assets;
  - **M/A 15:** Produce a guidance note on Riparian owners' responsibilities for the maintenance of ordinary watercourses;
  - **M/A 16:** Review the Borough's Land Drainage Enforcement policy and implement policy;
  - **M/A 17:** Utilise data collected from flooding investigations and live database of flood incidents to identify areas at risk of flooding; and
  - **M/A 18:** Review and develop the prioritisation process against which Borough funded flood risk management schemes are assessed.
- **LFRMS Objective 5)**: Ensure that emergency plans and responses to flood incidents are effective and that communities are prepared and resilient to local flood risk:
  - **M/A 19**: Review the Royal Borough of Windsor and Maidenhead Major Incident Plan on an annual basis and as further information on flood risk across the Borough becomes available;
  - **M/A 20**: Work with the Environment Agency on the development and implementation of the River Thames Scheme Major Incident Plan;
  - **M/A 21**: Continue to oversee the Parish Council Flood Warden scheme; and
  - **M/A 22:** Work with and encourage communities to produce Community Resilience Plans that consider flooding emergencies.
- **LFRMS Objective 6)**: Identify national, regional and local funding mechanisms to deliver flood risk management solutions and schemes:
  - **M/A 23:** Work with RMAs and community groups to identify possible sources of funding for flood risk management schemes;
  - **M/A 24:** Work with RMAs and community groups to actively apply for government funding to implement flood risk management schemes;
  - **M/A 25:** Develop a timeline for funding opportunities and publicise this timeline to at risk communities that would benefit from possible flood risk management schemes;
  - **M/A 26:** Use prioritisation process to produce a long list of flood risk management schemes in order of priority, potential funding mechanisms which can be used to deliver each scheme, and the need for and potential for partnership funding; and
  - **M/A 27:** Work with local communities to raise awareness of planned flood risk management schemes, the prioritisation process and the need for and benefits of partnership funding.
- **LFRMS Objective 7)** Work in partnership with the Environment Agency, professional partners, other stakeholders and communities to deliver effective schemes to alleviate flood risk from the River Thames:
  - **M/A 28:** Actively participate in the River Thames Sponsors Board to explore possible means of achieving partnership funding;

- **M/A 29:** Actively participate in the River Thames Programme Board to ensure the development and implementation of a scheme that effectively alleviates flood risk downstream of the confluence of the Thames and the Jubilee River;
- **M/A 30:** Communicate progress on River Thames Scheme to affected communities via community engagement processes; and
- **M/A 31:** Where appropriate work in partnership with the Environment Agency, professional partners, other stakeholders and communities to explore possible means of achieving partnership funding and the development and implementation of effective fluvial flood alleviation schemes.

5.2.3. Table 4.1 sets out a summary of the findings of the SEA. The full matrices can be found in Appendix C.

Table 4.1: Assessment Summary

SEA Headline objectives	LFRMS Objectives						
	1	2	3	4	5	6	7
1. To ensure biodiversity is conserved and enhanced	0	0	+	+	0	0	++
2. To improve health and well-being and reduce inequalities	+	+	+	+	++	0	0
3. To protect soils and Geodiversity	0	0	+	0	0	0	++
4. To maintain and improve the water quality of the district's rivers and ground waters.	++	++	+	++	0	+	++
5. To ensure that flood risk is not increased and where possible minimised	++	++	++	++	++	+	+
6. To Reduce emissions contributing to climate change and ensure adaptive measures are in place to respond to climate change	0	+	+	0	0	0	0
7. To protect material assets	++	++	+	++	+	0	++
8. To conserve and enhance the built, cultural and historic environment	++	+	0	+	+	0	++
9. To conserve and enhance the character of the landscape	0	0	0	0	0	0	++

Key

Potential major positive effect	++
Potential minor positive effect	+
Uncertain	?
No or negligible effect	0
Potential minor negative effect	-
Potential major negative effect	- -

5.3. Assessing the LFRMS against Defra's high level themes

5.3.1. Early on in the assessment process the LFRMS was considered against the ten high level themes for sustainable development that apply to flood risk management identified by Defra. In undertaking this analysis account was taken of the extent to which other policy documents already contribute to these objectives.

5.3.2. The key observations were (with recommendations shown in bold):

- **Theme 2: Adaptation** – Although climate change is recognised in the Strategy as an issue, Climate change adaptation is not addressed in the Strategy. Given the vulnerability of the area to flood risk it would make sense for future development to demonstrate how it has been adapted in response to flood risk. **There could be an action around ensuring that the local authority develops promotes climate change adaptation measures in future developments**;
- **Theme 3: Resilience** – This theme is fully addressed within the LFRMS;
- **Theme 4**: **Appraisal** - The Strategy is not clear on the appraisal methods that will be used in future decision making. **There could be an action in relation to developing appraisal methods;**
- **Theme 7: Environment -** This theme is fully addressed within the LFRMS**;**
- **Theme 8: Consumption and production -** The Strategy does promote sustainable design and construction in relation to sustainable drainage systems but **could go further by requiring all hard measures to promote sustainable consumption and production;**
- **Theme 9: Knowledge** - The understanding of risk is promoted by measures in the strategy but measures to promote sustainable solutions are not fully developed. **The Strategy could encourage a catchment based approach – looking to identify opportunities up-stream for reducing run-off and increasing storage capacity;** and
- **Theme 10 – well - being and social justice -** This theme is fully addressed within the LFRMS.

5.3.3. The outcomes of this assessment process were fed into the LFRMS development process to provide a steer as to the key sustainability issues.

5.4. Outcomes of the SEA of the LFRMS

5.4.1. Set out here are the key findings from the assessment of each LFRMS objective and associated management measure. The full assessment matrices can be found in Appendix C.

Objective 1): Develop a clear understanding of flood risk within the Royal Borough of Windsor and Maidenhead and increase public awareness.

5.4.2. The measures and actions associated with this objective seek to improve the awareness and understanding of flood risk in RBWM.

5.4.3. A key action for this objective is to undertake catchment studies, or surface water management plans, in RBWM's vulnerable catchments. This would be expected to not only benefit flood risk management in the borough but would also be expected to improve water quality through the control of pollution. By improving the knowledge and understanding of assets at risk of flooding, this objective would also benefit material assets and the historic environment by minimising the risk of damage from flooding

Objective 2): Establish and maintain effective partnerships with key organisations and local communities, to deliver a sustainable, cost effective approach to flood risk management that reduces flood risk and delivers wider environmental and social economic benefits where possible.

5.4.4. The management measures that support this objective relate to working in partnership to deliver flood risk management solutions. The measures identified would seek to engage with a broad range of key stakeholders to ensure the successful delivery of the plan. This is a key step in ensuring that best practice with regards to flood risk is disseminated

Objective 3): Ensure that planning and decisions take full account of flood risk, avoiding development in inappropriate locations minimising and preventing an increase in flood risk wherever possible.

5.4.5. The measures associated with this objective seek to ensure that planning decisions consider flood risk. Measures to ensure that local standards for SuDS are implemented to a high standard will contribute to flood risk. The measures under this objective also seek to ensure detailed consideration of flood risk during the planning application process, seeking betterment where possible and reducing overall flood risk.

Objective 4): Develop plans to reduce existing flood risk taking account of people, communities and the environment.

5.4.6. This objective will ensure that riparian land owners are aware of their flood risk responsibilities. This would be expected to reduce flood risk and also benefit local biodiversity through the utilisation of appropriate habitat management techniques. The measures under this objective will also seek to identify those areas most at risk of flooding and prioritise the schemes that would be expected to have the greatest benefit, reducing flood risk.

Objective 5): Ensure that emergency plans and responses to flood incidents are effective and that communities are prepared and resilient to flood risk.

5.4.7. This objective focuses on emergency planning and ensuring that everyone is aware of their roles and responsibilities. As such, the primary benefit is for the health and wellbeing of local residents as it would be expected that flood will present a lower risk to life. The objective will also see emergency measures put in place that will mean communities are resilient to local flood risk. These measures would also be expected to minimise flood risk by ensuring a prompt and coordinated response by all involved when flooding occurs.

Objective 6): Identify national, regional and local funding mechanisms to deliver flood risk management solutions and schemes.

5.4.8. This objective focuses on securing funding mechanisms for local flood risk management. Whilst this is an essential part of flood risk management, it's direct and indirect effects on the environment are both limited and difficult to identify as it depends on exactly how the funding is utilised. Nonetheless assuming that the funding would be utilised to deliver initiatives identified elsewhere in the LFRMS, benefits in terms of reducing flood risk and the risk of pollution were identified.

Objective 7) Work in partnership with the Environment Agency, professional partners, other stakeholders and communities to deliver effective schemes to alleviate flood risk from the River Thames.

5.4.9. This objective seeks to ensure that a broad range of stakeholders opinions are taken into account. As such it would be expected to have a range of benefits by ensuring that appropriate stakeholders are consulted with regards to the protection of the environment. As such, benefits would be expected for biodiversity, soils and geodiversity, water quality, material assets, the historic environment and landscape character.

5.5. Secondary, cumulative and synergistic effects

5.5.1. Many sustainability problems result from the accumulation of multiple small and often indirect effects, rather than a few large and obvious ones.

5.5.2. Appendix 8 of the Practical Guide to the SEA Directive provides guidance on the assessment of such effects and regard has been had to this in undertaking the work. The work is reported separately for transparency but consideration has been given to the potential for such effects throughout the assessment, all of the effects associated with the Action Plan are considered to be indirect (or secondary) because of the nature of the actions.

5.5.3. The Practical Guide to the SEA Directive defines the three terms as follows:

Secondary effects *or indirect effects are effects that are not a direct result of the plan, but occur away from the original effect or as a result of a complex pathway. Examples of secondary effects are a development that changes a water table and thus affects the ecology of a nearby wetland; and construction of one project that facilitates or attracts other developments.*

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 plan (e.g. noise, dust and visual) have a combined effect.*

Synergistic effects *interact to produce a total effect greater than the sum of the individual effects. Synergistic effects often happen as habitats, resources or human communities get close to capacity. For instance a wildlife habitat can become progressively fragmented with limited effects on a particular species until the last fragmentation makes the areas too small to support the species at all.*

5.5.4. The potential for cumulative and synergistic effects is considered in Table 4.2 below:

Table 4.2 Consideration of cumulative and synergistic effects

SEA Headline objectives	Potential for cumulative and synergistic effects
1. To ensure biodiversity is conserved and enhanced	It is expected that the management measures would have a cumulative positive effect on biodiversity through the creation and enhancement of habitats associated with schemes to manage flood risk, taking into account the safeguards present at the project stage.
2. To improve health and well-being and reduce inequalities	Reducing flood risk and improving the ability of communities to respond to future events could have cumulative positive effects in relation to this objective.
3. To protect soils and geodiversity	No cumulative effects identified.
4. To maintain and improve the water quality of the district's rivers and ground waters.	There is the potential for cumulative benefits if a number of measures combine to reduce or prevent, for example, pollution to a watercourse.
5. To ensure that flood risk is not increased and where possible minimised	The measures and actions are designed to act synergistically to achieve this objective.
6. To Reduce emissions contributing to climate change and ensure adaptive measures are in place to respond to climate change	Primarily through improving RBWM's ability to deal with increased rainfall and in turn flooding events predicted to occur as a result of climate change, the management measures are expected to act cumulatively to achieve this objective.
7. To protect material assets	A number of positive effects have been identified for this objective and there is the potential for these to act cumulatively.
8. To protect and enhance the built, cultural and historic environment	A number of positive effects have been identified for this objective and there is the potential for these to act cumulatively taking into account the safeguards that exist at the project stage.
9. To conserve and enhance the character of the landscape	Measures could have a cumulative positive effect on the landscape and urban areas, for example through the creation of ponds.

5.6. Conclusions and Recommendations

5.6.1. The assessment of the LFRMS has not identified any instances where potential significant negative effects are anticipated. The main positive effects identified were associated with flood risk, water quality and the protection of material assets. These effects are anticipated to be indirect, long-term and reversible.

5.6.2. The LFRMS operates at a strategic level, with the potential for different outcomes depending on how the measures and actions are implemented on the ground. Where measures and actions would be expected to lead to development, the development itself would be subject to technical assessments that will require planning permission, and if necessary Environmental Impact Assessment (EIA) and screening for Appropriate Assessment.

5.6.3. Due to the early assessment work undertaken on the LFRMS comparing it to Defra's high level themes, the LFRMS team were able to take on board and action the key sustainability messages early on in the development of the LFRMS. As such there are not many outstanding recommendations from the SEA. The key recommendations from the assessment are:

- The role of climate change adaptation could be given greater emphasis in the LFRMS;
- The LFRMS could emphasise the need to consider environmental enhancements as a part of the management of flood risk infrastructure; and
- The LFRMS should highlight that other organisations should also consider the potential to contribute to wider sustainability objectives in fulfilling their responsibilities.

6. Next Steps

6.1. Introduction

6.1.1. This section discusses monitoring and next steps.

6.2. Monitoring

Measures proposed for monitoring are clear, practicable and linked to the indicators and objectives used in the SEA.	Act Regulation 17 Act Schedule 2(9)
Monitoring is used, where appropriate, during implementation of the plan to make good deficiencies in baseline information in the SEA and to ensure effectiveness of mitigation.	Act Regulation 17 Act Schedule 3(9)
Monitoring enables unforeseen adverse effects to be identified at an early stage. (These effects may include predictions which prove to be incorrect.)	Act Regulation 17 Act Schedule 3(9)
Procedures are stated for the identification of actions required in response to significant adverse effects identified through monitoring.	Practical Guide to the SEA Directive Appendix 9.

6.2.1. The SEA Directive requires monitoring to identify unforeseen adverse effects and to enable appropriate remedial action to be taken (Article 10.1 refers). The factors to be monitored include:

Biodiversity;

Human health;

Flora;

Water;

Material assets;

Landscape.

Population;

Fauna;

Soil;

Climatic factors;

Cultural heritage;

6.2.2. The LFRMS is closely related to the Local Plan and there may be potential to co-ordinate monitoring requirements between these documents. It is proposed that a comprehensive review should be undertaken of the LFRMS in 2017. This will follow the review of the National Strategy in 2016, coinciding with the review of the Windsor and Maidenhead Preliminary Flood Risk Assessment required under the Flood Risk Regulations and follow a review of the Thames River Basin Management Plan which will commence in approximately 2016. This review will provide the opportunity to monitor the outcomes of the SEA.

6.1 Post-consultation issues

The Environmental Report identifies how the information within it has been used to inform the preparation of the plan or programme.	Act Regulation 16(4)(a)
The Environmental Report demonstrates how every consultation response has been taken into account in preparation of the plan or	Act Regulation 16(4)(C and D)

programme.	

6.2.3. These matters will be discussed in the Post-Adoption Statement that is produced at the end of the SEA process.

6.2.4. This Draft Environmental Report will be consulted on and a final version of the report produced in light of comments on the draft and any further changes to the LFRMS that have a bearing on the findings of the SEA.

WSP UK Ltd
WSP House
70 Chancery Lane
London
WC2A 1AF
UK
Tel: +44 (0)20 7406 7190
Fax: +44 (0)20 7314 5111
www.wspgroup.com

Appendix A: Review of Plans and Programmes

Document Name:	The Natural Environment and Rural Communities Act
Date of Publication:	2006
Level:	National
Status:	Statutory

Brief Overview:

An Act to make provision about bodies concerned with the natural environment and rural communities; to make provision in connection with wildlife, sites of special scientific interest, National Parks and the Broads; to amend the law relating to rights of way; to make provision as to the Inland Waterways Amenity Advisory Council; to provide for flexible administrative arrangements in connection with functions relating to the environment and rural affairs and certain other functions; and for connected purposes.

Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. They include terrestrial habitats such as upland hay meadows to lowland mixed deciduous woodland, and freshwater and marine habitats such as ponds and sub tidal sands and gravels.

There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. In addition, the Hen Harrier has also been included on the list because without continued conservation action it is unlikely that the Hen Harrier population will increase from its current very low levels in England.

In accordance with Section 41(4) the Secretary of State will, in consultation with Natural England, keep this list under review and will publish a revised list if necessary.

Relevance to / Implications for LFRMS:

Places a duty on flood authorities to have regard, so far as is consistent with the proper exercise of their functions, to conserve biodiversity, including restoring or enhancing species populations or habitats.

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Conflicts between objectives / requirements:

Potential conflict if RBWM fails in its duty to have, so far as is consistent with the proper exercise of their functions, to conserve biodiversity, including restoring or enhancing species populations or habitats.

Document Name:	**The Natural Environment White Paper (The Natural Choice: Securing the Value of Nature)**
Date of Publication:	2011
Level:	National
Status:	Statutory

Brief Overview:

The first Government White Paper dealing with the natural environment in over 20 years, marking the most significant shift in environmental policy for a generation *"by 2060, our essential natural assets will be contributing fully to robust and resilient ecosystems, providing a wide range of goods and services so that increasing numbers of people enjoy benefits from a healthier natural environment."*

The Natural Environment White Paper sets out how together we can start to tackle the challenges ahead, for example, by:

- Giving local people more involvement in the natural environment and helping them to realise the benefits.
- Helping to develop a thriving green economy, developing payments for ecosystem services and addressing barriers to using green infrastructure to promote sustainable growth.
- Helping to deliver the Government's ambitions for resilient ecological networks, biodiversity recovery, sustainable agriculture, healthy woods and forests, an improved water environment and a better protected marine environment.
- Taking action to address the risks and consequences of climate change and other pressures.
- Delivering conservation at the landscape scale, including through Nature Improvement Areas.
- Further improving how we monitor progress and provide access to environmental information.

Relevance to / Implications for LFRMS:

The LFRMS should take into account the elements of this framework and be used to manage any increased risk of flooding.

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

- New Nature Improvement Areas (NIAs), transforming rural and urban areas and providing bigger, connected sites for wildlife to live in and adapt to climate change.
- Biodiversity offsetting – new way for developers to ensure we don't lose wildlife sites and make them better by making and improving other sites.
- New Local Nature Partnerships to strengthen joined-up action across local agencies and organisations,
- Phasing out peat - working with the horticulture industry to phase out peat use, which will help to protect and restore our peat lands, which are valuable carbon sinks, habitats and part of our ecological network.
- Green Areas Designation allowing local communities to give protection to areas that are important to them for recreation, the view or their importance for wildlife.
- Better urban green spaces for the benefit of cities and towns. Support for parks, gardens, and tree planting which benefit people and nature alike
- More children experiencing nature by learning outdoors, through practical support to schools and reducing red-tape for outdoor learning.
- Strengthening local public health activities which connect people with nature for better health
- A new environmental volunteering initiative ("Muck in 4 Life") to improve places in towns and

countryside for people and nature to enjoy.

- Natural Capital Committee – an independent body to report to the Government's economic affairs committee to put the value of nature at the heart of the Government's economic thinking, and advise Government about the best way of securing our natural assets for the future.
- An annual statement of green accounts for UK Plc to help measure green growth alongside GDP.
- A business-led Task Force to expand the UK business opportunities from new products and services which are good for the economy and nature alike.

Conflicts between objectives / requirements:

Potential for conflicts if the LFRMS impacts on green space provision and/or biodiversity.

Document Name:	**The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003**
Date of Publication:	2003
Level:	National
Status:	Statutory

Brief Overview:

The Water Framework Directive (WFD) is designed to improve and integrate the way water bodies are managed throughout Europe. In the UK, much of the implementation work will be undertaken by competent authorities. It came into force on the 22nd December 2000, and was put into UK law (transposed) in 2003. Member States must aim to reach good chemical and ecological status in inland and coastal waters by 2015 subject to certain limited exceptions. It is designed to:

- enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands which depend on the aquatic ecosystems
- promote the sustainable use of water
- reduce pollution of water, especially by 'priority' and 'priority hazardous' substances
- ensure progressive reduction of groundwater pollution
- The WFD establishes a strategic framework for managing the water environment. It requires a management plan for each river basin to be developed every 6 years. The plans are based on a detailed analysis of the impacts of human activity on the water environment and incorporate a programme of measures to improve water bodies where required. In December 2009 the Environment Agency (the "competent authority" responsible for implementation of the WFD) published the first set of River Basin Management Plans for England and Wales.

Relevance to / Implications for LFRMS:

The WFD uses the same unit of management (river basin districts) as the Floods Directive (see below) and is based on the same 6 year cycle of planning. There is a requirement to coordinate delivery of the two directives, and the Environment Agency is responsible for this in England and Wales. There are 11 river basin districts that are partly or fully in England and Wales (RBWM lies within the Thames River Basin District).

To meet the requirements of the WFD and improve water quality and quantity within rivers, estuaries, coasts and aquifers, River Basin Management Plans have been prepared for all river basin districts by the Environment Agency, in consultation with organisations and individuals. They contain the main issues for the water environment and the actions we needed to deal with them.

Water quality and quantity is linked to the LFRMS as flooding events can lead to water pollution and changes in water levels.

Specific Targets / Requirements / Indicators:

In order to achieve 'good surface water status' both the ecological status and the chemical status of a surface water body need to be at least 'good'.

Environmental Protection Objectives:

The specific objective contained in the WFD is to achieve good qualitative and quantitative status of all water bodies (including marine waters up to one nautical mile from shore) by 2015.
The objectives for water quality cover general protection of the aquatic ecology, specific protection of unique and valuable habitats, protection of drinking water resources, and protection of bathing water. All these objectives must be integrated for each river basin. The last three - special habitats, drinking water areas and bathing water - apply only to specific bodies of water (those supporting special wetlands; those identified for drinking water abstraction; those generally used as bathing areas). In contrast, ecological protection should apply to all waters.

Conflicts between objectives / requirements:

N/A

Document Name:	**Flooding – Minimising the Risk**

Date of Publication:	2012
Level:	National
Status:	Non-Statutory

Brief Overview:

In England, the Environment Agency has the strategic overview for flood risk management from all causes of flooding, including rivers, the sea, groundwater, reservoirs and surface water. The Environment Agency works with Council's to make people aware of flood risk.

The Environment Agency have calculated that in England:

- One in six homes is at risk of flooding;
- Over 2.4 million properties are at risk of flooding from rivers or the sea, of which nearly half a million are at significant risk;
- One million of these are also vulnerable to surface water flooding with a further 2.8 million properties susceptible to surface water flooding alone;
- 55% living in flood risk areas knew they were at risk and for these three out of five of them had taken some action to prepare for flooding;
- 430,000 people have signed up for the Environment Agency Floodline Warnings Direct service;
- A sizeable part of the nation's important infrastructure and public services are in flood risk areas. For example, over 55% of water and sewage pumping stations/treatment works are in flood risk areas, with 34% at significant risk.

This guidance document is produced by the Environment Agency and is for anyone involved in supporting communities or groups to improve their ability to plan for a flood. This guidance outlines things to consider and steps that can be taken to inspire and involve residents, local communities and groups to work together to improve how they prepare for the risk of flooding.

Relevance to / Implications for LFRMS:

N/A

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

N/A

Conflicts between objectives / requirements:

N/A

Document Name:	**Flood and Water Management Act**
Date of Publication:	2010
Level:	National
Status:	Statutory

Brief Overview:

In April 2010, the Flood & Water Management Act became law. The Act, which applies to England & Wales, aims to create a simpler and more effective means of managing the risk of flood and coastal erosion. The Act also aims to help improve the sustainability of our water resources and protect against potential droughts. The Flood & Water Management Act aims to provide better, more sustainable management of flood risk for people, homes and businesses, help safeguard community groups from unaffordable rises in surface water drainage charges and protect water supplies to the consumer.

Under this strategic role, the duties and powers of the Environment Agency, the lead Competent Authority under the EU Floods Directive, includes:

- setting out of a national strategy for flood and coastal erosion risk management;
- developing the methods, framework and tools to understand and manage flooding from all sources;
- supporting the roles of local authorities and others in flood and coastal erosion risk management (FCERM), by providing them with information and guidance;
- assessing flood and coastal erosion risk on a national basis and determine spending priorities to manage those risks as well as allocating relevant funding in accordance with the priorities;
- consenting and enforcement powers in relation to any works or activities by any person which may directly impact on flooding from main rivers and the sea;
- responsibility for flood warning for all forms of flood risk.

LLFAs (unitary authorities or county councils) are responsible for developing, maintaining and applying a strategy for local flood risk management in their areas and for maintaining a register of flood risk assets. They also have lead responsibility for managing the risk of flooding from surface water, groundwater and ordinary watercourses. [1]

Relevance to / Implications for LFRMS:

The Act sets out the legislative requirement for the production of LFRMSs.

Specific Targets / Requirements / Indicators:

Requires Lead Local Flood Authorities to produce a LFRMS.

Environmental Protection Objectives:

N/A

Conflicts between objectives / requirements:

N/A

[1] DEFRA. Accessed From:

https://www.gov.uk/flood-risk-management-information-for-flood-risk-management-authorities-asset-owners-and-local-authorities

Document Name:	**Flooding and Historic Buildings**
Date of Publication:	2010
Level:	National
Status:	Non-Statutory

Brief Overview:

This advisory note provides guidance for home-owners, owners of small businesses and others involved with managing historic buildings on ways to establish flood risk and prepare for possible flooding by installing protection measures. It also recommends actions to be taken during and after a flood so as to minimise damage and risks.

Although most historic structures are inherently durable and are relatively resistant to flooding compared with much modern construction, they are still vulnerable. Many of these buildings are not only at risk from flood damage but also damage from inappropriate remedial works carried out by contractors who have little understanding of historic fabric. This can result in unnecessary removal and disposal of significant finishes and fittings as well as the use of unsuitable materials for the repairs. Too often like-for-like replacement is not carried out when repair works are put in hand.

This document advises on preparing for and dealing with a flood, and the correct procedures for minimising damage after a flood.

Relevance to / Implications for LFRMS:

N/A

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

N/A

Conflicts between objectives / requirements:

N/A

Document Name:	**National Flood and Coastal Erosion Risk Management Strategy**
Date of Publication:	2011
Level:	National
Status:	Non-Statutory

Brief Overview:

The risk of flooding and coastal erosion in England is predicted to increase due to climate change and development in areas at risk. It is not possible to prevent all flooding or coastal erosion, but there are actions that can be taken to manage these risks and reduce the impacts on communities. This flood and coastal erosion risk management (FCERM) strategy for England builds on existing approaches to managing risk. It aims to encourage the use of all of the available measures in a co-ordinated way that balances the needs of communities, the economy and the environment.

This strategy sets out a national framework for managing the risk of flooding and coastal erosion. It will help risk management authorities and communities understand their different roles and responsibilities and will be particularly relevant to Lead Local Flood Authorities (LLFAs) which have new responsibilities under the Flood and Water Management Act (2010). It addresses all forms of flooding and coastal erosion consistent with the definitions in the Act.

To do this it considers:

- how the current risk of flooding and coastal erosion may change;
- the measures that can be used to manage these risks;
- the functions of those involved in flood and coastal erosion risk management and how these organisations can work together better;
- how work will be paid for and the costs and benefits of the measures used;
- the guidance and advice available to help manage flood risk and coastal erosion.

This strategy aims to make sure that Defra, the Environment Agency, local authorities, water companies, internal drainage boards and other FCERM partners work together to:

- maintain and over time improve standards of protection against flood and coastal erosion risks where it is affordable to do so;
- increase the overall level of investment in flood and coastal erosion risk management to supplement central government expenditure;
- help householders, businesses and communities better understand and manage any flood and coastal erosion risks that they face;
- ensure fast and effective responses to and recovery from flood events when they do occur;
- give priority to investment in actions that benefit those communities which face greatest risk and are least able to afford to help themselves;
- encourage and support local innovation and decision making within the framework of river catchments and coastal cells;
- achieve environmental gains alongside economic and social gains, consistent with the principles of sustainable development.

The strategy also aims to clarify the responsibilities and roles of all the organisations involved in flood and coastal erosion risk management.

Relevance to / Implications for LFRMS:

The LFRMS is required to be in conformity with this Strategy.

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

The strategy encourages more effective risk management by enabling people, communities,

business, infrastructure operators and the public sector to work together to:

- ensure a clear understanding of the risks of flooding and coastal erosion, nationally and locally, so that investment in risk management can be prioritised more effectively;
- set out clear and consistent plans for risk management so that communities and businesses can make informed decisions about the management of the remaining risk;
- manage flood and coastal erosion risks in an appropriate way, taking account of the needs of communities and the environment;
- ensure that emergency plans and responses to flood incidents are effective and that communities are able to respond effectively to flood forecasts, warnings and advice;
- help communities to recover more quickly and effectively after incidents.

Conflicts between objectives / requirements:

N/A

Document Name:	**Guidance for Risk Management Authorities on Sustainable Development in Relation to their Flood and Coastal Erosion Management Functions**
Date of Publication:	2011
Level:	National
Status:	Non-Statutory

Brief Overview:

Section 27 of the Flood and Water Management Act 2010 requires certain flood and coastal erosion risk management authorities to aim to make a contribution towards the achievement of sustainable development when exercising their flood and coastal erosion risk management functions. It also requires the Secretary of State to issue guidance on how those authorities are to discharge this duty and explain the meaning of sustainable development in this context – this document does that.

Relevance to / Implications for LFRMS:

The guidance applies to Lead Local Flood Authorities. It provides background context about the application of sustainable development principles when discharging their duties to manage flood risk.

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

N/A

Conflicts between objectives / requirements:

N/A

Document Name:	**National Planning Policy Framework and associated Technical Guide**
Date of Publication:	2012
Level:	National
Status:	Non-Statutory

Brief Overview:

The National Planning Policy Framework (NPPF) has replaced the set of national planning policy statements and national planning policy guidance notes, bringing them into one document.

The NPPF is based around the presumption in favour of sustainable development. Sustainable development, for the planning system, is defined as:

- Planning for prosperity – using the planning system to build a strong, responsive and competitive economy
- Planning for people – using the planning system to promote strong, vibrant and healthy communities
- Planning for places – using the planning system to protect and enhance the natural, built and historic environment.

The presumption in favour of sustainable development requires a positive planning system to help facilitate economic growth. The NPPF requires that significant weight is placed on securing economic growth.

The NPPF contains several changes from the suite of policy guidance notes and statements that it is replacing:

- Replacing the local development framework with the local plan, that contain both policies and site allocations
- Discouraging the long term protection of employment land or floor space
- Removing the sequential test for offices
- Permission should be granted for housing where a 5 year supply (plus 20% contingency) is not in place – though this would be still subject to other policies and parts of the NPPF
- Local communities will be able to designate local green space

The NPPF introduces neighbourhood planning, neighbourhood development orders and community right to build schemes.

The Technical Guide to the NPPF carries over part of the guidance from the withdrawn PPS 25, including the Flood Zone system and the need for Strategic Flood Risk Assessments.

Relevance to / Implications for LFRMS:

The NPPF has replaced PPS25 along with the other PPSs and PPGs, and so comprises the national policy framework in relation to planning in areas of higher flood risk.

Specific Targets / Requirements / Indicators:

Several requirements for local planning authorities that are continued from existing national policy.

Environmental Protection Objectives:

N/A

Conflicts between objectives / requirements:

N/A

Document Name:	**Thames Catchment Flood Management Plan**
Date of Publication:	2009
Level:	Regional
Status:	Non-Statutory

Brief Overview:
The Catchment Flood Management Plan (CFMP_ identifies the scale and extent of flooding in the Thames Catchment both now and in the future. The CFMP aims to promote more sustainable approaches to managing flood risk. The CFMP identifies that in Windsor and Maidenhead, over 5,000 properties are at risk of flooding.

Relevance to / Implications for LFRMS:

- The CFMP identifies the following proposed actions to be undertaken by the Environment Agency with regards to sub-area 6 (which includes Lower Mole and Windsor and Maidenhead). The Environment Agency will:
- Continue to maintain the Lower Mole and Maidenhead Windsor and Eton Flood Alleviation Schemes.
- Work closely with Local Authorities to ensure that we are well prepared to respond to the consequences of flooding from other sources and extreme events.
- Work with our partners to ensure that any future development in these areas results in a reduction in the overall flood risk.
- Continue to make sure the recommendations in Strategic Flood Risk Assessments and Local
- Development Framework policies create the potential to reduce flood risk through adaptation of places at risk, and retaining open spaces in the floodplain.

Specific Targets / Requirements / Indicators:

N/A

- **Environmental Protection Objectives:**Windsor and Maidenhead comes under Policy Option 3: *Areas of low to moderate flood risk where we are generally managing existing flood risk effectively*. This policy is applied to areas where the risks are currently appropriately managed and where the risk of flooding is not expected to increase significantly in the future.

Conflicts between objectives / requirements:

N/A

Document Name:	**Maidenhead to Sunbury Catchment Abstraction Management Strategy**
Date of Publication:	2005
Level:	Regional
Status:	Non-Statutory

Brief Overview:

This Catchment Abstraction Management Strategy (CAMS) is a strategy for the management of water resources at a local level. This will make more information on water resources and licensing practice publicly available and allow the balance between the needs of abstractors, other water users and the aquatic environment to be considered in consultation with the local community and interested parties.

Relevance to / Implications for LFRMS:

The storage and abstraction of water in the Catchment, including groundwater could help alleviate flood risk.

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

N/A

Conflicts between objectives / requirements:

N/A

Document Name:	**River Basin Management Plan Thames River Basin District**
Date of Publication:	2009
Level:	Regional
Status:	Non-Statutory

Brief Overview:

This plan focuses on the protection, improvement and sustainable use of the water environment. Many organisations and individuals help to protect and improve the water environment for the benefit of people and wildlife. River basin management is the approach the Environment Agency is using to ensure our combined efforts achieve the improvement needed in the Thames River Basin District.

River basin management is a continuous process of planning and delivery. The Water Framework Directive introduces a formal series of six year cycles. The first cycle will end in 2015 when, following further planning and consultation, this plan will be updated and reissued.

The Thames River Basin District Liaison Panel has been central to managing this process. The panel includes representatives of businesses and industry, planning authorities, environmental organisations, water consumers, navigation, fishing and recreation bodies and central, regional and local government, all with key roles to play in implementing this plan.

The Environment Agency has also worked extensively with local stakeholders to identify the actions needed to address the main pressures on the water environment. This plan has been prepared under the Water Framework Directive, which requires all countries throughout the European Union to manage the water environment to consistent standards.

The plan describes the river basin district, and the pressures that the water environment faces. It shows what this means for the current state of the water environment, and what actions will be taken to address the pressures. It sets out what improvements are possible by 2015 and how the actions will make a difference to the local environment – the catchments, the estuaries and coasts, and the groundwater.

Looking towards implementation, the plan highlights the programme of investigations to be undertaken. This will identify more actions, particularly those associated with diffuse pollution, for delivery during the first cycle. New national measures, made available by government, will also lead to additional improvements. At local level, the Environment Agency will be working closely with a wide variety of organisations and individuals, not only to deliver the commitments contained in the plan, but wherever possible to expand upon them for the benefit of the water environment.

The Maidenhead to Sunbury catchment area Phosphate levels are high in a number of rivers. High levels of nutrients in rivers can lead to excessive plant growth and in turn affect the river's wildlife. Sources of nutrients in this catchment include effluent from sewage treatment works. Modification of these water bodies including in-stream structures has led to loss of habitat diversity and the creation of barriers for fish migration. Considerable water abstraction requires the flow on the main River Thames to be closely managed through the Lower Thames Operating Agreement with Thames Water.

Relevance to / Implications for LFRMS:

The River Basin Management Plan provides important context for the LFRMS.

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

The RBMP seeks to achieve the objectives identified in the Water Framework Directive.

The SEA for the RBMP identified generic mitigation measures that will be relevant to the LFRMS.

Conflicts between objectives / requirements: N/A

Document Name:	**Berkshire Local Geodiversity Action Plan**
Date of Publication:	2012
Level:	Sub – regional
Status:	Non-Statutory

Brief Overview:

The aims of the Berkshire Local Geodiversity Action Plan (LGAP) are to:

- Protect and enhance the geodiversity resource by appropriate designation of geological sites and features
- Promote a wider awareness and understanding of geodiversity
- Provide geological support to local education groups
- Ensure the LGAP is relevant today and remains so in the long term through regular consultation and review.

Part of Berkshire is in the North Wessex Downs Area of Outstanding Natural Beauty. The special chalk landscape of the area includes the highest chalk hill in England at Coombe Gibbet/Walbury Camp

Relevance to / Implications for LFRMS:

Protects areas of geodiversity importance against flood risk

Specific Targets / Requirements / Indicators: N/A

Environmental Protection Objectives:

Objective 1 To create a catalogue of all known sites of geological exposures, geomorphological features and geological resources (e.g. museums, libraries etc.)
Target 1 Create a searchable database of all known sites and resources by September 2012

Objective 2 Continue to survey the area for new or undiscovered exposures or features.
Target 2 Use existing system to document new sites

Objective 3 To increase understanding of the geology and geomorphology of Berkshire.
Target 3 Produce and publish new research on geodiversity in Berkshire.

Objective 4 To conserve existing geodiversity sites
Target 4 To create management plans for all sites

Objective 5 To designate new sites of geodiversity importance.
Target 5 To ensure that all new sites that are suitable are designated as they are found.

Objective 6 To review and implement management actions already highlighted in existing plans.
Target 6 To follow suggested timetables for implementation.

Objective 7 Popularise and promote the use of sites for education where safety and access are suitable
Target 7 To provide resources for key local sites to help visitors understand their geodiversity.

Objective 8 To raise geodiversity awareness in Berkshire
Target 8 To raise the profile of geodiversity and the work of BGG through activities, leaflets and press releases.

Objective 9 Production of information dissemination tools
Target 9 To produce new and inventive ways for information dissemination and maintain and distribute existing ones.

Conflicts between objectives / requirements:

Potential conflict if flood prevention measures damage Local geological sites

Document Name:	**Strategic Flood Risk Assessment (SFRA) Level 1** **Currently under review**
Date of Publication:	2014
Level:	Local
Status:	Statutory

Brief Overview:

The River Thames and its tributaries is a dominant feature of the Royal Borough of Windsor and Maidenhead. A very large proportion of the local communities are situated adjacent to, or near, the river and/or its tributaries. Significant flooding from the River Thames has occurred ten times within the last 100 years, most recently in 2003 and 2014 in which a substantial number of homes and businesses within the Borough were affected.

Planning Policy Statement (PPS) 25: Development and Flood Risk required that local planning authorities prepare a Strategic Flood Risk Assessment (SFRA) in consultation with the Environment Agency. The requirement for SFRA has been carried forward into the NPPF. The primary purpose of the SFRA is to determine the variation in flood risk across the Royal Borough of Windsor and Maidenhead. Robust information on flood risk is essential to inform and support the Council's revised flooding policies in its emerging Local Development Framework (LDF).

- To collate all known sources of flooding, including river, surface water (local drainage), sewers and groundwater, that may affect existing and/or future development within the Borough;

- To delineate areas that have a 'low', 'medium' and 'high' probability of flooding, as well as the Functional Floodplain, within the Borough, in accordance with Planning Policy Statement 25 (PPS25), and to map these:
  - Functional Floodplain incorporates areas of the region susceptible to flooding within which "*water has to flow or be stored in times of flood*"[1];
  - Areas of 'high' probability of flooding are assessed as having a 1 in 100 or greater chance of river flooding (>1%) in any year, and are referred to as Zone 3 High Probability;
  - Areas of 'medium' probability of flooding are assessed as having between a 1 in 100 and 1 in 1000 chance of river flooding (1% to 0.1%) in any year, and are referred to as Zone 2 Medium Probability;
  - Areas of 'low' probability of flooding are assessed as having a less than 1 in 1000 chance of flooding (<0.1%) in any year, and are referred to as Zone 1 Low Probability.

- Within flood affected areas, to recommend appropriate land uses (in accordance with the PPS25 *Sequential Test*) that will not unduly place people or property at risk of flooding

- Where flood risk has been identified as a potential constraint to future development, recommend possible flood mitigation and planning solutions that may be integrated into the design (by the developer) to minimise the risk to property and life should a flood occur (in accordance with the PPS25 *Exception Test*). Existing buildings should be refurbished to achieve resilience/resistance to make space for water. Council policy is essential for future sustainability.

Relevance to / Implications for LFRMS:

The SFRA contributes to the evidence base for the LFRMS.

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

N/A

Conflicts between objectives / requirements: N/A

Document Name:	**Berkshire Biodiversity Action Plan**
Date of Publication:	2011
Level:	Regional
Status:	Statutory

Brief Overview:

The Berkshire BAP is the strategy to conserve and enhance those UK BAP priority habitats and species that occur in Berkshire. There are currently targets to maintain, restore and create the following BAP Priority Habitats:

- Calcareous Grassland
- Lowland Meadow
- Dry Acid Grassland
- Purple Moor Grass and Rush Pasture
- Lowland Heathland
- Ponds
- Eutrophic Standing Water
- Mesotrophic Lakes
- Fen
- Reedbed
- Rivers
- Lowland Mixed Deciduous Woodland
- Lowland Beech and Yew Woodland
- Wet Woodland
- Lowland Wood Pasture and Parkland
- Hedgerows
- Traditional Orchards

Relevance to / Implications for LFRMS:

The LFRMS could have a role in helping achieve the BAP targets.

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

N/A

Conflicts between objectives / requirements:

Potential for conflict if flood prevention measures damage biodiversity

Document Name:	**The Royal Borough of Windsor and Maidenhead Local Plan**
Date of Publication:	2003
Level:	Local
Status:	Non-Statutory

Brief Overview:

The Local Plan provides, within one document, detailed planning guidance for the whole area. A large area of the Royal Borough lies within the flood plains of the Rivers Thames and Colne. The boundaries of the areas liable to flood have been derived in the main from a comprehensive flood study using physical and mathematical modelling techniques, undertaken by the Environment Agency. It corresponds to the area where there is a 1 in 100 chance of flooding occurring in any one year.

Relevance to / Implications for LFRMS:

The Borough has experienced major floods in 1894 and 1947. Since then several floods of lesser severity have occurred (in 1954, 1959, 1974 and 1990). Since the last major flood in 1947 there has been a substantial increase in the number of new buildings in the flood area. Concern was raised about the effect this additional development could have on future floods of a similar intensity due to the loss of flood water-storage capacity and the impeding of flow routes. As a consequence Borough Council has operated a policy restraining development in the flood plain since 1978.

Specific Targets / Requirements / Indicators:

Within the area liable to flood as shown on the proposals maps, or within other areas subject to flooding, development will not be permitted for new residential or non-residential development, including extensions in excess of 30 sq. m, unless it can be demonstrated to the satisfaction of the borough council, that the proposal would not of itself, or cumulatively in conjunction with other development:

- Impede the flow of flood water; or
- Reduce the capacity of the flood plain to store water; or
- Increase the number of people or properties at risk from flooding.

Environmental Protection Objectives:

- To maintain adequate flood storage capacity within the identified flood area.
- To ensure the flow of flood water is not impeded
- To ensure that development does not increase the number of people and properties at risk from flooding and the associated costs of providing emergency services.

Conflicts between objectives / requirements:

N/A

Document Name:	**The Royal Borough of Windsor and Maidenhead Local Plan Preferred Options Consultation**
Date of Publication:	2014
Level:	Local
Status:	Statutory

Brief Overview:

The Local Plan provides, within one document, detailed planning guidance for the whole area. A large area of the Royal Borough lies within the flood plains of the Rivers Thames and Colne.

Relevance to / Implications for LFRMS:

Fundamental to the plan's strategy is the avoidance of unnecessary development in areas liable to flooding through the adoption of a risk based approach. The Borough Council will work with the EA to manage water and flooding matters in the borough, and to promote development away from areas at risk of flooding. The Borough Council will work with applicants to ensure that development is appropriately located and does not result in unacceptable flood risk or drainage problems, in the locality or elsewhere. This will involve exploring mitigation measures to ensure that they are suitable, appropriate and economically viable.

Specific Targets / Requirements / Indicators:

Preferred Policy NR10 supports appropriate comprehensive flood risk management measures with land associated with strategic flood relief measures shown on the policies map. The policy only support water compatible uses and essential infrastructure development in the functional floodplain. The policy also requires proposals to incorporate Sustainable Drainage Systems, should increase the storage capacity of the floodplain and should aim to reduce flood risk.

Environmental Protection Objectives:

A key objective of the plan is to minimise the impact of the borough on climate change. One of the key ways to achieving this is by adapting to climate change through the careful management of flood risk.

Conflicts between objectives / requirements:

N/A

Document Name:	**Maidenhead Town Centre Area Action Plan**
Date of Publication:	2011
Level:	Local
Status:	Non-Statutory

Brief Overview:

The plan will shape and guide the rejuvenation of the town centre. The AAP will help bring about:

- A vibrant, visually attractive town centre that will excite and surprise;
- A memorable place with striking architecture, spaces and waterways;
- A much larger shopping area with a host of new shops;
- A strong local economic focus;
- A centre for community art and culture;
- Improved accessibility, particularly for pedestrians and cyclists;
- A town centre that residents can relate to and be proud of.

Relevance to / Implications for LFRMS:

- Housing is promoted throughout the town centre. As a highly sustainable location, no area is considered unsuitable in principle for housing development. Notwithstanding this, all housing developments will need to be sensitive to potential environmental problems that can occur in town centres, such as noise and nuisance. In addition, in locating new housing development, attention will need to be paid to avoiding areas at flood risk.
- It is essential that development take account of environmental impacts. Land to the east of the town centre is subject to fluvial flooding. Development in these areas will need to respond to the risk of flooding in their design and layout, with an aim of reducing flood risk.
- The use of green and brown roofs and planted walls is encouraged to further soften the appearance of buildings and for their benefits for wildlife, flood risk and air quality.

Specific Targets / Requirements / Indicators:

Development proposals within the town centre will;

- Not increase flood risk and be seen to reduce flood risk where possible.

Environmental Protection Objectives:

- Improve the quality of and provision of public space.
- Introduce greenery into the town centre to reflect its Thames Valley setting.
- Enhance and introduce the use of water.
- Promote high quality built form.

Conflicts between objectives / requirements:

N/A

Document Name:	**Royal Borough of Windsor and Maidenhead Sustainable Design and Construction SPD**
Date of Publication:	2009
Level:	Local
Status:	Non-Statutory

Brief Overview:

The purpose of the SPD is to help improve the sustainability performance of buildings and spaces through their construction and subsequent use. The SPD expands upon or provides further guidance on national, regional and local requirements. It thereby sets out measures that would deem to satisfy the council's requirements.

Relevance to / Implications for LFRMS:

The SPD highlight a range of sustainable design and construction measures that should be considered as part of a proposed development to minimise, and adapt to, flood risk.

Specific Targets / Requirements / Indicators:

- Developments are expected to comply with the Environment Agency's flood risk standing advice.
- Where a Flood Risk Assessment is required developments should demonstrate through this how the design has addressed flood risk to, and arising from, the site.

Environmental Protection Objectives:

In achieving the performance of buildings, the SPD has the following objectives:

- To promote the sustainable use and disposal of resources.
- To raise awareness of sustainable design.
- To raise awareness of renewable energy technologies.
- To mitigate against the causes and adapt to the consequences of climate change.
- To promote the consideration of sustainability early within the design process.
- To make the Royal Borough a more attractive, well designed and sustainable place.
- To promote clear understanding, transparency, inclusiveness and consistency for all parties throughout the decision making process.

Conflicts between objectives / requirements:

N/A

Document Name:	**Thames Basin Heaths SPD**
Date of Publication:	2010
Level:	Regional
Status:	Non-Statutory

Brief Overview:

The Thames Basin Heaths Special Protection Area is an international designation covering parts of Berkshire, Hampshire and Surrey. This SPD provides guidance on how the impact of new residential developments on the Thames Basin Heaths Special Protection Area may be mitigated against. The Thames Basin Heaths SPA covers a total of 8,400 hectares of which a small area measuring 0.27 hectares is located within the Royal Borough of Windsor and Maidenhead.

Relevance to / Implications for LFRMS:

Natural England considers that any new residential development resulting in a net increase in the number of dwellings within 5km of the Thames Basin Heaths SPA could have a significant impact upon it, either alone or in combination with other plans or projects. This in particular is due to the potential for increased recreational use of the SPA resulting in disturbance to the protected ground and near ground nesting birds.

Specific Targets / Requirements / Indicators:

- *400m zone:* This is measured as a linear distance from the edge of the SPA to the nearest part of the curtilage of the dwelling. Within this zone it is not considered possible for mitigation measures to protect the integrity of the SPA from the impacts resulting from a net increase in the number of dwellings. This is due to both additional recreational pressures on the SPA as well as the impact of cat predation on the protected bird species. It is not considered that the one for one replacement of existing habitable dwellings is likely to have an impact on the SPA.
- *400m to 5km zone:* This is measured as a linear distance from the edge of the SPA to the primary access point to the curtliage of the dwelling. Within this zone of influence it is likely that additional residential dwellings (either alone or in combination with other new dwellings) are likely to have a significant effect on the SPA unless mitigation measures are put in place.
- *5km to 7km:* Within this zone applications for large scale residential development (50 units or more) will need to be assessed on an individual basis to ascertain whether the proposal would have a significant adverse impact on the SPA. This assessment would involve a screening of the likely significant effects of the development and where required undertake an Appropriate Assessment under the Habitat Regulations.

Environmental Protection Objectives:

The purpose has been to discuss and develop a strategic approach to the SPA issue and this has resulted in the development of agreed measures to both avoid and mitigate the impact of an increased population around the Thames Basin Heaths SPA. The strategy developed has been published as "The Thames Basin Heaths Special Protection Area Delivery Framework" (February 2009).

Conflicts between objectives / requirements:

N/A

Document Name:	**Interpretation of Policy F1 (Development within Areas Liable to Flood)**
Date of Publication:	2004
Level:	National
Status:	Statutory

Brief Overview:

Policy F1 of the Adopted Royal Borough of Windsor and Maidenhead Local Plan states that within areas liable to flooding, development will not be permitted unless certain criteria detailed in the Policy are met. Since the Adoption of the Local Plan in July 1999 and in light of the floods in 2000 and 2003, concerns have been raised about the interpretation of this Policy. With the publication of new government guidance on development and flood risk (PPG251) in July 2001, it has been recognised that there is greater need for a more comprehensive interpretation of Policy F1 and to clarify the matters that will be taken into account in determining an application for development in the floodplain.

Relevance to / Implications for LFRMS:

The guidance states that local planning authorities should address the problems that flooding can cause by:

- recognising that the susceptibility of land to flooding is a material planning consideration;
- giving appropriate weight to information on flood-risk and how it might be affected by climate change in preparing development plans and considering individual proposals for development;
- consulting the Environment Agency, which has the lead role in providing advice on flood issues at a strategic level and in relation to planning applications, and other relevant organisations;
- applying the precautionary principle to decision-making so that risk is avoided where possible and managed elsewhere;
- improving the information available to the public about the risks of locating human activities in areas susceptible to flooding;
- taking into account the responsibility of owners for safeguarding their own property as far as reasonably practicable;
- recognising that flood plains and washlands have a natural role as a form of flood defence as well as providing important wildlife habitats and adding landscape value; and
- recognising that engineering flood reduction measures may not always be the appropriate solution, since they can have economic and environmental costs and impacts on the natural and built environment, need maintenance and replacement and cannot eliminate all risks of flooding.

Specific Targets / Requirements / Indicators:

The Royal Borough of Windsor and Maidenhead Local Plan seeks to restrict development in the floodplain (Policy F1).

Environmental Protection Objectives:

Policy F1 of the Adopted Local Plan will be applied to all development within the area liable to flood. Policy F1 indicates that new residential development or non-residential development, including extensions in excess of $30m^2$ will not be permitted *"unless it can be demonstrated to the satisfaction of the Borough Council that the proposal would not of itself, or cumulatively in conjunction with other development: 1) impede the flow of flood water; or 2) reduce the capacity of the floodplain to store flood water; or 3) increase the number of people or properties at risk from flooding".*

Conflicts between objectives / requirements:

N/A

Document Name:	**Interpretation of Policy NAP4 (Pollution of Groundwater and Surface Water)**
Date of Publication:	2002
Level:	Regional
Status:	Non-Statutory

Brief Overview:

In the Royal Borough of Windsor and Maidenhead, groundwater and river flow are so inter-related that if groundwater water becomes polluted, river-water may also become polluted. The purpose of Policy NAP4 of the Adopted Local Plan is to prevent groundwater contamination and surface water contamination.

Relevance to / Implications for LFRMS:

Policy NAP4 of the Adopted Local Plan indicates that the Council will not grant planning permission for development that will pose an unacceptable risk to groundwater and/or which would have a detrimental effect on the quality of surface water.

Specific Targets / Requirements / Indicators:

All sources, including springs, wells and boreholes, are liable to contamination and need to be protected.

Environmental Protection Objectives:

The Royal Borough of Windsor and Maidenhead Local Plan restricts development that would have a detrimental effect on groundwater and surface water (Policy NAP4). On the 24th July 2001, RBWM Council adopted the EA Source Protection Zone and Groundwater Vulnerability Maps for development control purposes and as a basis for consulting the Environment Agency on development proposals in areas that may affect groundwater aquifers that may be sensitive to contamination.

Conflicts between objectives / requirements:

N/A

Document Name:	**Maidenhead Waterways Framework Planning Brief**
Date of Publication:	2009
Level:	Regional
Status:	Non-Statutory

Brief Overview:

The Maidenhead Waterways Framework is a planning brief which provides a framework for future planning decisions along the waterway corridor stretching from the Cliveden Reach of the River Thames, through Maidenhead, to Bray Marina. Its purpose is to aid the restoration of the waterway, including the achievement of the emerging Maidenhead Waterway Project.

Relevance to / Implications for LFRMS:

It will help ensure that future policy and the design of development proposals contribute to the overall aim of restoring the waterway and avoid obstacles to the delivery of the Maidenhead Waterway Project.

Specific Targets / Requirements / Indicators:

Potential Positive Effects

- Improved / increased open space and better cycle and walking routes could have an indirect positive effect on health and wellbeing.
- Design for safe access for children and the disabled could reduce social exclusion.
- Buildings with active face towards waterway (to increase natural surveillance), improved lighting and the use of 'Secure By Design' principles could help to reduce crime and the fear of crime.
- Restoration / reinstatement of historic features could enhance distinctiveness.
- Improved connections, upgrade of cycle and pedestrian routes, provision of waterway infrastructure to support navigation and new and improved open spaces could improve accessibility to the natural environment.
- New or improved public spaces could have an indirect positive effect on cultural and sporting activities.
- Restoration of the waterway could encourage an increased number of visitors to Maidenhead.
- Indirect positive effect on the rejuvenation of Maidenhead town centre.
- High quality buildings and spaces should have a positive effect on townscape.
- Design for no increase in flood risk.
- Environment Agency's consent for alteration in water levels, integrating habitats into landscaping, avoiding adverse effects on Sites of Special Scientific Interest (SSSIs) and other locally important sites and taking the opportunity to create habitats could all lead to a positive effect on biodiversity.
- Positive effect on the historic environment as a result of restoration / reinstatement of historic features.
- New / improved and better connected routes have the potential to increase cycling and pedestrian journeys.

Potential Negative Effects

- Some trees may need to be removed.
- Potential negative effects on flora, fauna and channel ecology. Effect difficult to assess at this stage as baseline data for the whole length of the river channel is not sufficient.
- Short term disturbance to riverbanks and longer term unmanaged disturbance by boats and people could have adverse cumulative effects on flora and fauna.

Environmental Protection Objectives:

Development along the waterway corridor should:
1. provide and enhance the waterside setting
2. provide high quality buildings and spaces
3. protect and enhance biodiversity
4. respond to historical features and their setting
5. allow for or improve continuous walking and cycling
6. provide and enhance accessibility to and from the waterside
7. improve the provision and quality of public spaces
8. allow for the continuous navigation by craft
9. provide or contribute to the provision of waterway infrastructure
10. provide for the maintenance of the waterway and associated infrastructure

Conflicts between objectives / requirements:
N/A

Document Name:	**Berkshire Biodiversity Habitat Action Plans *(Heathland, Lowland unimproved grasslands, Rivers and associated floodplains, and Standing open waters and associated habitats)***
Date of Publication:	Varying
Level:	Regional
Status:	Non-Statutory

Brief Overview:

The Berkshire BAP is the strategy to conserve and enhance those UK BAP priority habitats and species that occur in Berkshire. Our actions directly contribute to the national targets.

Relevance to / Implications for LFRMS:

N/A

Specific Targets / Requirements / Indicators:

The main aims of the Berkshire BAP Heathland Action Plan are:

- To maintain and enhance current heathland throughout the county, ensuring no net loss
- To restore damaged or degraded areas of heath through enhanced management, creating a diversity in age and structure to support a range of niches for wildlife
- Where appropriate, to re-create lowland heathland to buffer and reverse the fragmentation of the existing resource.

Lowland unimproved grasslands;

- This plan is intended to cover the priority habitat type neutral grassland or lowland meadow through identifying sites, particularly designated areas, of priority grassland, methods to improve existing sites and create or restore other sites to increase this resource

The main objectives for the wetland action plans are:

- To establish the extent and value of the current priority BAP wetland habitats in Berkshire.
- To safeguard and tailor the management of sites of conservation value.
- To create and restore areas of new wetland habitat sites where appropriate, e.g. through mineral extraction or planning gain.
- To minimise damage and disturbance to habitats and species on sites with mixed uses such as fishing, recreation and wildlife.
- A longer term objective is to monitor and manage sites for specific BAP species.

Environmental Protection Objectives:

N/A

Conflicts between objectives / requirements:

N/A

Document Name:	**Landscape Character Assessment**
Date of Publication:	2004
Level:	Regional
Status:	Non-Statutory

Brief Overview:

The landscape types and areas described in this document, along with their supporting key characteristics and descriptions, are intended to raise awareness and understanding of the special qualities of the landscape within the Royal Borough.

Relevance to / Implications for LFRMS:

The main river catchments in the borough are the Thames and Colne. In addition, parts of the borough are within the catchments of the Wey and Loddon. The River Thames is the principal water course within the borough. It has driven the nature and pattern of settlement, trading and industry within this landscape for thousands of years and is the 'raison d'être' for many of the features that are seen within the borough today. Man-made channels are a feature of the River Thames floodplain. Of particular significance is the Maidenhead, Windsor and Eton Flood Alleviation Scheme (MWEFAS) otherwise known as the Jubilee River. Although much of the 'river' is beyond the borough boundary, in Buckinghamshire, this engineered feature has had a fundamental impact on the hydrology of the floodplain landscapes within the vicinity of Maidenhead, Windsor and Eton since its completion in 2002. Water abstraction within the Royal Borough is primarily from the River Thames, although the Thames floodplain gravels are also an important source of potable water.

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

The principal objectives of the study are;

- To identify and describe the landscape character types and landscape character areas within the Royal Borough, thus describing local distinctiveness;
- To summarise the key characteristics associated with each landscape type to provide the principles to guide future landscape change;
- To identify how the landscape within the borough is currently changing, what the causes of these changes are, and the pressures for change in the future;
- To make qualitative judgments on the strength of character and condition of the key characteristics within the landscape;
- To identify the requirements, and mechanisms, for the conservation, restoration, enhancement or creation of the key characteristics within the landscape types;
- To consider the justification and function of the Area of Special Landscape Importance,
- Setting of the Thames and Landscape Enhancement Area designations within the current Adopted Development Plan;
- To consider the justification and function of any new local designations;
- To provide a rigorous landscape character assessment for adoption as Supplementary Planning Guidance; and
- To promote public awareness of landscape character within the Royal Borough and, through consultation, obtain broad consensual support for the assessment work.

Conflicts between objectives / requirements:

N/A

Document Name:	**Conservation Area Appraisal**
Date of Publication:	Varying
Level:	Local
Status:	Non-Statutory

Brief Overview:

There are 27 designated Conservation Areas in the Borough. Descriptive documents that outline the special character and appearance of the individual Conservation Areas;

- Altwood Road Conservation Area Appraisal;
- Beenham's Heath Conservation Area Appraisal;
- Bisham Village Conservation Area Appraisal;
- Bray Village Conservation Area Appraisal;
- Burchetts Green Conservation Area Appraisal;
- Cookham Dean Conservation Area Appraisal;
- Cookham High Street Conservation Area Appraisal;
- Datchet Conservation Area Appraisal;
- Eton Conservation Area Appraisal;
- Holyport Conservation Area Appraisal;
- Hurley Village Conservation Area Appraisal;
- Inner Windsor Conservation Area Appraisal;
- Littlewick Green Conservation Area Appraisal;
- Maidenhead Riverside Conservation Area Appraisal;
- Maidenhead Town Centre Conservation Area Appraisal;
- Pinkneys Green Conservation Area Appraisal;
- Shurlock Row Conservation Area Appraisal;
- St Mary's Church and Bray Court, White Waltham Conservation Area Appraisal;
- Sunningdale Conservation Area Appraisal; and
- Windsor Town Centre Conservation Area Appraisal.

Relevance to / Implications for LFRMS:

N/A

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

N/A

Conflicts between objectives / requirements:

N/A

Document Name:	Royal Borough of Windsor and Maidenhead Emergency Plan
Date of Publication:	2011
Level:	Regional
Status:	Non-Statutory

Brief Overview:

The Royal Borough of Windsor & Maidenhead EPT has produced this plan. It describes the roles and responsibilities of the Council and it's interaction with other organisations when coping with a major emergency.

The purpose of the plan is to identify:

- The possible threats to the people and environment of RBWM - THE RISK
- Actions to mitigate the effects of a major emergency - THE RESPONSE
- Arrangements to facilitate a rapid return to normality - THE RECOVERY

FLOOD WARNINGS: Lead Agency – The Environment Agency
The Environment Agency is responsible for flood defence and flood warning for coasts and main rivers.
The Agency is divided into Regions and the Regions into Areas for warning purposes. Berkshire is in the
Thames Regions.
As with the Meteorological Office and its NSWWS, the Environment Agency provides a flood warning service to the general public.
This is achieved through the inclusion of flood warning information in broadcast weather forecasts and via its website and national Floodline telephone-based service. In addition, members of the public in flood-
risk areas can register to receive flood warnings free of charge via the telephone Automated Voice Messaging (AVM) system, text messaging and email.
RBWM maintains a network of volunteer flood wardens in flood-risk areas to help make local residents directly aware of any warnings issued. However, the police and local authorities (including parish and town councils) will also assist with warning the public where there is a clear and immediate threat.

Relevance to / Implications for LFRMS:

Specific Targets / Requirements / Indicators:

- To enable Officers and Members to understand and appreciate the roles and responsibilities of other agencies and organisations responding to an emergency
- To familiarise Officers with the actions they may have to take to:
  - Activate and co-ordinate the Council response with that of other organisations
  - Establish and maintain lines of communication, including the provision of public information and advice
  - Match and deploy resources according to needs
  - Help care for those in distress
  - Provide follow up and/or long term welfare
  - Lead the recovery

Environmental Protection Objectives:

N/A

Conflicts between objectives / requirements:

N/A

Document Name:	**National Heritage Protection Plan Framework**
Date of Publication:	2012
Level:	National
Status:	Statutory

Brief Overview:

The Plan seeks to ensure that England's historic environment:

- Is not needlessly at risk of damage, erosion or loss;
- Is experienced, understood and enjoyed by local communities;
- contributes to sustainable and distinctive places to live and work;
- helps deliver positive and sustainable economic growth.

Relevance to / Implications for LFRMS:

While uncertainty remains over trends, currently it is recognised flooding events and erosion as threats whose severity may be increasing in certain areas as a result of climatic changes. Apparent reduction in precipitation may increase fire risks in moorland or woodland areas. Related directly to such threats, national and international directives and legally binding measures (for example for water management and water quality) may have a significant impact on heritage assets. Action will focus on partnership working to establish risk mapping and strategies for prioritising tactical responses.

New EU Directives, domestic legislation and policy (e.g. Water Framework Directive, Flood & Water Act 2010 and Waste Water NPS) as well as demand to develop micro-renewable energy sites will place increasing pressure on a range of historic water management assets (mills, pumping stations, dams, weirs, flood meadows etc.). Action should focus on completion of coverage for those categories most at risk of major change and on ensuring minimal loss of significance.

Specific Targets / Requirements / Indicators:

N/A

Environmental Protection Objectives:

The Plan's definition of protection is broad and includes developing a sound evidence base; advice to owners; investment in the repair and maintenance of assets or their adaptive re-use; grant-aid and other forms of financial help; protection through the planning system or by designation; and sometimes recording ahead of unavoidable destruction.

Conflicts between objectives / requirements:

Heritage assets may need to be lost in order to provide suitable flood protection for the future if effective flood control measures cannot be installed or natural resources strengthed. Conflicts can arise when flood control measures are installed in cultural landscapes.

Appendix B: Environmental Baseline

Biodiversity/Flora and Fauna

The Royal Borough of Windsor and Maidenhead (RBWM) has a number of designated sites of international, national, and local conservation importance. As reported in the 2009/2010 Annual Monitoring Report[1], the RBWM supports both a rich and diverse range of biodiversity and geodiversity which make a positive contribution to the overall quality of life and sense of place for residents and visitors in both urban and rural areas. The most important sites for biodiversity and geodiversity receive statutory protection under international and national legislation. Table 1 highlights the areas designated for their intrinsic environmental value.

Table 1: Areas designated for their intrinsic environmental value in RBWM

	Number of Sites	Approximate area in 2008/2009 (hectares)	Approximate area in 2009/2010 (hectares)
Special Area of Conservation (SAC)	2	1,336.5	1,336.5
Special Protection Area (SPA)	2	126.2	126.2
Sites of Special Scientific Interest (SSSI)	11	1,662.9	1662.9
Local Geological Sites (LGS)	4	0.32	2.1
Local Wildlife Sites (LWS)	86	1385.4	1375.3

The Thames Basin Heaths Special Protection Area (SPA) is an internationally recognised site for its heathland bird populations of woodlark, nightjar and Dartford warbler. Chobham Common Site of Special Scientific Interest (SSSI) near Sunningdale and Broadmoor to Bagshot Woods and Heaths SSSI to the south of Ascot are the nearest parts of the SPA to the Borough. Natural England is advising that residential developments up to 5km from the boundary of the SPA have a significant cumulative impact and that in general residential development within 400m should be resisted. Table 2 below contains the conditions of the SSSI's within RBWM[2].

Table 2: Conditions of SSSI's in RBWM

Name	Assessment Description
Bisham Woods SSSI	Unfavourable Recovering / Favourable
Bray Meadows SSSI	Unfavourable Recovering
Bray Pennyroyal Field SSSI	Unfavourable Recovering
Cannoncourt Farm Pit SSSI	Unfavourable Recovering
Cock Marsh SSSI	Favourable
Windsor Forest And Great Park SSSI	Unfavourable Recovering / Favourable
Wraysbury & Hythe End Gravel Pits SSSI	Unfavourable Recovering
Wraysbury No 1 Gravel Pit SSSI	Unfavourable Recovering

[1] RBWM (2010) Annual Monitoring Report

[2] Natural England (2014) Sites of Special Scientific Interest. Conditions. http://www.sssi.naturalengland.org.uk/Special/sssi/report.cfm?category=C,CF

Great Thrift Wood	Favourable

The extent of Biodiversity Action Plan priority habitats for the borough in 2008 is shown in Table 3 below.

Table 3: Biodiversity Action Plan (BAP) priority habitats in RBWM

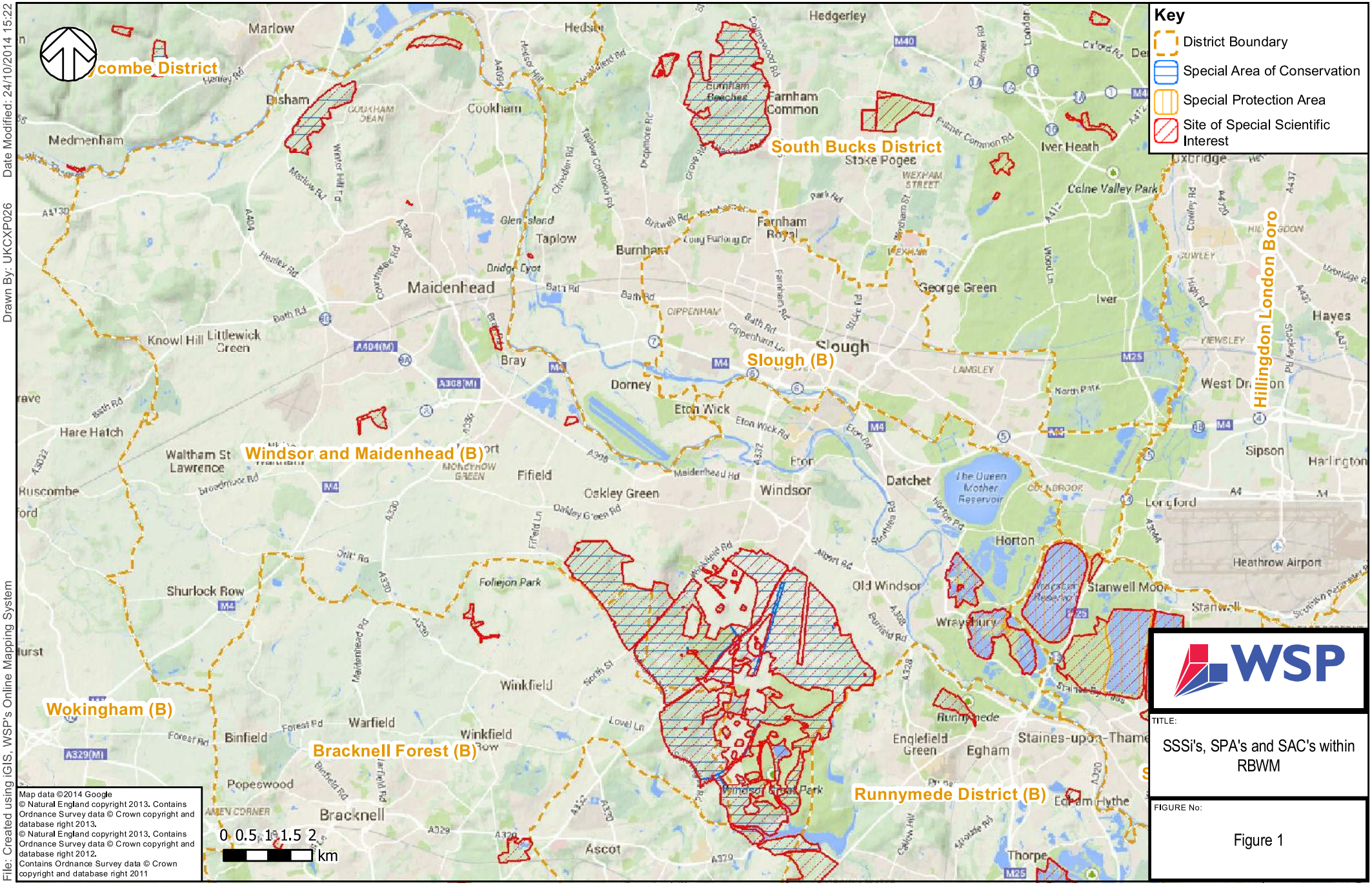
UK BAP priority habitat type	Area (hectares)
Coastal and Floodplain Grazing Marsh	219.4
Deciduous Woodland	2407.2
Good Quality Semi-Improved Grassland	38.6
Lowland Calcareous Grassland	14.0
Lowland Dry Acid Grassland	439.6
Lowland Fens	0.8
Lowland Heathland	5.6
Lowland Meadows	6.4
Traditional Orchards	34.4
No main habitat but additional habitat present	57.0
Total	**3223.0**

The water vole is Britain's fastest declining mammal. The Thames region is one of the country's strongholds for the animal and even here the decline has been dramatic. A national survey in 1996 - 1998 showed that there had been a 67.5% loss of occupied sites in the UK since the national 1989 - 1990 survey and a 32.6% overall loss in the Thames region. The decline was estimated to be 94% by 2001. 7.71% of the British water voles were calculated to be in the Thames region in 1996 -1998[3]. RWBM also contains approximately 107 woodlands identified on the Ancient Woodland Inventory.

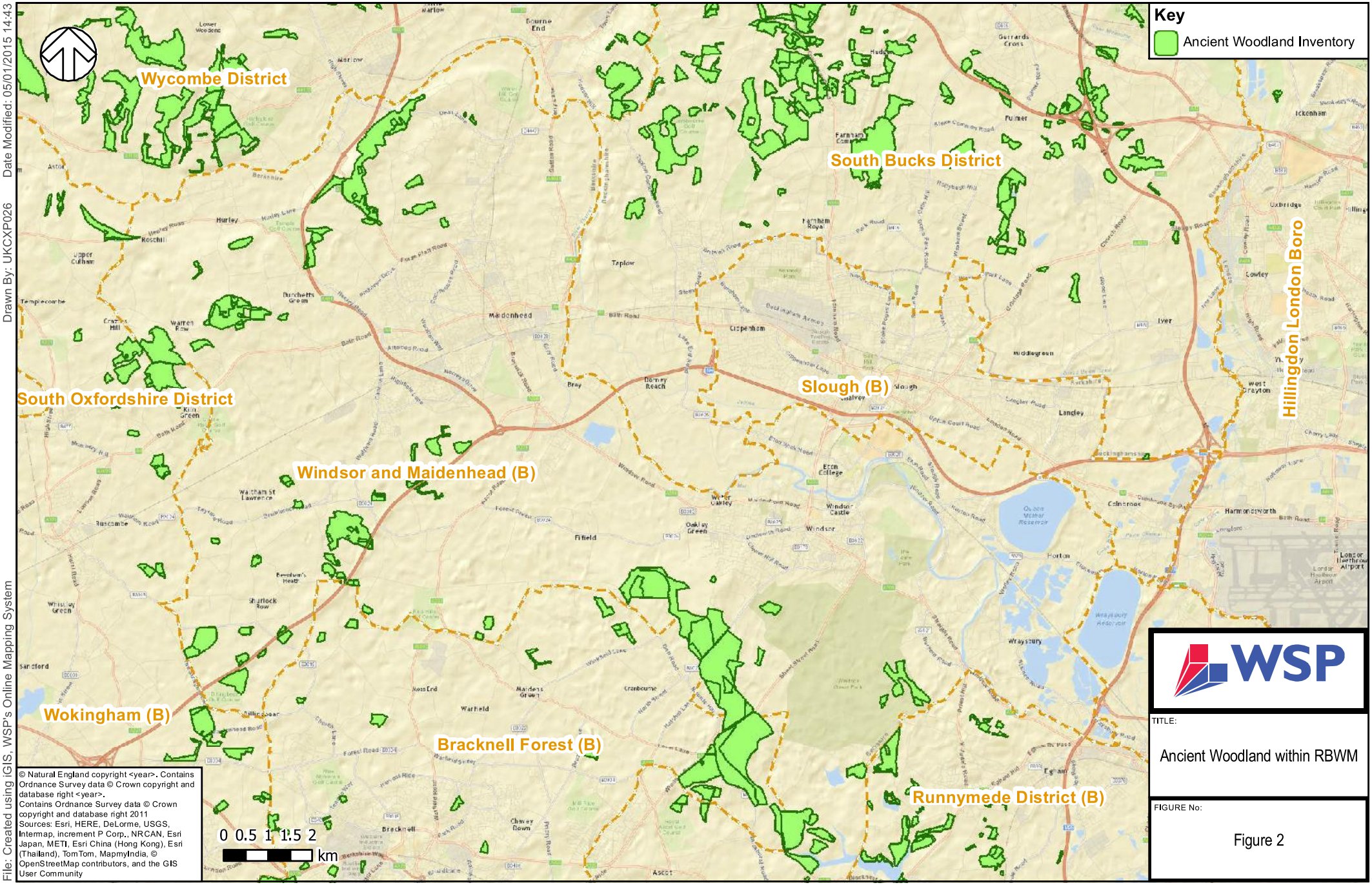
The location of SSSI's and SPA's and SAC's within the Borough are shown in Figure 1. The location of woodlands identified on the Ancient Woodland Inventory are shown in Figure 2. The location of BAP habitats are shown in Figure 3.

Future trends: Thames Valley Environmental Records Centre have stated that without adequate protection, conservation and enhancement, the biodiversity and ecology of existing areas will continue to be threatened by development pressure.

[3] West Berkshire Council (2013) Annual Monitoring Report



File: Created using iGIS, WSP's Online Mapping System Drawn By: UKCXP026 Date Modified: 24/10/2014 15:22



File: Created using iGIS, WSP's Online Mapping System Drawn By: UKCXP026 Date Modified: 05/01/2015 14:43

WSP

TITLE:

Ancient Woodland within RBWM

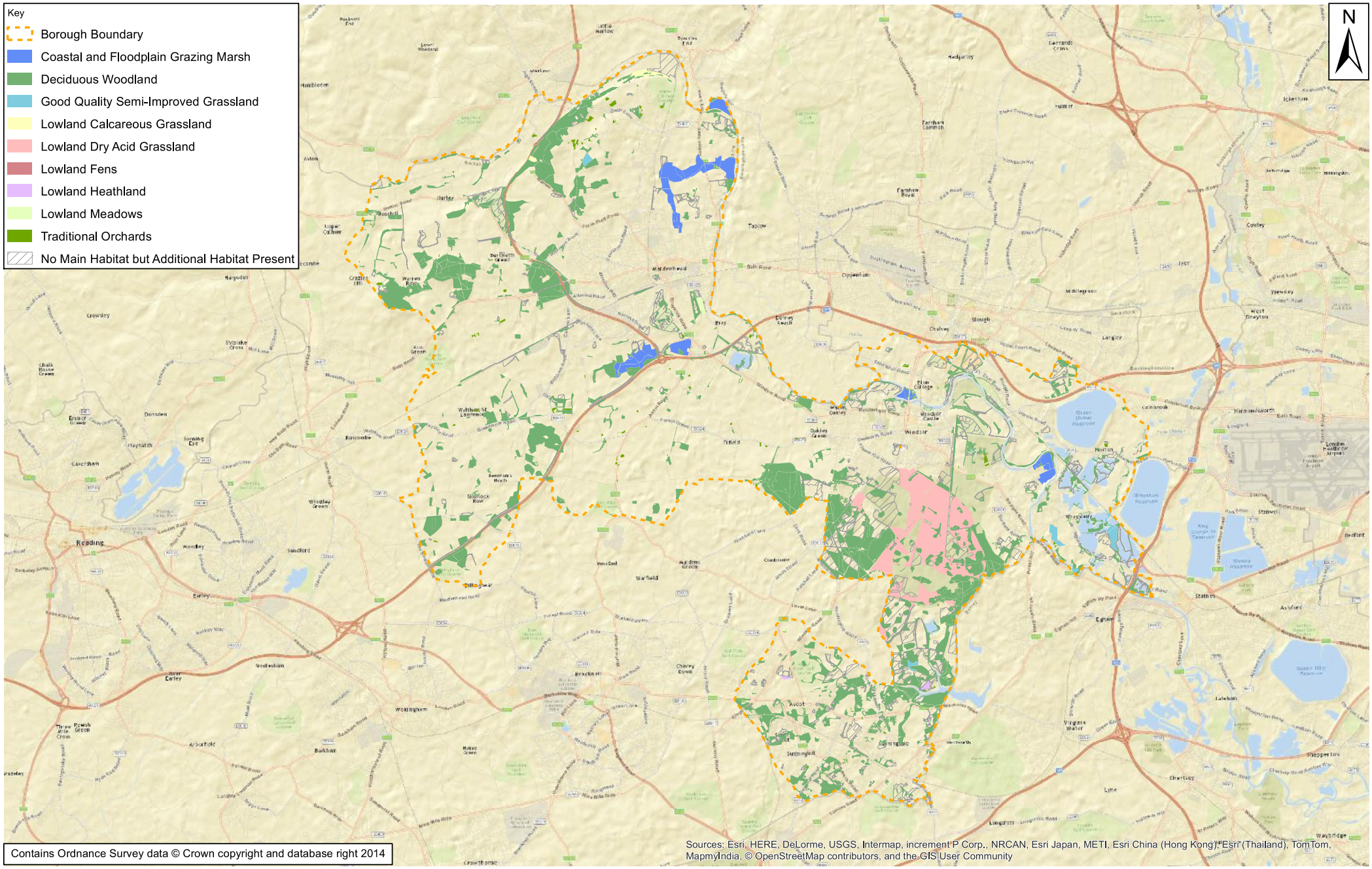
FIGURE No:

Figure 2

BAP Habitat occuring within the Royal Borough of Windsor and Maidenhead

Scale @ A3 : 100,000

Figure 3



PROJECT: Royal Borough of Windsor and Maidenhead
PROJECT No: 38500
Client: Royal Borough of Windsor and Maidenhead

Drawn: JT
Checked: HS
Approved: HS
Revision: A
Date: January 2015

WSP

Population

The 2011 Census showed that RBWM had a population of 144,560, in comparison to 133,626 in 2001[4]. The population of RBWM has grown by 8.2% in ten years; this growth however is not universal across all age groups. RBWM's population growth is around 1.1% higher than that for the South East more generally, and nationally. See Table 4 below. This compares with an 8% increase across Berkshire as a whole. However, this countywide figure is skewed slightly by the increase in population in Slough (18%). If Slough was removed from the Berkshire total, then the rate of increase would fall to 6% [5].

Table 4: Population change 2001 – 2011.

Region	2011 population	Change in population	
		Number	Percentage
Bracknell Forest	113,200	+3,583	+3.3%
Reading	155,700	+12,604	+8.8%
Royal Borough of Windsor and Maidenhead	144,600	+10,974	+8.2%
Slough	140,200	+21,133	+17.7%
West Berkshire	153,800	+9,317	+6.4%
Wokingham	154,400	+4,171	+2.8%
Berkshire	861,900	+61,782	+7.7%
South East	8,634,800	+634,250	+7.9%
England and Wales	56,075,900	+4,033,984	+7.8%

Table 5 breaks the above analysis for RBWM down more comprehensively by quinary age groups and compares with the regional and English average. Looking at the older age groups, the table shows a greater than average increase in numbers of older people within each of the quinary age groups[6].

Table 5: Population change for 2011 in quinary age groups

Age Group	2011 Population	Change in Population since 2001			
		RBWM Numbers	RBWM Percentage	South East Percentage	England Percentage
0-4	9,365	+1,172	+12%	+13%	+13%
5-9	8,584	+603	+7%	-4%	-5%
10-14	8,863	+306	+3%	-1%	-5%

[4] RBWM (2013) Population estimates by ward. Accessed from:

http://www.rbwm.gov.uk/web/pp_town_ward_parish_populations.htm

[5] West Berkshire Council (2012) Summary of 1st release of data from 2011 Census

[6] ONS (2001) Age, 2001
http://www.neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=3&b=6275316&c=Windsor&d=13&e=16&g=6398448&i=1001x1003x1032x1004&o=362&m=0&r=1&s=1413282383266&enc=1&dsFamilyId=91

15-19	8,343	+537	+6%	+12%	+10%
20-24	7,111	+337	+4%	+16%	+22%
25-29	8,841	-68	-1%	+6%	+12%
30-34	9,678	-734	-7%	-9%	-7%
35-39	10,626	-409	-4%	-9%	-9%
40-44	11,645	+1,701	+17%	+12%	+12%
45-49	11,195	+2,334	26%	+26%	+25%
50-54	9,379	-610	-6%	0%	+1%
55-59	8,161	+148	+2%	+6%	+8%
60-64	8,692	+2,072	+23%	+39%	+33%
65-69	6,943	+1,133	+12%	+21%	+16%
70-74	5,481	+348	+4%	+7%	+5%
75-79	4,617	+384	+4%	+4%	+1%
80-84	3,547	+774	+8%	+14%	+14%
85+	3,489	+906	+9%	+24%	+24%

The change in population mirrors that of the South East and England to a large extent. Overall the age structure of the Borough's population is similar to the national average, apart from having relatively fewer young people aged 15 to 24 years. This is partly due to a lack of universities within the immediate vicinity, which means that many students live away from home, but also high house prices represent a barrier to young people setting up home in the Borough. The proportion of the Borough's population aged 65 years or over is in line with the national age structure, but is higher than the rest of Berkshire, and is forecast to rise significantly in the medium to long term[7].

Table 6 highlights the ethnic groups residents of RBWM defined themselves as during the 2011 Census[8]. The largest ethnic group was 'White; English/Welsh/Scottish/Northern Irish/British', reflecting the trend within the South East and England as a whole, followed by 'White; Other White'. The third largest group was 'Asian/Asian British; Indian', again reflecting the pattern in the Southeast and England.

Table 6: Ethnic group for RBWM residents in 2011

Ethnicity	RBWM	Southeast	England
White; English/Welsh/Scottish/Northern Irish/British	112,081	7,358,998	42,279,236
White; Irish	2,055	73,571	517,001
White; Gypsy or Irish Traveller	219	14,542	54,895

[7] RBWM (2012) Local Transport Plan 2012 – 2026. Accessed from:
http://www.rbwm.gov.uk/web/ltp_index.htm

[8] Office for National Statistics (2011) Ethnic Group, 2011. Accessed from:
http://goo.gl/eD9uv

White; Other White	10,150	380,709	2,430,010
Mixed/Multiple Ethnic Groups; White and Black Caribbean	679	45,980	415,616
Mixed/Multiple Ethnic Groups; White and Black African	358	22,825	161,550
Mixed/Multiple Ethnic Groups; White and Asian	1,399	58,764	332,708
Mixed/Multiple Ethnic Groups; Other Mixed	879	40,195	283,005
Asian/Asian British; Indian	5,860	152,132	1,395,702
Asian/Asian British; Pakistani	4,238	99,246	1,112,282
Asian/Asian British; Bangladeshi	393	27,951	436,514
Asian/Asian British; Chinese	1,071	53,061	379,503
Asian/Asian British; Other Asian	2,286	119,652	819,402
Black/African/Caribbean/Black British; African	1,039	87,345	977,741
Black/African/Caribbean/Black British; Caribbean	473	34,225	591,016
Black/African/Caribbean/Black British; Other Black	213	14,443	277,857
Other Ethnic Group; Arab	379	19,363	220,985
Other Ethnic Group; Any Other Ethnic Group	788	31,748	327,433

As highlighted in Table 7 below, the employment status of residents in RBWM is generally healthy. In the ten year period from 2001 to 2011 there was an increase of 7,000 economically active residents, in line with the rest of England[9].

Table 7: Employment Status of RBWM residents and England for 2011 and 2001.

	RBWM 2011	RBWM 2001	Change	England 2011	England 2001	Change
Economically Active; Total	77,650	70,304	+7,346	27,183,134	23,756,707	+3,426,427
Economically Active; Employee; Part-Time	12,727	10,599	+2,128	5,333,268	4,196,041	+1,137,227
Economically Active; Employee; Full-Time	46,337	45,498	+839	15,016,564	14,499,241	+51,7323
Economically Active; Self-Employed with Employees; Part-Time	464	3,408	-2,944	148,074	1,049,823	-901,749
Economically Active; Self-Employed with Employees; Full-Time	2,280	2,897	-617	715,271	898,248	-182,977
Economically Active; Self-Employed Without Employees; Part-Time	3,685	2,288	+1,397	990,573	542,458	+448,115
Economically Active; Self-Employed Without Employees; Full-Time	6,474	4,568	+1,906	1,939,714	1,362,707	+577,007
Economically Active; Unemployed	3,292	1,999	+1,293	1,702,847	1,188,855	+513,992
Economically Active; Full-Time Student	2,391	1,944	+447	1,336,823	917,582	+419,241
Economically Inactive; Total	26,597	27,251	-654	11,698,240	11,775,384	-77,144

[9] Office for National Statistics (2011) Economic Activity, 2011. Accessed from: http://www.neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=3&b=6275316&c=Maidenhead&d=13&e=61&g=6398448&i=1001x1003x1032x1004&m=0&r=1&s=1367227962874&enc=1&dsFamilyId=2521

Economically Inactive; Retired	13,366	12,503	+863	5,320,691	4,811,595	+509,096
Economically Inactive; Student (including Full-Time Students)	4,598	3,530	+1,068	2,255,831	1,660,564	+595,267
Economically Inactive; Looking After Home or Family	5,016	6,807	-1,791	1,695,134	2,316,229	-621,095
Economically Inactive; Long-Term Sick or Disabled	1,834	2,089	-255	1,574,134	1,884,901	-310,767
Economically Inactive; Other	1,783	2,322	-539	852,450	1,102,095	-249,645

Future trends: In the future, there is likely to be a large increase in the proportion of older people as a result of improved lifestyles, diets, and medical advancements. Population projections for the Borough suggest that there will be an increase of nearly 24% in the 65-84 age range, and nearly 55% in the number of over 85 year olds by 2020. Further predictions indicate that there will be an increase of 17,000 households between 2006 and 2031 in the Borough. This is a significant increase and it is expected that 46% of these households will be occupied by people over 65 years old, which will have implications for adult social care provision within the Borough[10].

Human Health

Overall people in RBWM consider themselves relatively healthy. According to the 2011 census, 86.7% of residents in RBWM considered their heath to be good or better compared with 81.3% of people in England, and 83.6% of residents in the South East. See Table 8 below[11]. The health of people in the Borough is generally better than the English average, with life expectancy and levels of obesity better than the national and regional averages. Although the proportion of the Borough's residents who have a limiting long-term illness has increased in line with the general ageing of the local population, the rate is still much lower than nationally[12].

Table 8: Health of RBWM according to 2011 census.

	RBWM Percentage	England Percentage	South East Percentage	RBWM Count
Very Good Health	54.5%	47.1%	49%	78,802
Good Health	32.2%	34.2%	34.6%	46,571
Fair Health	9.8%	13.1%	12%	14,234
Bad Health	2.6%	4.2%	3.3%	3,872
Very Bad Health	0.75%	1.2%	0.9%	1,081

[10] RBWM (2010) Planning for an ageing population. Accessed from http://www.rbwm.gov.uk/public/pp_ageing_population_spd_document.pdf

[11] Office for National Statistics (2011) General Health, 2011. Accessed from http://www.neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=3&b=6275316&c=Maidenhead&d=13&e=61&g=6398448&i=1001x1003x1032x1004&m=0&r=1&s=1367229648426&enc=1&dsFamilyId=2503

[12] RBWM (2012) Local Transport Plan 2012 – 2026. Accessed from

http://www.rbwm.gov.uk/web/ltp_index.htm

The census also asked people if they were providing unpaid care to family, friends or neighbours with long term physical or mental health problems. 9.2% of people in RBWM provide unpaid care, compared to 10.2% in England. In RBWM in 2001 11,501 (8.7%) people stated they provide unpaid care, compared to 13, 235 in 2011, and increase of 1,734 people in ten years.

Local priorities in Windsor and Maidenhead include mental health (including dementia), ageing population (including falls prevention and long term conditions), and crime reduction (violent crime and domestic abuse) [13].

Future trends: Nationally, we are living longer and have greater long-term care needs. It is acknowledged that people want quality services that meet the full range of individual need, more local care, and the ability to take greater control over their health whilst being supported to remain as independent as possible. Changes in population and communities mean that we are less likely to be part of a close knit family providing support. For isolated rural communities this may mean additional transport links to services and the increased availability and use of broadband and other communication technologies to provide local access to information about health, social care, housing and other Council services. Increased need for home adaptations or more specialised accommodation geared to allow as much independence as possible while supporting changing abilities is also likely.

Soil and Geology

RBWM has a number of different soil types ranging from sandy with low fertility, to loamy with high fertility. There are naturally wet soils associated with river valleys and dry well drained soils on hillsides. Healthy soils are vital to a sustainable environment. The main elements of RBWM's underlying geology are Chalk, London Clay, Reading and Bagshot Beds. In many areas alluvial deposits and plateau gravels are superimposed upon this geology. Chalk underlays much of the area covered by the AONB, while the Bagshot Beds are found to the south of the District stretching from the west to the east. The London Clay and Reading Beds are located in areas between the Chalk and the Bagshot Beds, see Figure 2. The soils found in the Borough vary from argillic brown earths within the Thames floodplain and northern parts of the Borough, stagnogley soils within central areas and podzols/brown sands and gley podzols in the south[14].

The rolling, broad expanses of the Berkshire Downs, formed from the Upper Cretaceous Chalk, mark the northern edge of the basin. As the outcrop of the chalk slopes gently away to the south it is succeeded by sands and clays of Tertiary age which form the central part of the London Basin. These sediments were deposited in shallow marine, coastal and terrestrial environments and reflect changing sea-levels and periods of land uplift over the 20 million year period that they were laid down.

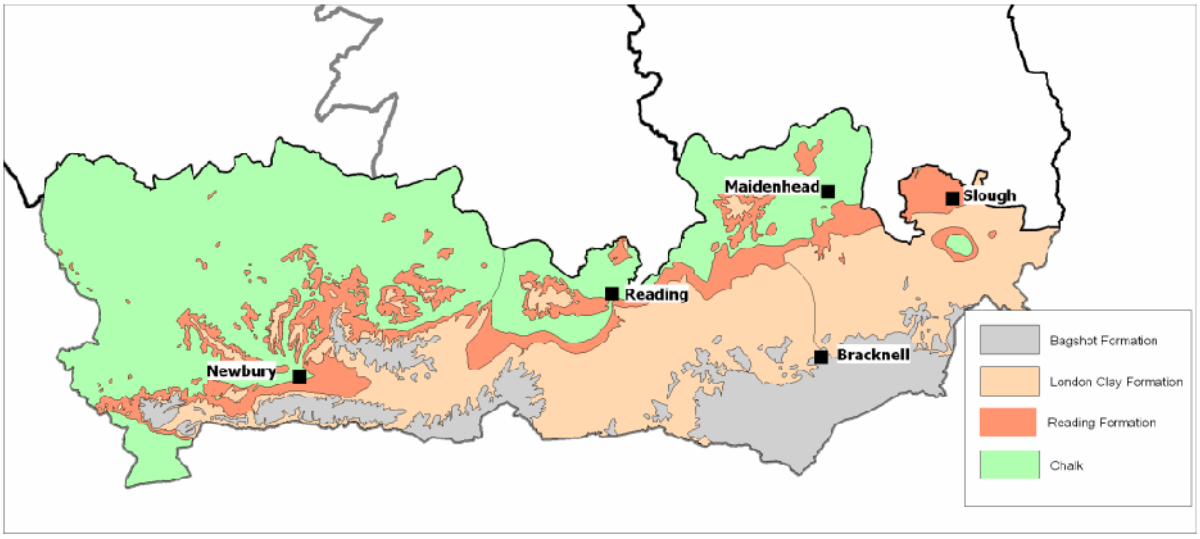
[13] Public Health England (2014) Health Profile 2014 Windsor and Maidenhead

[14] RBWM (2004) Landscape Character Assessment. Accessed from:
http://www.rbwm.gov.uk/public/pp_lca_part1_main_document.pdf

The generally free-draining sands give rise to acidic soils which typically support heathland vegetation, although much of the original heathland in the Bracknell-Wokingham area is now fragmented and extensive conifer plantations have been planted.

Over the last two million years the area was not directly impacted by the repeated advances and retreats of the great ice sheets of the Ice Age. However, the arctic conditions that prevailed during glacial periods led to the formation of the characteristic dry valleys of the chalk downs. Throughout this period, the River Thames and its various tributaries transported vast amounts of sediment through the area. This was deposited as terraces of sand and gravel along the sides of the Thames Valley. Today the gravels form an important economic resource and have been extensively quarried for the production of aggregate. The large lakes left following extraction now provide important areas of open water for recreation and habitat for wildlife[15].

Figure 2: Berkshire Soil Types[16]



Defra's agricultural census for June 2010 shows that there were 7,296ha of agriculturally managed land in RBWM managed by 100 agricultural holdings. This is a 3% increase in total farmed area since 2007. There are 236 people employed directly in the agricultural sector in RBWM, a 3% decrease since 2007.

In 2010, 2,444ha of land was used for growing cereals, 1,007ha for arable crops, 53ha for fruit and vegetables and 3,033 for grassland. The land also supported livestock numbering 6,138[17].

[15] Natural England (2013) Geodiversity. *West Berkshire (including Reading, Wokingham, Bracknell Forest, Windsor and Maidenhead, and Slough).* Accessed from:

http://webarchive.nationalarchives.gov.uk/20140605090108/http://www.naturalengland.org.uk/ourwork/conservation/geodiversity/englands/counties/area_ID2.aspx

[16] Berkshire Geoconservation (2012) *Geology of Berkshire.* Accessed from:

http://www.berksgeoconservation.org.uk/geology.php

[17] Defra (2010) *Land use and livestock. Details results and datasets.* Accessed from:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/183111/defra-stats-foodfarm-landuselivestock-june-results-localauthority2010-120608.xls

Future Trends: There is evidence that soil degradation is continuing in the UK and around the world despite greater awareness of the importance of soils. Defra issued 'Safeguarding our Soils; a strategy for England' in 2009. The intention is to increase the sustainable use of soils in England and ensure that the protection of soil health is a consideration in decisions made relating to land use planning[18]. There is increasingly a better understanding of the importance of soils to sustainable agriculture and food production. Sustainable agricultural techniques and organic food production methods have increased in recent years and are predicted to continue to gain importance in the future. The European Commission adopted the Thematic Strategy for Soil Protection and are working towards a 'Soil Framework Directive'. In 2012, an update was published on the implementation of the strategy and further proposals for the Soil Framework Directive. The update highlights common principles for protecting soil and the most sustainable method for each territory[19].

Water

High levels of nitrates are found in areas of poor water quality. There are no Nitrate Sensitive Areas in the RBWM, but there are large areas covered by Nitrate Vulnerable Zones (NVZs). NVZs apply to areas where surface and/or groundwater contains nitrate concentrations in excess of 50mg/l. The widespread classification of NVZs in RBWM is reflective of the land use within the area and the intensive agricultural practices which are employed. As a consequence farmers within NVZs are required to comply with a mandatory Action Programme measures designed to protect both ground and surface waters against pollution caused by nitrates from agriculture. The European Commission (EC) nitrates directive requires areas of land that drain into waters polluted by nitrates to be designated as Nitrate Vulnerable Zones (NVZs).

NVZ's cover 62% of England and parts of Berkshire are now designated as an NVZ.
Three different types of NVZs have been identified in RBWM:

- Surface Water NVZ Area;
- Groundwater NVZ Area; and
- Eutrophic NVZ Area.

The most prominent is the Surface Water NVZ, which covers much of the south and west areas of RBWM[20] . See Figure 3 below.

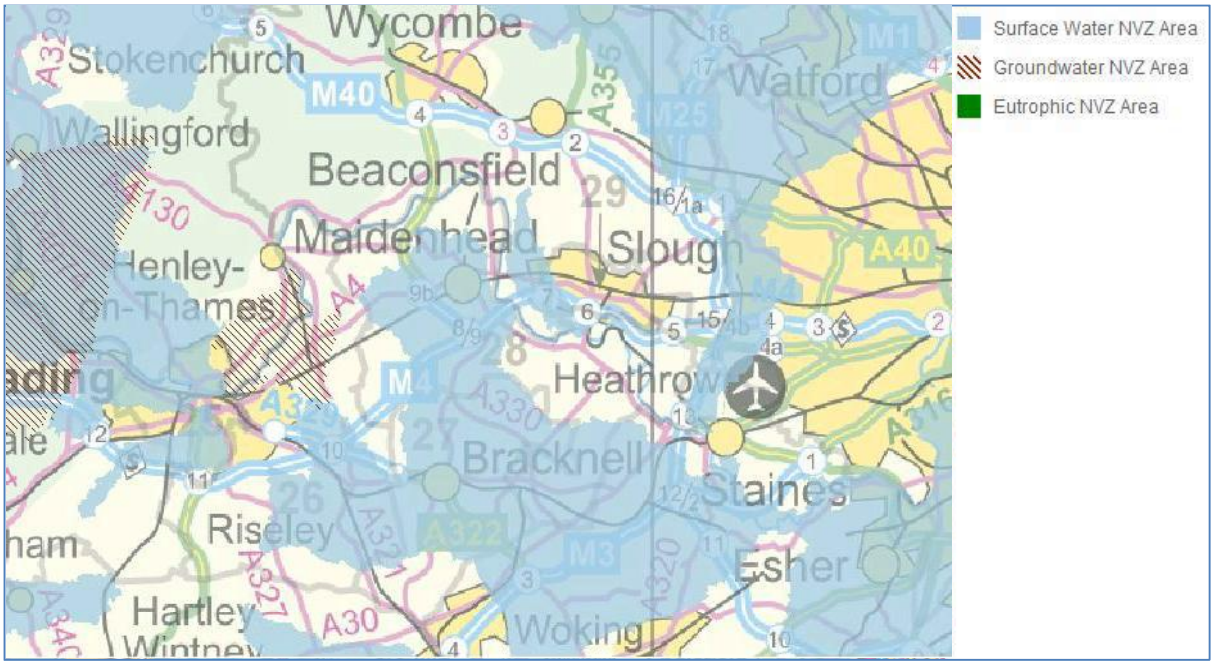
Figure 3: Windsor and Maidenhead NVZ

[18] Defra (2009) Safeguarding our Soils. A strategy for England. Accessed from: http://archive.defra.gov.uk/environment/quality/land/soil/documents/soil-strategy.pdf

[19] European Commission (2012) Soil Thematic Strategy. Accessed from http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52012DC0046:EN:NOT

[20] Environment Agency (2013) *Nitrate Vulnerable Zones (NVZs*). Accessed from*:*

http://www.environment-agency.gov.uk/business/sectors/54714.aspx



Future Trends: Meeting water quality standards is a challenge for the region. Together with tightening water quality standards, a growing population and development pressures, are placing extra demands on the sewerage treatment infrastructure and the waters receiving effluent.

Water resources within RBWM are managed by water and wastewater services companies South East Water, Thames Water, and Three Valleys Water.

The main river catchments in the Borough are the Thames and Colne. In addition, parts of the Borough are within the catchments of the Wey and Loddon. The River Thames is the principal water course within the Borough. It has driven the nature and pattern of settlement, trading and industry within this landscape for thousands of years and is the 'raison d'être' for many of the features that are seen within the Borough today.

Man-made channels are a feature of the River Thames floodplain. Of particular significance is the Maidenhead, Windsor and Eton Flood Alleviation Scheme (MWEFAS) otherwise known as the Jubilee River. Although much of the 'river' is beyond the Borough boundary, in Buckinghamshire, this engineered feature has had a fundamental impact on the hydrology of the floodplain landscapes within the vicinity of Maidenhead, Windsor and Eton since its completion in 2002.

The new 11.6km long man-made channel leaves the main River Thames at Boulter's Weir, North Maidenhead and runs west past Taplow and then east of Dorney, Eton Wick and Eton before linking back into the Thames at Black Potts Viaduct, Windsor. As part of the alleviation scheme flood banks (or walls) have also been constructed upstream in Cookham, where they are visible as engineered banks at the junction of the High Street with The Causeway common, and north of Maidenhead Court. The flood bund at this location, although not clearly visible feature within the landscape, follows the line of the Green Way footpath south of White Place Farm. Both features serve to protect substantial areas from flooding, areas which are, as a consequence, now subject to development pressure.

Groundwater resources within the Borough include the Chalk, the principal aquifer, and the Reading Beds below the London Clay. Some beds within the Lower Cretaceous may be locally significant. The perched watertables in some of the Terrace Gravels found within the floodplain deposits (Quaternary strata) are also a major aquifer.

Water abstraction within the Borough is primarily from the River Thames, although the Thames floodplain gravels are also an important source of potable water. As part of the water management infrastructure for the Borough sewage treatment works are found at Hurley, Maidenhead, Ham Island and Ascot[21].

There are various forms of flooding which all present various levels of risk. Flooding can occur from rivers, the sea, from land, groundwater, sewers, reservoirs, canals and other artificial sources. RBWM has undertaken a Strategic Flood Risk Assessment (SFRA) as required by Planning Policy Statement 25 'Development and Flood Risk' (PPS25, subsequently replaced by the NPPF), in consultation with the Environment Agency to "determine the variation of flood risk across and from their area as the basis for preparing appropriate policies for flood risk management for these areas". The SFRA informed the RBWM Core Strategy which highlights requirements for specific development sites in relation to flood and drainage infrastructure.

The risk of flooding within RBWM is widespread, arising not only from rivers but also from surface water and groundwater flooding. A relatively large number of homes and businesses within RBWM are at risk of flooding, arising from a number of sources including river flooding, localised runoff, groundwater flooding and sewer flooding.

Future Trends: Climate change is anticipated to have an impact on water supply due to more extreme climatic variability. Hotter summers are expected to result in increased water usage and reduce the period when groundwater sources can refill; in addition, soil moisture is expected to be reduced in summer, resulting in increased use of irrigation for crops. Overall, increased population and the effects of climate change are going to place greater pressures on a finite resource. The Environment Agency suggests that within less than thirty years there will be a major water shortage in the South East unless there is a reduction in the amount of water used or new resources are found. Thames Water has forecast that there will be a deficit of water of 60 million litres per day by 2030 in the Swindon and Oxfordshire zone unless new water resources are found. Water conservation measures are going to be required to ensure an adequate water supply into the future.

A considerable amount of research is being carried out worldwide in an endeavour to quantify the impacts that climate change is likely to have on flooding in future years. Climate change is perceived to represent an increasing risk to low lying areas of England, and it is anticipated that the frequency and severity of flooding will change measurably within our lifetime.

According to the SFRA for RBWM, climate change will not markedly increase the extent of river flooding within most areas of the Borough; however those properties (and areas) that is currently at

[21] RBWM (2004) Landscape Characters Assessment. Accessed from: http://www.rbwm.gov.uk/public/pp_lca_part1_main_document.pdf

risk of flooding may be susceptible to more frequent, more severe flooding in future years. The 'best practice' approach adopted throughout England is that Flood Zone 2 Medium Probability is considered a reasonable approximation of the likely extent of the High Probability Flood Zone in 100 years as a result of climate change. Climate change will also potentially increase the frequency and intensity of localised storms over the District; this could exacerbate localised drainage problems.

Climate change will increase flood risk as more intense rainfall will increase peak river flow. In the summer, dry soils are unable to absorb heavy rainfall fast enough and these results in severe localised flooding. Winter soils will tend to be wetter on average and will similarly be unable to absorb heavy rainfall fast enough. These changes in rainfall duration and intensity will have direct implications on river flooding, local flash flooding and we could see areas not previously flooded experiencing flooding for the first time.

Climatic Factors

Changing weather patterns may be seen as direct indicators of climate change, see Figure 4 and 5. The Met Office's average figures for the South East of England (South East and Central South) for 1981-2010 indicate that minimum daily temperatures ranged from 1.4°C in February to a minimum of 12.2°C in July, while maximum temperatures ranged from 7.5°C in January to 22.0°C in July. Average monthly rainfall in the South East varies from 51.2mm in June, to 92.8mm in October, with an average annual total of 787.6mm[22].

- Warming of the global climate system is unequivocal, with global average temperatures having risen by nearly 0.8 ºC since the late 19th century, and rising at about 0.2 ºC a decade over the past 25 years;
- It is very likely that man-made greenhouse gas emissions caused most of the observed temperature rise since the middle 20th century;
- Global sea-level rise has accelerated between mid-19th century and mid-20th century, and is now about 3mm per year. It is likely that human activities have contributed between a quarter and a half of the rise in the last half of the 20th century;
- Central England Temperature has risen by about a degree Celsius since the 1970's, with 2006 being the warmest on record. It is likely that there has been a significant influence from human activity on the recent warming;
- Temperatures in Scotland and Northern Ireland have risen by about 0.8ºC since about 1980, but this rise has not been attributed to specific causes;
- Annual mean precipitation over England and Wales has not changed significantly since records began in 1766. Seasonal rainfall is highly variable, but appears to have decreased in summer and increased in winter, although with little change in the latter over the last 50 years;

[22] Met Office (2012) *Average Tables*. http://www.metoffice.gov.uk/public/weather/climate/?tab=climateTables)

- All regions of the UK have experienced an increase over the past 45 years in the contribution to winter rainfall from heavy precipitation events; in summer all regions except NE England and N Scotland show decreases;
- There has been considerable variability in the North Atlantic Oscillation, but with no significant trend over the past few decades;
- Severe windstorms around the UK have become more frequent in the past few decades, though not above that seen in the 1920's;
- Sea-surface temperatures around the UK coast have risen over the past three decades by about 0.7 ºC; and
- Sea level around the UK rose by about 1mm a year in the 20th century, corrected for land movement. The rate for the 1990's and 2000's has been higher than this.

Figure 4: Average annual rainfall (mm) 1981 – 2010

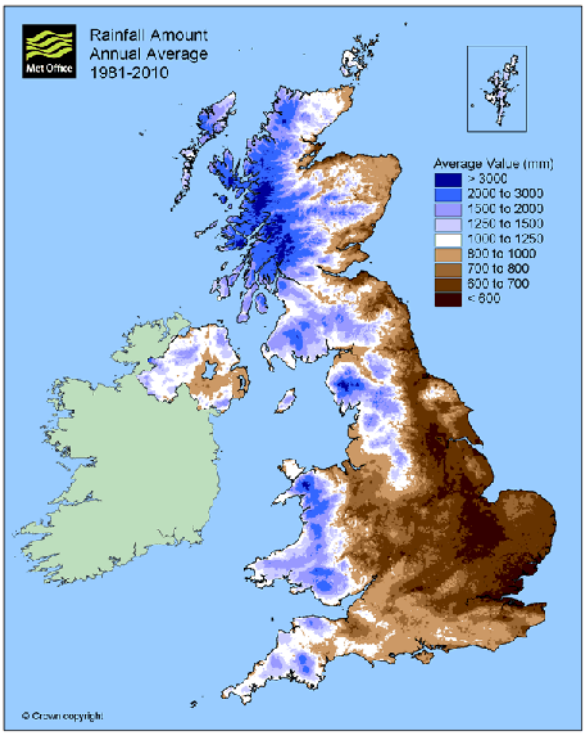
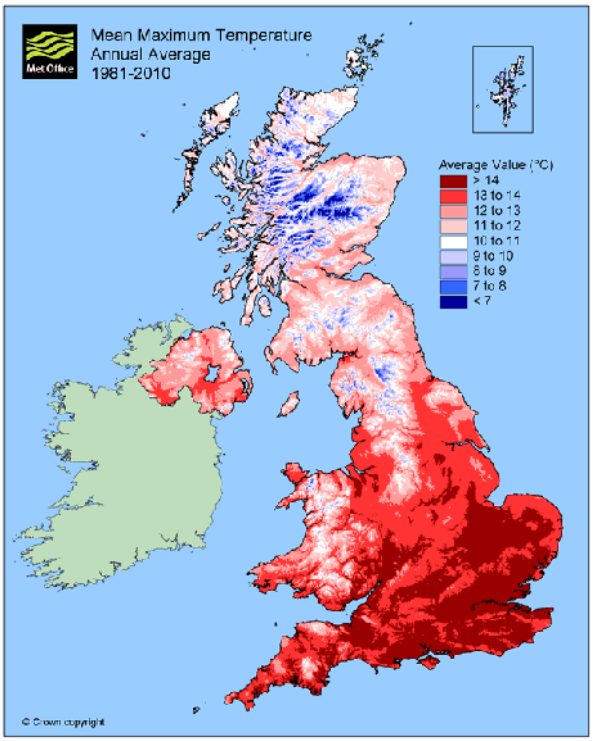


Figure 5: Average annual maximum temperature (°C) 1981 - 2010



Future trends: Understanding and adapting to the realities of climate change will be one of the challenges the District will be faced with. Climate change scenarios for the UK (UKCIP02) provide the best information on which to form an understanding of climate change, it shows that it is expected to be more pronounced in the South East than in any other UK region. Nationally it is estimated that there will be an annual warming by the 2080's of between 1°C and 5°C, with greater summer warming in the south-east than the north-west, and with greater warming in summer and autumn than in winter and spring. Over the same period, although annual rainfall totals are not expected to show much change, winters are expected to be up to 30% wetter than at present, and summers up to 50% drier.

A changing climate will bring about more storms, heavier rain, stronger winds and more summer heat-waves. It will have an impact on the landscape and our lifestyles; rare wildlife habitats and species may be threatened by the changing climate; farming could suffer from more pests, worse soil erosion and a decrease in agricultural land; more intense rain, rising sea levels and wetter soils will increase flood risk; and water supplies will be affected along with our demands made on them.

Material Assets

Previously Developed Land

The percentage of housing completions on previously developed land has been consistently above the Government's target of 60%, as set out in Table 9.

Table 9: Previously developed land in RBWM[23]

% of additional housing completed on PDL	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11[2]	2011/12[2]	2012/13[3]
Total dwellings completed[1]	87%	97%	90%	91%	99%	98%	99%	99%	94%	31%
Gross completions	390	436	492	485	576	545	409	281	262	525
Net completions	277	354	401	359	448	474	351	190	177	360

[1] *includes additional dwellings provided by conversions and changes of use, but excludes any losses.*
[2] *PDL includes Garden Land*
[3] *Garden Land removed from the definition of PDL*

Future Trends: In line with continuing trends for the South East of England, it is anticipated that the amount of previously developed land available for development in RBWM will decline as government policy of focusing development on previously developed land continues to take effect. The reduced reliance on windfall development contributing to supply may also mean that the level of Greenfield allocations may need to be higher than in the past.

Minerals and Aggregates

Berkshire is underlain by three main types of minerals: sand and gravel, chalk and clay. Of these only sand and gravel is extracted at any significant scale. Current planning policy on the supply of aggregate minerals state that Berkshire should make provision in its minerals plan for a contribution to this supply at the rate of 1.57 million tonnes of sand and gravel per year. Major challenges accompany sand and gravel extraction in Berkshire. The concentration of development in Berkshire where sand and gravel naturally occur and the extent of planning designations aimed at preserving the special character of the countryside all result in pressure on reconciling the supply of aggregates with protecting the environment and the amenity of local communities[24]. The principal areas of active mineral working within the borough are found north of Maidenhead, around Bray and within the Horton/Wraysbury area. These areas are also where permitted sites are concentrated (sites with

[23] RBWM (2014) Planning Services Housing Flows Reconciliation

[24] West Berkshire Council (2010) *Joint Minerals and Waste Monitoring Report 2010*

existing planning permission to extract sand and gravel). Having extracted for minerals, sites have frequently been used for solid waste disposal, which can raise other environmental concerns[25].

Future Trends: The Replacement Minerals Local Plan for Berkshire (2001) sets out the vision and spatial development strategy for minerals in the Borough. It also provides the framework for development control decisions on minerals applications. There is a continued move towards recycling of aggregates to keep demand for primary aggregates down. The council is currently preparing a Borough Local Plan (Core Strategy) which will contain planning policies and guidance.

Transport and Transport Infrastructure

The district's position in central southern England and its good links to the transport network have been key factors in RBWM's success at attracting businesses to the area. The district lies at the on the outskirts of London, and with strategic roads such as the M25 and M4 providing direct linkages in all directions and linking the area in with key urban centres and major transport hubs[26]. The Borough additionally benefits from 10 rail stations, and is in close proximity to Heathrow Airport[27].

RBWM Local Transport Plan 2012 - 2026

- To improve access to everyday services and facilities for everyone
- To improve road safety and personal security for all transport users
- To support sustainable economic growth
- To improve quality of life and minimise the social, health and environmental impacts of transport
- To mitigate and adapt to the effects of climate change

Future Trends: Vehicle trips in the South East grew by 17.5% between 2001 to 2011. Between 2001 and 2010 there was a 34% increase in rail passenger demand. The Local Transport Plan aims to implement a number of policies relating to road, rail and public transport, in particular, increased usage of public transport and a reduction in the use of the car. There are also objectives in relation to encouraging walking and cycling.

Energy Infrastructure

The following have been highlighted as renewable energy technologies appropriate to RBWM;

- Wind Power
- Solar Photovoltaic
- Solar Water Heating
- Hydroelectric Power
- Ground Source Heat Pumps

[25] RBWM (2004) Landscape Characters Assessment. Accessed online from http://www.rbwm.gov.uk/public/pp_lca_part1_main_document.pdf

[26] West Berkshire Council (2011) *District Profile*

[27] RBWM (2012) Local Transport Plan 2012 – 2026. Accessed from http://www.rbwm.gov.uk/web/ltp_index.htm

- Air Source Heat Pumps
- Biomass and Biofuels
- Combined Heat and Power

All developments within RBWM with 10 or more dwellings, or 1,000m^3 or more gross domestic floorspace will be expected to secure at least 10% of their expected energy demand from on-site renewable or low carbon sources[28].

The successful implementation of sustainable design and construction techniques will have the intended effect of reducing emissions from the domestic and commercial sectors and will assist in tackling the impacts of climate change. In addition, the promotion of renewable energy technologies at the micro and macro levels will help to reduce the need for energy from sources that contribute to climate change and will go towards meeting the renewable energy targets at the national, regional and local level. The Local Development Framework (LDF), of which the Core Strategy is the lead document, is one of the mechanisms through which emission reductions will be put into action.

Future Trends: The Thames Valley and Surrey sub-region currently had a total of 71.44 MWe installed capacity in 2007 while the 2010 target was 140 MWe.

Tourism and Recreation Infrastructure

The Borough lies in a naturally central location, within an hour's reach of London, Bristol, Oxford and the south coast. As such RBWM attracts a significant number of visitors each year and is also crucial to the local economy, with over 7 million people visiting the Royal Borough each year. Windsor itself is home to two of the UK's top 20 visitor attractions, Legoland and Windsor Castle. The Borough also hosts a number of world class events, such as Royal Ascot, the Windsor Royal Horse Show and Windsor Royal Tattoo, as well as numerous other major events throughout the year. In 2012 Eton Dorney was host to the Paralympic and Olympic Rowing, Sprint-Canoeing and Kayak events[29].

Tourism is particularly important to the RBWM economy, with key concentrations of employment in Windsor and Eton. In 2008 it was estimated that there were 6.3 million day trips, and 602,000 overnight trips to the Borough, generating around £511 million in business turnover. Between 2006 and 2008 day trips to RBWM increased by 4%, and overnight trips decreased by 5.5%. In RBWM tourism is estimated to support around 7,935 actual jobs, the majority in restaurants, bars, and hotels. The number of visitor attractions clearly plays a role in stimulating demand for other tourism businesses.

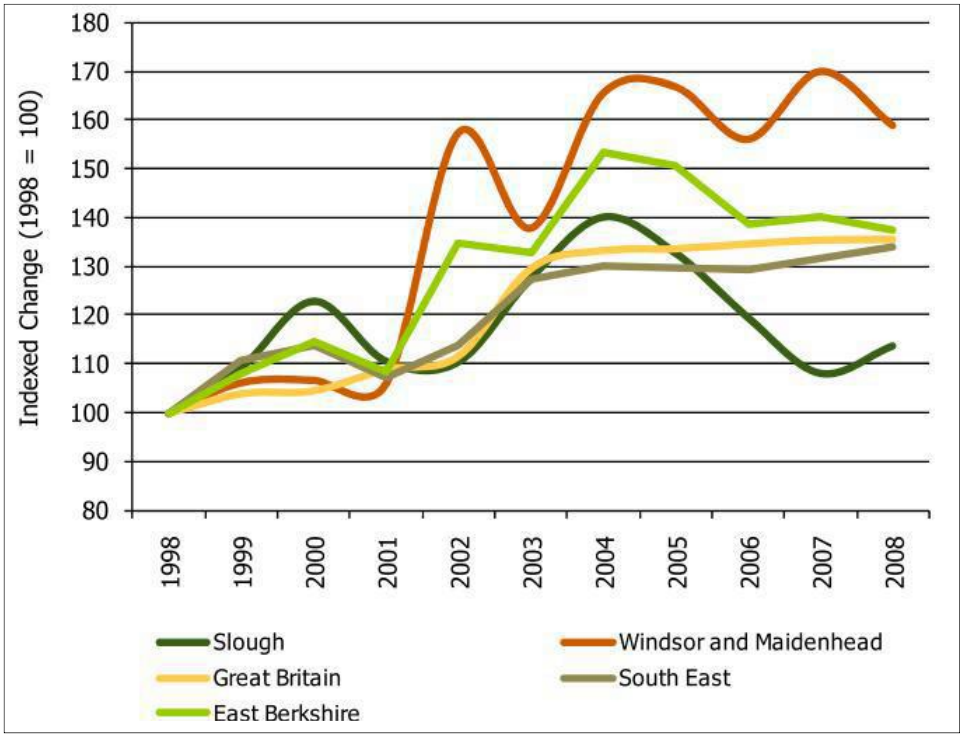
Tourism employment in RBWM has been volatile over recent years, but there has been an overall trend towards increasing employment that has far outstripped the steadier rate of increase occurring

[28] RBWM (2009) Sustainable Designed and Construction. Accessed from: http://www.rbwm.gov.uk/web/pp_sustainable_design_and_construction_spd.htm

[29] RBWM (2012) Local Transport Plan 2012 – 2026. Accessed from: http://www.rbwm.gov.uk/web/ltp_index.htm

nationally. Windsor and Eton is a key driver of this growth – employment in tourism increased steadily since 2003 (but did decline slightly between 2007 and 2008). See Graph 2 below[30].

Graph 2: Trends in employment in Tourism



Future Trends: One of the priorities is to ensure the continued success of the Tourism industry in RBWM, especially post 2012 Olympics and Paralympics.

Waste and Waste Infrastructure

Key points are:

- Over 40% of household waste was recycled in England in 2010/11, compared to 11% in 2000/01;
- The average residual waste per person in England has reduced by 88kg since 2006/07 to 263kg/person/year in 2010/11;
- 52% of commercial and industrial waste was recycled or reused in England in 2009, compared to 42% in 2002/3;
- 50% of local authority collected waste generated in the UK was sent to landfill in 2010/11, compared to an EU average of 40%;
- According to RecycleNow, UK recycling saves more than 18 million tonnes of carbon dioxide a year – equivalent to taking 5 million cars off the road;
- The UK produced in 2009 approximately 8.3 million tonnes of food and drink waste per year, 7.0 million tonnes of which was food;

[30] Regeneris Consulting ltd (2011) East Berkshire Local Economic Assessment. Accessed from: http://www.rbwm.gov.uk/public/east_berkshire_lea_report.pdf

- In England this could generate at least 3-5 TWh electricity per year by 2020 (a heat equivalent of 6-10TWh);
- The UK water industry treats 66% of sewage sludge by AD, generating in the region of 1 TWh per year of electricity in 2010;
- The diversion of biodegradable wastes to AD can reduce greenhouse gas emissions from landfill. For example, capturing the biogas from one tonne of food waste will save between 0.5 and 1 tonne of CO_2 equivalent; and
- Direct emissions from the waste management greenhouse gas inventory sector in the UK accounted for 3.2% of the UK's total estimated emissions of greenhouse gases in 2009, or 17.9 Mt CO_2 compared to 59 Mt CO_2 in 1990. Of the 2008 total, 89% arises from landfill, 10% from waste-water handling and 2% from waste incineration (these figures are rounded) [31].

In 2002/2003, 88,000 tonnes of waste were produced by households within the Borough, which is economically and environmentally unacceptable.

Key priority areas for RBWM are:

- To stabilise, and in due course reduce, the amount of municipal waste generated in the Borough.
- To follow our communication plan to encourage all residents to participate, and will build upon our current recycling initiatives to improve convenience to householders.
- To recover as much value as possible from our rubbish through recycling and composting before considering other recovery methods.
- Continue to support kerbside recycling collection as a priority. Recycling banks and the Household Water Recycling Centre will continue to be developed to compliment the kerbside scheme.[32]

Most of the borough's waste is currently sent for disposal in landfill sites. By far the greatest generator of waste is the construction industry (63.8% of waste generated in Berkshire) followed by Households (18.5%). However, landfill void space continues to be used up at a faster rate than it is being created. In addition, current practices are wasteful of resources and fail to deal with waste arising in the most environmentally sound manner. A radical change in waste practice is developing through the Minerals Local Plan for Berkshire which in turn is implementing the Government's 'Waste Hierarchy' advocated in the White Paper 'Making Waste Work' (December 1995). This places emphasis on minimisation and the efficient use of re-usable resources[33].

[31] Defra (2013) *Waste and Recycling.* Accessed from: http://www.defra.gov.uk/environment/waste/

[32] RBWM (2002) Waste Strategy. Accessed from: http://www.rbwm.gov.uk/web/recycling_rubbish_waste.htm

[33] RBWM (2004) Landscape Characters Assessment. Accessed from: http://www.rbwm.gov.uk/public/pp_lca_part1_main_document.pdf

Future Trends: The Government has set challenging targets to increase the recycling of household waste and reduce dependence on landfill. The Waste Management Plan for England (2013)[34] sets out targets for recycling and composting. For recycling and composting of household waste the target is 50% by 2020; and in the recovery of municipal waste is 67% by 2015 and 75% by 2020.

Cultural Heritage

The Borough has a rich natural heritage. There are 133 Wildlife Heritage Sites in the Borough, which protect locally important habitats and ensure the sites are taken into account during planning applications. In addition to the physical characteristics of RBWM, the area is also strongly influence by human activities since the last ice age. Changes in land management and the expansion of development in recent times have had, in particular, fundamental effects on the character of the landscape. These occupations and settlements have changed and altered the landscape dramatically. There are four monuments in RBWM on the Heritage at Risk Register; Beenham's Heath, Noah's Boathouse, St Michaels and All Angels Church and the Royal Mausoleum, see Table 10 below[35].

Table 10: Windsor and Maidenhead. Heritage at Risk Register

Site Name	Designation	Condition	Description
Noahs Boathouse	Listed Building Grade II	Poor	1930, by Colin Lucas for his father, constructed of monolithic reinforced concrete with a flat roof. An early and pioneering example of Modern Movement architecture by one of the major figures in the movement. The building floods regularly and is derelict. The roof is leaking and the concrete is spalling.
Royal Mausoleum	Listed Building Grade I	Fair	Mausoleum of Queen Victoria and Prince Albert, 1862-71. Damp problems are placing external and internal historic fabric at risk, including the internal frescoes. The original rainwater drainage is inadequate and poorly designed, running within the wall fabric, and is difficult to maintain. Environmental monitoring has been carried out, and temporary remedial works are proposed.
Beenham's Heath	Conservation Area	At Risk	-
Church of St Michael and All Angels	Listed Building Grade II	Poor	Large village church built on the foundations of a Norman church in 1808, extended in 1826-7 and again in 1888. It is mainly constructed of brick with stone and Roman cement detailing, with tiled roofs. The church is at risk due to defective valley and parapet gutters, rainwater goods, stone and brickwork.

[34] DEFRA (2013) Waste Management Plan for England

[35] English Heritage (2013) *Heritage at Risk Register*

There are 27 designated Conservation Areas in the Borough [36].

1. All Saints, Boyn Hill, Maidenhead 2. Altwood Road, Maidenhead 3. Beenham's Heath 4. Bisham Village 5. Bray Village / Appendix 6. Burchetts Green 7. Castle Hill, Maidenhead 8. Cookham Dean 9. Cookham High Street 10. Datchet 11. Eton 12. Furze Platt Triangle 13. Holyport 14. Hurley Village	15. Inner Windsor 16. Littlewick Green 17. Maidenhead Riverside 18. Maidenhead Town Centre 19. Mill Lane (Clewer Village) 20. Old Windsor 21. Pinkneys Green, Nr. Maidenhead 22. Shurlock Row 23. St Mary's Church & Bury Court, White Waltham 24. Sunningdale 25. Trinity Place/ Clarence Crescent, Windsor 26. Waltham St Lawrence 27. Windsor Town Centre

Within the Royal Borough, there are approximately 1,700 listed buildings. Of these 23 are listed grade I and include buildings such as Windsor Castle and Eton College, and 69 grade II* listed buildings[37].

Future trends: The conservation of historic buildings and areas has helped to sustain the distinctive communities in the District. The National Heritage Protection Plan identifies that:

"*While uncertainty remains over trends, currently we recognise flooding events and erosion as threats whose severity may be increasing in certain areas as a result of climatic changes. Apparent reduction in precipitation may increase fire risks in moorland or woodland areas. Related directly to such threats, national and international directives and legally binding measures (for example for water management and water quality) may have a significant impact on heritage assets.*[38]"

Landscape

The Windsor and Maidenhead landscape has evolved over thousands of years as the result of complex interactions between the physical, natural and cultural. 14 distinct landscape types and 32 discrete character areas have been identified within the borough's landscape. The Borough stretches across the Thames Valley floodplain and comprises diverse urban and rural landscapes, including National Trust and Crown Estate land. The Borough is classified by the Countryside Character Area as 'Chilterns', 'Thames basin Heaths' and 'Thames Valley'. The underlying solid geology is chalk from the Cretaceous period of the Mesozoic era (circa 97 million years before the present (BP)). This indicates that a slow marine transgression (an advance of the sea across a former land area) occurred across the borough at this time resulting in the deposition of calcareous material. The chalk is predominately that of the Upper Chalk formation which is characterised by very pure white chalk

[36] RBWM (2014) Conservation Areas http://www.rbwm.gov.uk/web/pp_conservation_areas.htm

[37] RBWM (2014) Listed Buildings Frequently asked Questions http://www.rbwm.gov.uk/web/pp_listed_buildings_faq_18294.htm

[38] English Heritage (2013) National Heritage Protection Plan. Available online at: http://www.english-heritage.org.uk/content/imported-docs/k-o/nhpp-action-plan.pdf

with some flint. During the early part of the Tertiary period (Palaeogene) some 65 million years BP this chalk strata underwent a series of uplifting and folding events which resulted in the creation of the London Basin and the extensive chalk outcrops of the Chiltern Hills. The London Clay formation forms a band running east to west across the central areas of the borough. The flatter agricultural landscapes in this area are characteristic of this underlying geology and the use of London Clay for brick production is evident within the local vernacular for the Maidenhead (and wider) area. In the southern part of the borough, around Sunningdale and Ascot, London Clay is overlain by the Bagshot Formation (which includes the Bagshot Beds) which is mainly marine sand. This free draining material has resulted in the development of heathland landscape in these areas.

The Windsor Forest area is an example of a landscape that contains historic features that would once have formed part of a much earlier rural scene, which is the medieval Royal Hunting Forest of Windsor which once stretched across East Berkshire in the twelfth century. Although much reduced from its twelfth century extent, the large tracts of continuous woodland found within the Windsor Forest area today probably display similar landscape characteristics to those of areas of managed forest found within the 12th century Royal Hunting Forest. However the historic forest would also have been comprised of a mosaic of cultivated lands, common pasture and village communities, as well as forest. Although actual relics from the 12th century forest are understood to be uncommon within the wider landscape of the Windsor area, some Veteran Trees within Windsor Great Park are thought to date back to this time[39].

Future trends: The Berkshire Landscape Character Assessment states that the current driving forces relating to landscape change are agriculture/forestry, recreation and development. Agriculture is currently in recession and inevitable restructuring of the agricultural economy is resulting in increased farm units and expansion, or conversely land coming out of production resulting in lifestyle and hobby farms. In addition, a loss of markets in forestry has resulted in a decline in woodland management especially those of ancient origin managed under traditional regime. Development is also a powerful force for change. The increasing pressure from expanding business economies and the need to accommodate housing is threatening landscape character. Other potential changes to landscape character relate to energy crops, mineral extraction (although sympathetic restoration has resulted in the creation of important new wetland landscape and habitats) and telecommunications. Tourism and recreation can also threaten landscape character.

[39] RBWM (2004) Landscape Characters Assessment. Accessed from: http://www.rbwm.gov.uk/public/pp_lca_part1_main_document.pdf

Appendix C: SEA Matrices

Key to Matrices

Potential major positive effect	++
Potential minor positive effect	+
Uncertain	?
No or negligible effect	0
Potential minor negative effect	-
Potential major negative effect	- -

Objective 1: Develop a clear understanding of flood risk within the Royal Borough of Windsor and Maidenhead and increase public awareness.

Management Measures: M/A1 – M/A4

SEA Headline objectives	Score	Commentary
1. To ensure biodiversity is conserved and enhanced	**0**	Measures set out in the LFRMS around developing a clear understanding of sources of flood risk are unlikely to have an effect on biodiversity.
2. To improve health and wellbeing and reduce inequalities	**+**	Measures set out in the LFRMS around developing a clear understanding of sources of flood risk include providing a point of contact for local residents, which would be expected to help local residents to reduce their risk of coming to harm.
3. To protect soils and geodiversity	**0**	Measures set out in the LFRMS around developing a clear understanding of sources of flood are unlikely to have an effect on soils and geodiversity
4. To maintain and improve the water quality of the district's rivers and ground waters.	**++**	Developing a SWMP is likely to have a long term significant positive effect on surface water drainage.
5. To ensure that flood risk is not increased and where possible minimised	**++**	Developing a SWMP (M/A 4) and promoting understanding the future local sources of flooding in the local area will not increase flood risk and is likely to help minimise future flood risk.
6. To Reduce emissions contributing to climate change and ensure adaptive measures are in place to respond to climate change	**0**	Measures set out in the LFRMS around improving knowledge and understanding of local sources of flood risk are unlikely to have an effect on climate change.
7. To protect material assets	**++**	Improving flood risk knowledge, understanding future sources of flood risk and developing a SWMP will help protect material assets from the damaging effects of flooding.
8. To conserve and enhance the built, cultural and historic environment	**++**	Improving flood risk knowledge, understanding future sources of flood risk and developing a SWMP measure M/A4 will help protect the borough's historic environment from the damaging effects of flooding.
9. To conserve and enhance the character of the landscape	**0**	Measures set out in the LFRMS around improving knowledge and understanding of sources of flood risk are unlikely to have an effect on the character of the landscape

Objective 2: Establish and maintain effective partnerships with key organisations and local communities, to deliver a sustainable, cost effective approach to flood risk management that reduces flood risk and delivers wider environmental and social economic benefits where possible.

Management Measures: M/A5 – M/A

SEA Headline objectives	Score	Commentary
1. To ensure biodiversity is conserved and enhanced	0	Measures set out in the LFRMS work collaboratively and develop and deliver a sustainable cost effect approach to flood risk are unlikely to have an effect on biodiversity
2. To improve health and well- being and reduce inequalities	+	Engaging with local communities of flood risk in the Borough would be expected to reduce the adverse health effects of flooding.
3. To protect soils and geodiversity	0	Measures set out in the LFRMS to work collaboratively and develop effective partnerships with other Flood Risk Management Authorities are unlikely to have an effect on soils and geodiversity
4. To maintain and improve the water quality of the district's rivers and ground waters.	++	Measures set out in the LFRMS to deliver a sustainable and cost effective approach to flood risk management that reduces flood risk are likely to have a significant positive effect on the Borough's water quality.
5. To ensure that flood risk is not increased and where possible minimised	++	Working with partners to identify flood alleviation schemes and publishing RMA roles and responsibilities would minimise the risk of flooding.
6. To Reduce emissions contributing to climate change and ensure adaptive measures are in place to respond to climate change	+	Measures set out in the LFRMS to work collaboratively and develop and deliver a sustainable cost effect approach to flood risk are likely to lead to better flood risk management, a key aspect of adapting to climate change.
7. To protect material assets	++	Measures set out in the LFRMS to deliver a sustainable cost effective approach to flood risk management that reduces flood risk are likely to directly protect material assets.
8. To conserve and enhance the built, cultural and historic environment	+	Measures set out in the LFRMS to deliver a sustainable cost effective approach to flood risk management that reduces flood risk may help to protect the historic environment in the Borough from the damaging effects of flooding.
9. To conserve and enhance the character of the landscape	0	Measures set out in the LFRMS to work collaboratively and develop and deliver a sustainable cost effect approach to flood risk are unlikely to have an effect on the character of the landscape

Objective 3: Ensure that land use planning and application decisions take full account of flood risk, avoiding development in inappropriate locations, minimising and preventing an increase in flood risk wherever possible.

Management Measures: M/A9 – M/A13

SEA Headline objectives	Score	Commentary
1. To ensure biodiversity is conserved and enhanced	+	Measures set out in the LFRMS ensuring that development is in appropriate locations to minimise and prevent an increase in flood risk has the potential to benefit biodiversity through the appropriate design of flood risk management measures and avoiding sensitive habitats.
2. To improve health and well- being and reduce inequalities	+	Measures set out in the LFRMS ensuring that planning decisions take full account of flood risk and avoid would be expected to benefit human health but not permitting inappropriate development in flood risk areas.
3. To protect soils and geodiversity	+	Measures set out in the LFRMS ensuring that planning decisions take full account of flood risk and avoid development in inappropriate locations would be expected to take into account consideration of the potential effect on soils and geodiversity.
4. To maintain and improve the water quality of the district's rivers and ground waters.	+	Developing a guidance document for the implementation of SuDS is likely to improve water quality.
5. To ensure that flood risk is not increased and where possible minimised	++	Measures set out in the LFRMS around planning decisions and development to minimise flood risk is likely to ensure that flood risk is not increased and is minimised.
6. To Reduce emissions contributing to climate change and ensure adaptive measures are in place to respond to climate change	+	Measures set out in the LFRMS to take account of flood risk in planning and to avoid development in inappropriate locations are key to considering the need to adapt to climate change.
7. To protect material assets	+	Measures set out in the LFRMS to ensure planning decisions take flood risk into account are likely to have a positive effect on protecting housing.
8. To conserve and enhance the built, cultural and historic environment	0	Measures set out in the LFRMS to take account of flood risk in planning and to avoid development in inappropriate locations in regards to flood risk are unlikely to have any effect on the historical environment of the Borough.
9. To conserve and enhance the character of the landscape	0	Measures set out in the LFRMS to take account of flood risk in planning and to avoid development in inappropriate locations in regards to flood risk are unlikely to have any effect on the character of the landscape.

Objective 4: Develop plans to reduce existing flood risk taking account of people, communities and the environment.

Management Measures: M/A14 – M/A18

SEA Headline objectives	Score	Commentary
1. To ensure biodiversity is conserved and enhanced	+	Measures set out in the LFRMS to enhance the maintenance of ordinary watercourses are likely to benefit biodiversity through appropriate hbitat management.
2. To improve health and well- being and reduce inequalities	+	Measures improving local flood risk management infrastructure further reduce flood risk and in turn the risk to human health.
3. To protect soils and geodiversity	0	The measures set out under objective 4 are unlikely to affect soils and geodiversity.
4. To maintain and improve the water quality of the district's rivers and ground waters.	++	The measures to reduce flood risk under objective 4 will significantly reduce the flood risk through improving flood infrastructure, reducing the risk of pollution.
5. To ensure that flood risk is not increased and where possible minimised	++	Ensuring that flood risk is not increased is the central aspect of objective 4 and all measures will contribute to it.
6. To Reduce emissions contributing to climate change and ensure adaptive measures are in place to respond to climate change	0	The measures to improve local flood risk management under objective 4 are unlikely to have any effect on climate change.
7. To protect material assets	++	Objective 4 seeks to maintain and improve flood management infrastructure and third party flood defence assets to reduce the risk of flooding which will protect material assets from the damaging effects of flooding.
8. To conserve and enhance the built, cultural and historic environment	+	The measures set out under objective 4 to reduce flood risk will help to protect the Borough's historical environment from the damaging effect of flooding.
9. To conserve and enhance the character of the landscape	0	The measures set out under objective 4 to reduce flood risk are unlikely to have an effect on the character of the landscape.

Objective 5: Ensure that emergency plans and responses to flood incidents are effective and that communities are prepared and resilient to local flood risk.

Management Measures: M/A19 – M/A22

SEA Headline objectives	Score	Commentary
1. To ensure biodiversity is conserved and enhanced	0	Measures set out in the LFRMS to ensure that emergency planning for flooding is effective are unlikely to have an effect on biodiversity
2. To improve health and well- being and reduce inequalities	++	M/A 19-22 all seek improve the quality of emergency planning in the borough, which in the event of an emergency will be essential in minimising the risk to life that floods can pose.
3. To protect soils and Geodiversity	0	Measures set out in the LFRMS to ensure that emergency planning for flooding is effective within are unlikely to have an effect on soils and geodiversity
4. To maintain and improve the water quality of the district's rivers and ground waters.	0	Measures set out in the LFRMS to ensure that emergency planning for flooding is effective within are unlikely to have an effect on water quality
5. To ensure that flood risk is not increased and where possible minimised	++	Management measures M/A19-22 have an important role to play in minimising the risk from flooding when it occurs, putting emergency measures in place that will mean communities are resilient to local flood risk.
6. To Reduce emissions contributing to climate change and ensure adaptive measures are in place to respond to climate change	0	Ensuring emergency plans and responses to flood events are effective is unlikely to have any effect on climate change.
7. To protect material assets	+	Ensuring emergency plans and responses to flood events are effective would be expected to protect material assets as they are expected to feature in the emergency plans
8. To conserve and enhance the built, cultural and historic environment	+	Ensuring emergency plans and responses to flood events are effective would be expected to protect historic assets as they are expected to feature in the emergency plans
9. To conserve and enhance the character of the landscape	0	Ensuring emergency plans and responses to flood events are effective is unlikely to have any effect on the character of the landscape.

Objective 6: Identify national, regional and local funding mechanisms to deliver flood risk management solutions and schemes.

Management Measures: M23 – M27

SEA Headline objectives	Score	Commentary
1. To ensure biodiversity is conserved and enhanced	**0**	The LFRMS measures to identify funding mechanisms are unlikely to have an impact on biodiversity.
2. To improve health and well- being and reduce inequalities	**0**	The LFRMS measures to identify funding mechanisms are unlikely to have an impact on health and well-being.
3. To protect soils and Geodiversity	**0**	The LFRMS measures to identify funding mechanisms are unlikely to have an impact on soils and geodiversity.
4. To maintain and improve the water quality of the district's rivers and ground waters.	**+**	The prioritisation of flood alleviation schemes is likely to have a beneficial effect on water quality through reducing the risk of pollution.
5. To ensure that flood risk is not increased and where possible minimised	**+**	Management measures to ensure the funding for flood risk management solutions will help to minimise flood risk.
6. To Reduce emissions contributing to climate change and ensure adaptive measures are in place to respond to climate change	**0**	Management measures to ensure funding for flood risk management solutions is unlikely to have an effect on climate change.
7. To protect material assets	**0**	Management measures to ensure funding for flood risk management solutions is unlikely to have an effect on protecting material assets.
8. To conserve and enhance the built, cultural and historic environment	**0**	M Management measures to ensure funding for flood risk management solutions is unlikely to have an effect on the historic environment.
9. To conserve and enhance the character of the landscape	**0**	Management measures to ensure funding for flood risk management solutions is unlikely to have an effect on the character of the landscape.

Objective 7: Work in partnership with the Environment Agency, professional partners, other stakeholders and communities to deliver effective schemes to alleviate flood risk from the River Thames.

Management Measures: M28 – M31

SEA Headline objectives	Score	Commentary
1. To ensure biodiversity is conserved and enhanced	++	Working with appropriate stakeholders would be expected to ensure that due regard is given to conserving and enhancing biodiversity.
2. To improve health and well- being and reduce inequalities	0	The LFRMS measures to identify funding mechanisms are unlikely to have an impact on health and well-being.
3. To protect soils and Geodiversity	++	Working with appropriate stakeholders would be expected to ensure that due regard is given to protecting soils and geodiversity.
4. To maintain and improve the water quality of the district's rivers and ground waters.	++	Working with the Environment Agency and other stakeholders would be expected to ensure that the quality of the districts groundwater is taken into account and improved.
5. To ensure that flood risk is not increased and where possible minimised	+	Working with appropriate stakeholders will help to minimise flood risk.
6. To Reduce emissions contributing to climate change and ensure adaptive measures are in place to respond to climate change	0	Working with appropriate stakeholders is unlikely to have an effect on climate change.
7. To protect material assets	++	Working with appropriate stakeholders would be expected to ensure that due regard is given to protecting material assets.
8. To conserve and enhance the built, cultural and historic environment	++	Working with appropriate stakeholders would be expected to ensure that due regard is given to protecting and enhancing the built, cultural and historic environment.
9. To conserve and enhance the character of the landscape	++	Working with appropriate stakeholders would be expected to ensure that due regard is given to conserving the character of the landscape.

Appendix D Consultee Comments

Set out here are the comments received from the Environment Agency, Natural England and English Heritage on the SEA Scoping Report and WSP's responses to them.

Consultee	Comments	Response
Environment Agency Please note that the Environment Agency Comments were made directly onto the Scoping Report. So the wording of the comments is harder to out of context. The location of the comments is given in italics to assist he reader in understanding the context.	*In response to Paragraph 1.3.2, which stated:* "*The purpose of the LFRMS is to explain how the Borough will manage flood risk from surface water, groundwater and ordinary watercourses, now and in the future. It will provide details of other organisations that are responsible for managing flood risk and what those responsibilities are.*" From what other sources? This needs clarifying as you clarified RBWM's responsibilities	Clarified in paragraph 1.3.2 of the main report.
	In response to footnote 6, which stated: *"Estimated by Defra to be in the order of 2 x 10^{-5}%AEP"* Or 1 in ? - this statement is hard to understand for the layman	Noted. There is no use of standard form in the Environmental Report
	In response to Table 2.1, which stated: *"The Borough has a number of heritage assets; Listed Buildings Grade I and II, and a Conservation Area, some of which may be at risk of flooding."* You've identified specific sites for other topics, should the overlap between those listed buildings etc and flood risk also be documented here? It would make for more effective analysis	Additional sites added
Natural England	We welcome the reference to the Thames Basin Heaths (TBH) Supplementary Planning Document (SPD), along with the Berkshire Local Geodiversity Action Plan and Biodiversity Action Plan (BAP). We note however that none of these Documents are listed in Section 2.4.5, and we would advise that these documents are also included in the list. We note and welcome the inclusion of the Landscape Character Assessment document and the Natural Environment White Paper. We note that the Natural Environmental and Rural Communities Act (2006) has been referenced, and therefore the Conservation of Habitats and Species Regulations 2010 (as amended) and the Wildlife and Countryside Act 1981 (as amended) could also be referenced.	Noted. Whilst these are important plans, section 2.4.5 is for those of the most direct relevance.
	We would advise that the data in Appendix B is appropriate, but that in the final SEA Report with regard to the SSSIs and SPA it would be useful to include a spatial map (as has been done for the soils section) of where these designated sites are to help visualisation. It would also be useful to show what condition these sites are in, e.g. „Favourable", „Unfavourable", etc. This information can	A spatial map has been prepared and added to the baseline data section.

	be found on our website here: http://www.sssi.naturalengland.org.uk/Special/sssi/index.cfm In addition, the Natura 2000 network site conservation objectives are available on our internet site here: http://www.naturalengland.org.uk/ourwork/conservation/designations/sac/conservationobjectives.aspx You may also wish to include BAP species in the final Report (i.e. along with BAP habitats which have already been included), and it could also be useful here to include a spatial map of the BAP habitats and BAP species.	
	3) Is there any other relevant baseline data that should be included? ■ Rights of Way, Access land, Coastal access and National Trails - The Document could consider potential impacts on access land, public open land, rights of way and coastal access routes in the vicinity of the development. ■ Air Quality - The Document could also consider air quality, which although has improved overall over recent decades, still remains a significant issue. ■ Green infrastructure (GI) - Please note that this area is one that has been highlighted by Natural England as having GI potential, i.e. is in an area which we consider could benefit from GI provision. Multi-functional green infrastructure can perform a range of functions including improved flood risk management, provision of accessible green space, climate change adaptation and biodiversity enhancement. ■ Cumulative and in-combination effects - The Document should include an impact assessment to identify, describe and evaluate the effects that are likely to result from the project in combination with other projects and activities that are being, have been or will be carried out. Other useful organisations for consulting about baseline data – a comprehensive list of local groups can be found at Wildlife and Countryside link: http://www.wcl.org.uk/our-members.asp.	The LFRMS functions at a strategic tier. As such, the additional details here would not help to inform the assessment. Cumulative and in-combination effects have been considered in Section 5.5 of the Draft Environmental Report.
	Natural England are satisfied with the accuracy of the key environmental issues considered in this scoping report.	Noted
	The section listing the SACs has inconsistencies with regard to whether 'SAC' is put at the end of a site name or not. In addition, we would advise that it would be useful to list the eleven SSSIs within the Table, as has been done with the SPAs and SACs. We would also suggest moving the SSSIs to below the SPAs in order to follow a more intuitive reading order which would relate to level / hierarchy of designation.	Amendments made in Table 3.1 of the Draft Environmental Report. Add adding all LWS, AWS and BAP habitats would make the table excessively long and not help to inform the reader as to the most important designated habitats.

	Natural England is supportive of the LFRMS process and we believe the strategy should not only protect people and property, but should lead to the best outcome for wildlife and habitats, and for ecosystem services. We would therefore welcome any scheme options emerging from the LFRMS which would deliver both flood defence and biodiversity benefits (e.g. SUDS schemes, re-naturalising of canalised watercourses, flood storage lagoons, etc). We recommend that in the preparation of the LFRMS that the LPA look for the following, but not exclusive, outcomes: ■ Any flood risk management options that will affect water levels or flows on designated sites should be assessed in line with the conservation objectives of these sites; ■ Flood storage and attenuation of surface water runoff in carefully selected locations will provide multiple benefits – including biodiversity, water quality improvements and green infrastructure; and ■ Opportunities for habitat creation and enhancement should be maximised. This might include be new/existing wetlands, or river restoration (restoring more natural flows, bankside vegetation, and removing structures and impoundments where feasible).	Noted
	Habitats Regulations Assessment We are pleased to see that section 1.7 acknowledges that in addition to the SEA process a Habitat Regulations Assessment (HRA) will need to be carried out as part of the work for the LFRMS. Consideration must be given to the potential for significant effects on Natura 2000 sites, and even if the potential for impacts can be screened out at an early stage, the process will still need to be followed as part of the audit process.	Please refer to the HRA Screening submitted alongside this Draft Environmental Report.
English Heritage	It is a pity that there does not appear to be a Windsor and Maidenhead or Berkshire Heritage Strategy/Action Plan such as there is for biodiversity and geodiversity. Reference could be made to the National Heritage Protection Plan, published by English Heritage which identifies a number of generic threats to the historic environment, including natural and environmental threats and physical infrastructure threats.	Reference to the National Heritage Protection Plan has been added.
	What little baseline data is presented for cultural heritage is appropriate as regards the historic environment but it is woefully inadequate (see our response to the next question). “Wildlife Heritage Sites” should be identified under “Biodiversity/Flora and Fauna rather than “Cultural Heritage”. It is important to note that Noah’s Boathouse, one of the heritage assets at risk, floods regularly.	Amended
	There should be a full breakdown of designated heritage assets within the Royal Borough under “Cultural Heritage”. This section should also include a brief assessment of the significance of the heritage assets, particularly those of the highest significance. The paragraph on “Future trends” is too simplistic. The National Heritage Protection Plan (see our response to Question 1 above) identifies a number of potential trends which may be applicable to the Royal Borough, or there may be others. Overall, it is very disappointing to find “cultural heritage” not	The breakdown of heritage assets has been added. With regards to providing “a brief assessment of the

	given the prominence it deserves within the Scoping Report.	significance of the heritage assets, particularly those of the highest significance", this is not a reasonable requirement. It would mean providing an assessment of heritage assets that might be unaffected by the LFRMS. This was discussed with English heritage on receipt of their comments, and it was confirmed the approach taken is satisfactory. Text on future trends has been amended.
	Not as regards the limited historic environment information within the baseline data.	Noted
	In Table 2.1, we are pleased to see cultural heritage as a topic. However, "Key Issues" present an incomplete picture of the heritage assets in the Royal Borough – there should be a full breakdown of heritage assets within the Royal Borough (see our response to Question 3 above). We agree that the LFRMS can indeed have a role in putting maintenance measures in place and that any policies in relation to maintenance should have regard to potential impacts on cultural heritage. However, the same principle applies to physical works, e.g. the construction of flood defences, which can be permanently harmful to the significance of heritage assets, or any property-specific flood prevention measures which may also detract from the significance of the asset. Of course, it is important to protect designated heritage assets, e.g. listed buildings, from flood risk, which needs to be weighed against any potential harm.	Noted
	We welcome proposed SEA headline objective 8 but prefer "conserve and enhance" to "protect and enhance" as terminology more consistent with the National Planning Policy Framework. The sub-objective/criteria should be "Does the proposed measure conserve or enhance the significance of heritage assets and their setting ?". Measures should be scored for their conservation/enhancement of	Amended

	or impact on the significance of an asset.	
	The need for planning permission, listed building consent or scheduled monument consent is a safeguard rather than a mitigation measure, although conditions attached to the permission or consent could be mitigation measures. Where specific measures are proposed that would cause unavoidable harm to the significance of a heritage asset, specific mitigation measures should be identified and proposed.	For the purposes of the LFRMS, which is a strategic document, planning permission has been included under mitigation for ease of reference.
	Q8 Do you consider that the structure of the report is appropriate? Yes.	Noted