

North Yorkshire County Council

Local Flood Risk Management Strategy

Strategic Environmental Assessment

**Volume II: Further Environmental
Report Appendices
(Consultation Draft Version)**

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3 Appendix 3 – List of Relevant Plans, Policies, Programmes and Environmental Protection Objectives

This document contains a list of policies, plans, programmes and environmental protection objectives relevant to the North Yorkshire Local Flood Risk Management Strategy. In exceptional circumstances, influential initiatives are also included. The list has been compiled and is valid at the time of print. The list will be updated and amended, if necessary, before production of the final Environmental Report.

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Key objectives, targets and indicators relevant to the LFRMS and SEA	Implications for the LFRMS	Implications for SEA
3.1 INTERNATIONAL/EUROPEAN CONTEXT		
Biodiversity, Flora and Fauna		
Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)		
<p>The Convention aims to ensure conservation of wild flora and fauna species and their habitats. Transposed and implemented in the UK through the Wildlife and Countryside Act (1981). Key requirements are as follows:</p> <ul style="list-style-type: none"> ➤ Promotion of national policies for the conservation of wild flora, wild fauna and natural habitats. ➤ Integration of the conservation of wild flora and fauna into national planning, development and environmental policies. ➤ Promotion of education and disseminate information on the need to conserve species of wild flora and fauna and their habitats. 	<p>The LFRMS policies should conserve and enhance biodiversity.</p>	<p>The SEA will need to consider biodiversity in the SEA framework and objectives.</p>
Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979) amended 1985, 1988		
<p>Aims to conserve terrestrial, marine and avian migratory species on a global scale. Transposed and implemented in the UK through the Wildlife and Countryside Act (1981) and Countryside and Rights</p>	<p>The LFRMS policies should conserve or enhance the</p>	<p>The SEA will need to consider biodiversity, including</p>

of Way Act (2000). Parties to the Convention should endeavour to provide immediate protection for specified migratory species.	biodiversity of migratory species.	migratory species, in the SEA framework and objectives.
EU Birds Directive (2009/147/EC)		
Bans activities which directly threaten birds and requires the protection of habitats via the Special Protection Area designations. Updates and amends the earlier 1979 Directive and transposed through a range of national legislation, including the Wildlife and Countryside Act and the Habitats Regulations.	Flood risk management activity should seek to enhance rather than work against bird habitats and species.	Consider the effects of policies on bird species and habitats. The HRA will also help ensure that significant effects are not likely to occur to special protection areas or Annex I birds present at SPA sites.
RAMSAR Convention on Wetlands of International Importance, especially waterfowl habitat (1971)		
The convention on wetlands, signed in Ramsar, Iran, is an intergovernmental treaty which provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources. The convention makes the following commitments: <ul style="list-style-type: none"> ➤ Signatories will designate wetland sites to be included in the list of wetlands of international importance and promote conservation and wise use of these. ➤ Under the Convention there is an obligation for contracting parties to include wetland conservation considerations in their national land-use planning. ➤ Contracting parties have also undertaken to establish nature reserves in wetlands and they are also expected to promote training in the fields of wetland research, management and stewardship. 	The LFRMS must account for areas that are designated wetland sites.	The SEA should include objectives on protecting/enhancing biodiversity and protecting designated areas. In order to be consistent with Government Planning Policy ¹ , significant effects on Ramsar sites will be considered in both this SEA and the accompanying Habitats Regulations Assessment.
UN Convention on Biological Diversity (1992)		
Aims to conserve biological diversity through various species and habitat protection measures. The UK Biodiversity Action Plan was produced in response to this convention, listing UK priority habitats and species. The Convention establishes three main goals: the conservation of biological diversity; the sustainable use of its components, and; the fair and equitable sharing of the benefits from the use of genetic resources.	The LFRMS policies should conserve and enhance biodiversity.	The SEA framework should seek to conserve and enhance biodiversity.

¹ Paragraph 118 of the National Planning Policy Framework states that ‘the following wildlife sites should be given the same protection as European Sites:listed or proposed Ramsar sites’.

EU Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC, 1992)		
<p>Member states are required to take legislative and administrative measures to maintain and restore natural habitats and wild species at a favourable conservation status in the community.</p> <ul style="list-style-type: none"> ➤ Requires assessment of the impact and implications of any plan or project that is likely to have a significant impact on a designated site. ➤ A coherent European network of special areas of conservation shall be set up under the title 'Natura 2000'. ➤ Article 10 states that member states, 'where they consider it necessary', should use land use planning in particular to encourage management of feature of the landscape which are of major importance for wild flora and fauna, with a view to improving the ecological coherence of the Natura 2000 network. 	<p>The LFRMS policies should support overall objectives and requirements of the Directive.</p>	<p>The SEA should consider the impacts of the LFRMS on habitats. The requirements of the Directive should be reflected in the SEA framework.</p> <p>The HRA will also help ensure that significant effects are not likely to occur to Natura 2000 sites.</p>
EU Biodiversity Strategy to 2020: 'Our Life Insurance, Our Natural Capital' (2011)		
<p>The Strategy builds on the EU's headline 2050 vision that: <i>"By 2050, European Union biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored for biodiversity's intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided."</i></p> <p>It presents a 2020 headline target which states: <i>'Halting the loss of biodiversity and the degradation of ecosystem services by the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss'.</i></p>	<p>The LFRMS policies should support overall targets of the Strategy.</p>	<p>The SEA will need to ensure that biodiversity and ecosystem services are maintained and restored.</p>
Water and Soil		
European Nitrates Directive (91/676/EEC)		
<p>Reducing water pollution caused or induced by nitrates from agricultural sources, and preventing further such pollution. Member States are required to establish nitrate vulnerable zones if nitrate levels are above certain thresholds, review them every four years, and implement action programmes to improve them.</p>	<p>The LFRMS policies should support overall objectives and requirements of the Directive (e.g. through supporting sustainable drainage).</p>	<p>Check that the requirements of the Directive are reflected in the SEA framework.</p>
Proposal for a Directive Establishing a Framework for the Protection of Soil (2006/0086) (COD)		
<p>To establish a common strategy for the protection and sustainable use of soil based on the principles of:</p>	<p>There is a need to consider how flood management works may affect the</p>	<p>The SEA should include an appropriate objective to protect soil.</p>

<ul style="list-style-type: none"> ➤ Integration of soil concerns into other policies; ➤ Preservation of soil functions within the context of sustainable use; ➤ Prevention of threats to soil and mitigation of their effects; ➤ Restoration of degraded soils to a level of functionality consistent at least with the current and approved future use. 	<p>County's soils, ensuring that sustainable soil management practices are established.</p>	
<p>EU Directive on the protection of groundwater against pollution and deterioration (2006/118/EC)</p>		
<p>This 'daughter directive' of the Water Framework Directive recognises that groundwater is a valuable natural resource which should be protected from deterioration and chemical pollution. This is considered to be particularly important for groundwater-dependent ecosystems and for the use of groundwater in water supply for human consumption. The Directive establishes specific measures to prevent and control groundwater pollution, including criteria for the assessment of good groundwater chemical status and criteria for the identification and reversal of significant and sustained upward trends.</p>	<p>There is a need to consider how flood mitigation measures may impact on the quality of groundwater in the County.</p>	<p>The SEA framework should include objectives that relate to ground water quality.</p>
<p>EU Bathing Water Directive (2006/7/EC)</p>		
<p>Sets stringent standards for bathing water quality along with requirements relating to beach management and public information. All bathing waters are to be 'sufficient' by 2015.</p>	<p>Ensure that flood risk management and mitigation measures will not compromise bathing water quality.</p>	<p>Impacts on bathing waters should be considered as part of the assessment of policies in terms of impact upon the natural environment.</p>
<p>EU Floods Directive (2007/60/EC)</p>		
<p>The Directive's aim is to reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity. The Directive requires Member States to first carry out a preliminary assessment by 2011 to identify the river basins and associated coastal areas at risk of flooding and establish flood risk management plans focused on prevention, protection and preparedness by 2015.</p> <p>Transposed and implemented in the UK through the Flood and Water Management Act 2010.</p>	<p>The LFRMS should ensure that managing flooding in relation to development is accounted for in a way consistent with catchment scale plans including River Basin Management Plans.</p> <p>The Directive should be carried out in coordination with the Water Framework Directive and take into account long-term developments, such as climate change.</p>	<p>SEA objectives should aim to contribute to reducing and managing flood risk and taking account of the impact that flood risk management activities may have on other environmental objectives.</p>
<p>European Water Framework Directive (2000/60/EC)</p>		

<p>The Directive's aim is to enhance waterways and wetlands throughout Europe through: sustainable use; reduction of ground pollution; lowered flood and drought effects; and protection and restoration of the aquatic ecosystem. The Directive covers groundwater and all surface waters including rivers, lakes, coastal waters and transitional waters (e.g. estuaries).</p> <p>Requires all inland surface and coastal waters to reach 'good' status by 2015. Artificial and heavily modified water bodies (such as canals and reservoirs) should achieve 'good potential' status.</p>	<p>Nitrate vulnerable zones have been identified in Selby, Hambleton, Ryedale, Harrogate and the southernmost area of the North York Moors. This should be reflected in the LFRMS policies. The LFRMS should also have regard to the RBMPs in the County.</p>	<p>SEA objectives should aim to contribute to enhancement of waterways and wetlands in North Yorkshire. In addition, a WFD assessment is being prepared to support this SEA.</p>
<p>EU Urban Waste Water Directive (91/271/EEC)</p>		
<p>The Urban Wastewater Directive's objective is to protect the environment from the adverse effect of urban waste water discharges and discharges from certain industrial sectors. Member states are required to designate sensitive areas (sensitive water bodies) and identify hydraulic catchment areas. The Directive specifies minimum specifications for water treatment according to size of agglomerations of development.</p>	<p>The LFRMS will need to ensure that flood management policies are deliverable, taking account of the requirements of the Directive.</p>	<p>The SEA will need to consider the extent that policies will place cumulative pressures on water bodies.</p>
<p>Marine Strategy Framework Directive (2008/56/EC)</p>		
<p>The Directive aims to protect the marine environment, prevent its deterioration and restore it where practical, while using marine resources sustainably. Achieve good environmental status in Europe's seas by 2020.</p>	<p>The LFRMS should ensure that policies do not adversely affect the marine environment.</p>	<p>The marine environment should be considered as part of the SEA framework.</p>
<p>Proposal for a directive for establishing a framework for maritime spatial planning and integrated coastal management (2013/0074/EC)</p>		
<p>The proposed directive, once transposed into UK law, will require all coastal authorities to produce Integrated Coastal Zone Management Plans.</p>	<p>The LFRMS should aim to be consistent with this legislation.</p>	<p>The SEA should take account of the draft legislation.</p>
<p>Climatic Factors</p>		
<p>Kyoto Climate Change Protocol (2005)</p>		
<p>Established to limit the emissions of greenhouse gases (GHG emissions reduction of 5% of 1990 levels by 2008-12). The UK has an agreement to reduce greenhouse gas emissions by 12.5% below 1990 levels by 2008-12 and a national goal to a 20% reduction in carbon dioxide emissions below 1990 levels by 2020.</p>	<p>Consider how the LFRMS can contribute to the objectives and targets of the protocol.</p>	<p>Check that the requirements of the protocol are reflected in the SEA framework.</p>
<p>United Nations Framework Convention on Climate Change Copenhagen Accord (2010)</p>		

Recognises the scientific view that the increase in global temperature should be kept below 2 degrees Celsius and the urgency of adapting to climate change.	The LFRMS should seek to minimise GHGs.	The SEA should seek to minimise GHGs.
Additional Environmental Issues		
EU Sixth Environmental Action Programme (1600/2002/EC)		
Priority Areas: climate change; nature and biodiversity; environment, health and quality of life; natural resources and waste. For each of these areas key objectives and certain targets are identified with a view to achieving the main targets. Soon to be replaced by the seventh Environmental Action Programme.	The LFRMS policies should support the primary areas of the action plan.	Check that the requirements of the Directive are reflected in the SEA framework.
European Strategic Environmental Assessment Directive (2001/42/EC)		
Ensure that environmental consequences of certain plans and programmes are identified and assessed during their preparation and before their adoption. Integrate environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development.	The LFRMS policies to support overall objectives and requirements of the Directive.	The SEA will need to be undertaken in a way which meets the requirements of the Directive.
European Environmental Impact Assessment Directive (2014/52/EU)		
Requires assessment of the effect of certain public and private projects on the environment.	LFRMS policies to support overall objectives and requirements of the Directive.	Ensure that adequate assessments are carried out for sites in locations where development could negatively impact on the environment.
Population and Human Health		
Aarhus Convention (The UN Economic Commission for Europe Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 1998)		
Establishes a number of rights of the public (citizens and their associations) with regard to the environment. Public authorities (at national, regional or local level) are to contribute to allowing these rights to become effective. <ul style="list-style-type: none"> ➤ The right of everyone to receive environmental information that is held by public organizations. ➤ Public authorities are obliged to actively disseminate environmental information in their possession. ➤ The right to participate from an early stage in environmental decision-making. ➤ The right to challenge, in a court of law, public decisions that have been made without respecting the two aforementioned rights or environmental law in general. 	The LFRMS should have regard to the Convention.	The SEA will be produced in consultation with relevant organisations in accordance with Government Guidance, and will be published online making it available for scrutiny by any interested parties.

Cultural Heritage and Landscape		
European Convention on the Protection of Archaeological Heritage (Revised) (Valetta Convention, 1995)		
<p>The new text makes the conservation and enhancement of the archaeological heritage one of the goals of urban and regional planning policies. It is concerned in particular with arrangements to be made for co-operation among archaeologists and town and regional planners in order to ensure optimum conservation of archaeological heritage. This convention aims for the recognition and protection of archaeological and heritage assets.</p> <p>Article 5 states: “Each party undertakes to seek to reconcile and combine the respective requirements of archaeology and development plans by ensuring that archaeologists participate in planning policies designed to ensure well-balanced strategies for the protection, conservation and enhancement of sites of archaeological interest”.</p>	<p>The LFRMS should take account of preserving archaeological heritage.</p>	<p>Archaeological sites can be potentially damaged through flood risk management and mitigation works. The LFRMS should take account of preserving archaeological heritage.</p>
UNESCO World Heritage Site Convention (1972)		
<p>The Convention sets out a definition of ‘cultural heritage’ including monuments, groups of buildings and sites in Article 1; and a definition of ‘natural heritage’, including natural features, geological and physiographical formations and natural sites in Article 2.</p>	<p>The LFRMS needs to recognise the status of, and seek to protect, cultural and natural heritage. World Heritage sites are particularly important.</p>	<p>The SEA will need to ensure both cultural and natural heritage issues are tested by the SEA framework.</p>
European Landscape Convention (Florence Convention) (2004)		
<p>The ELC defines landscape as: “An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.” (Council of Europe 2000).</p> <p>The definition applies to the whole territory of states including all urban and periurban landscapes, towns, villages and rural areas, the coast and inland areas. It applies to ordinary or even degraded landscape as well as those areas that are outstanding or protected.</p> <p>Key targets include:</p> <ul style="list-style-type: none"> ➤ raising awareness of the value of landscapes among all sectors of society, and of society's role in shaping them; ➤ the identification and assessment of landscapes, and analysis of landscape change, with the active participation of stakeholders; ➤ setting objectives for landscape quality, with the involvement of the public; and ➤ the implementation of landscape policies, through the establishment of plans and practical programmes. 	<p>This convention has been translated into different UK legislation which the LFRMS should take into account.</p>	<p>The SEA should include objectives which relate to the protection and enhancement of landscape.</p>
Sustainable Development		
Rio +20 ‘Future we Want’ – Outcome Document (2012)		

<p>Sets out a 'common vision' to 'renew our commitment to sustainable development, building on the declarations made at The Johannesburg Declaration on Sustainable Development, and to ensure the promotion of economically, socially and environmentally sustainable future for our planet and for present and future generations'. Recognises and emphasises the critical roles of a number of components of sustainable development including sustainable agriculture, the key role that ecosystems play in maintaining water quality, renewable energy and energy efficiency, sustainable transport, health, reducing, re-using and recycling waste.</p>	<p>The LFRMS policies should support the overall objectives.</p>	<p>Check that the commitments are reflected in the SEA framework.</p>
<p>European Sustainable Development Strategy (ESDS) – European Commission (2006)</p>		
<p>Achieving sustainable development requires economic growth that supports social progress and respects the environment. The strategy argues that in the long term economic growth, social cohesion and environmental protection must go hand in hand. The main aims of the strategy are (there are no specific targets):</p> <ul style="list-style-type: none"> ➤ To limit climate change and increase the use of clean energy. ➤ To address threats to public health. ➤ To manage natural resources more responsibly. ➤ To improve the transport system and land-use management. 	<p>The LFRMS policies should provide a sustainable spatial vision and reflect the aim of this strategy.</p>	<p>The SEA will consider long term sustainability in accordance with guidance on this issue.</p>

Key objectives, targets and indicators relevant to the LFRMS and SEA	Implications for the LFRMS	Implications for SEA
3.2 NATIONAL CONTEXT		
Biodiversity, Flora and Fauna		
The Wetland Vision for England (Environment Agency , 2008)		
<p>The Vision aims to conserve, enhance and recreate the wetland capacity of catchments, secure the long term sustainable management of wetlands, provide a better understanding of the functions and value of wetland assets and the need to maintain their services as part of a sustainable solution to the effects of flooding, pollution and climate change. Desired outcomes: helping to maintain or achieve favourable condition for wetland SSSIs, adopting an integrated approach to river basin and flood risk management planning and the conservation of wetlands.</p>	<p>Ensure that wetland areas are protected and enhanced, and consider opportunities for the creation of new wetlands.</p>	
The UK Post-2010 Biodiversity Framework (Defra, 2012)		
<p>The framework is the UK Government's succession to the UK BAP (1992-2012) and is the result of a change in strategic thinking following the publication of 'Strategic Plan for Biodiversity 2011–2020' and its 20 'Aichi targets', at Nagoya, Japan in October 2010, in addition to the launch of the new EU Biodiversity Strategy (EUBS) in May 2011. The framework demonstrates the UK contributes to achieving the 'Aichi targets', and identifies the activities required to complement the country biodiversity strategies in achieving the targets.</p>	<p>The LFRMS needs to take due regard of the district level Biodiversity Action Plans in North Yorkshire as well as habitat and species action plans that are relevant to the County.</p>	
England Biodiversity Strategy Climate Change Adaptation Principles (Defra, 2008)		
<p>Sets out the main adaptation principles that are appropriate to conserving biodiversity at a time of climate change. The key principles are:</p> <ul style="list-style-type: none"> ➤ Maintain and increase ecological resilience. ➤ Accommodate change. ➤ Integrate action across all sectors. ➤ Develop knowledge and plan strategically. ➤ Take practical action now. <p>Under each principle a set of adaptation priorities is presented.</p>	<p>The LFRMS should minimise impacts upon recognised environmental assets and where possible increase ecological resilience.</p>	<p>The SEA should contain objectives which seek to minimise impacts upon recognised environmental assets and seek opportunities to build resilience to climate change.</p>
Natural Environment and Rural Communities Act (2006)		
<p>Section 40 of the Act places a new biodiversity duty on public bodies which includes local authorities. The implications of this Act are that biodiversity must be integrated and delivered in all aspects of infrastructure, finance, development control and forward planning.</p>	<p>The implications for the LFRMS are that biodiversity must be integrated and delivered through the LFRMS. The LFRMS</p>	<p>The SEA framework will aim to ensure that the LFRMS delivers biodiversity through its policies. The SEA objectives should seek to</p>

	should seek to conserve and enhance Local Sites and Local Nature Reserves and to give proper consideration to biodiversity outside designated areas.	conserve and enhance Local Sites and Local Nature Reserves and to give proper consideration to biodiversity outside designated areas.
UKNEA National Ecosystem Assessment (2011)		
<p>The UK National Ecosystem Assessment provides a comprehensive overview of the state of the natural environment in the UK and a new way of estimating our national wealth. The key messages of the UKNEA are:</p> <ul style="list-style-type: none"> ➤ The natural world, its biodiversity and its constituent ecosystems are critically important to our wellbeing and economic prosperity, but are consistently undervalued. ➤ Ecosystems and ecosystem services, and the ways people benefit from them, have changed markedly in the past 60 years, driven by changes in society. ➤ The UK's ecosystems are currently delivering some services well, but others are still in long-term decline. ➤ The UK population will continue to grow, and its demands and expectations continue to evolve. This is likely to increase pressure on ecosystem services. ➤ Actions taken and decisions made now will have consequences far into the future for ecosystems, ecosystem services and human well-being. ➤ A move to sustainable development will require an appropriate mixture of regulations, technology, financial investment and education, as well as changes in individual and societal behaviour and adoption of a more integrated approach to ecosystem management. 	The LFRMS should recognise where it may contribute to ecosystem services.	The SEA should contribute to the delivery of ecosystem services.
Conservation of Habitats and Species Regulations (2010)		
<p>The original Conservation (Natural Habitats &c) Regulations, 1994 transposed the EU Habitats Directive (described above) into national law. The Conservation of Habitats and Species Regulations, 2010 consolidate the various amendments to the original regulations and include new provisions to implement parts of the Marine and Coastal Access Act, 2009.</p> <p>Part 102 (1) of the Regulations States:</p> <p>“Where a land use plan: a) is likely to have a significant effect on a European site or European offshore marine site (either alone or in combination with other plans or projects), and b) is not directly connected with or necessary to the management of the site, the ‘plan making authority’ for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site’s nature conservation objectives”.</p>	The LFRMS will be subject to Habitats Regulations assessment, and if significant effects are likely, appropriate assessment of its implications for European Sites. This will mean that the LFRMS cannot be enacted in a form which may damage a European Site without demonstrating ‘imperative	The SEA must have regard to the findings of the Habitats Regulations assessment. It should also seek ways of ensuring the LFRMS prevents deterioration of habitats for wild bird outside of designated areas.

<p>The Regulations were recently amended by the Conservation of Habitats and Species (Amendment) Regulations 2012, which more fully integrates the requirement of the Birds Directive by requiring efforts to avoid pollution or deterioration of habitats for wild birds outside of specific designated areas.</p>	<p>reasons of overriding public interest’.</p>	
<p>Wildlife and Countryside Act (1981) ‘as amended’</p>		
<p>Transposes the Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979) and the EU Birds Directive (1979) into national law. Has been amended by the Countryside and Rights of Way Act (2000).</p> <p>Provides for the notification of Sites of Special Scientific Interest (SSSI) and measures for their protection and management. Also for Special Protection Areas under the Birds Directive. Sets out the legal offences/penalties for killing or harming species listed in annexes.</p> <p>Prohibits agricultural or forestry land on moorland/heathland in national parks which has been such for 20 years or more.</p> <p>Requires surveying authorities to keep up-to-date definitive maps of Public Rights of Way. Section 28 of the Act imposes a duty on a number of bodies including local planning authorities to take reasonable steps, consistent with the proper exercise of its functions, to further the conservation and enhancement of SSSIs.</p>	<p>The LFRMS needs to include policy to ensure adequate protection of SSSIs through the planning system and to ensure listed species are not harmed or killed as a result of development.</p>	<p>The SEA framework needs to give due emphasis to nationally designated SSSIs and species.</p>
<p>Biodiversity 2020 (Defra, 2011)</p>		
<p>Vision – By 2050 our land and seas will be rich in wildlife, our biodiversity will be valued, conserved, restored, managed sustainably and be more resilient and able to adapt to change, providing essential services and delivering benefits for everyone.</p> <p>More specifically, the 2020 Mission outlined in the Strategy, states: “Our mission is to halt overall biodiversity loss, support healthy well-functioning ecosystems and establish coherent ecological networks, with more and better places for nature for the benefit of wildlife and people”. Specific ‘outcomes’ are then cited for habitats and ecosystems on land (Outcome 1), marine habitats, ecosystems and fisheries (Outcome 2), species (Outcome 3) and people (Outcome 4). These outcomes include the delivery of the targets stated in the Natural Environment White Paper (see below).</p>	<p>The LFRMS should ensure that flood management and mitigation does not hinder achievement of the objectives.</p>	<p>SEA objectives need to cover effects on biodiversity.</p>
<p>The Natural Choice – Securing the Value of Nature (Natural Environment White Paper Defra, 2011)</p>		
<p>The main themes are protecting and improving our natural environment, growing a green economy and reconnecting with nature. By 2020:</p> <ul style="list-style-type: none"> ➤ 90% of priority wildlife habitats in recovering or favourable condition; 	<p>Policies should enable flood risk mitigation and management to contribute</p>	<p>SEA objectives need to cover effects on priority habitats and seek to achieve</p>

<ul style="list-style-type: none"> ➤ Increase in at least 200,000 hectares of priority habitats; ➤ 50% of SSSI to be in favourable condition and at least 95% in favourable or recovering; ➤ At least 17% of England will be managed to safeguard biodiversity; ➤ At least 15% of degraded ecosystems that are important to climate change adaptation or mitigation will be restored. ➤ By 2015 achieve good ecological status for 32 per cent of water bodies. 	to or not hinder achievement of these targets.	good status for water bodies.
Salmon and Freshwater Fisheries Act (1975)		
This Act aims to regulate fishing of salmon and freshwater fish. The Act has implications for the management of flood risk due to its objectives to restrict the obstruction of the passage of fish.	The LFRMS should take into account the Act when carrying out flood management work in order to ensure that obstruction to fish species is not a consequence of action taken.	The SEA should seek to improve the potential for passage of salmon and freshwater fish through watercourses.
Water and Soil		
Water White paper - Water for Life (Defra, 2011)		
Sets out the priorities for Government policy on water in England. The White Paper addresses several areas: <ul style="list-style-type: none"> ➤ Water and the natural environment –where priorities for ‘tackling water pollution’ and ‘tackling over abstraction’, are set out. ➤ Water and the green economy –with priorities including ‘supporting growth and innovation’. ➤ Water and You – with priorities including ‘changing the way we value water’. 	The LFRMS should contribute to this White Paper’s objectives.	The SEA framework should support the efficient use of water and seek to reduce water pollution.
Safeguarding our Soils – A Strategy for England (Defra, 2009)		
A Strategy to safeguard and protect England’s irreplaceable and fundamental natural resource, soil, which provides many essential functions for life. The strategy sets out how the government will: <ul style="list-style-type: none"> ➤ value soils in the planning system; and ➤ prevent pollution of soils, and deal with the historic legacy of contaminated land. 	The LFRMS policies should reflect the need to safeguard soil resources.	The SEA should address the protection of soils.
National Flood and Coastal Erosion Risk Management Strategy for England (Environment Agency, 2011)		
This national strategy, required to be developed by the Environment Agency under the provisions of the Flood and Water Management Act, 2010, encourages more integrated and effective management of flood risk by enabling local communities, in conjunction with businesses and the public sector to	The Flood and Water Management Act (2010) requires that the LFRMS	The SEA should take the strategy into account in the SEA framework.

work together.	should be consistent with this strategy.	
Protocol for the maintenance of flood and coastal risk management assets (Environment Agency, 2011)		
This strategy sets in place the approach that the Environment Agency will follow to stop the maintenance uneconomic flood defences in the long term.	The LFRMS should take note of the intended changes to the flood and coastal asset maintenance strategy.	The SEA should take account of the strategy.
Future Water, The Government's Water Strategy for England (HM Government and Defra, 2008)		
This document sets out how the water sector should look by the year 2030 and outlines the steps to achieve the targets. A number of environmental protection objectives are outlined: <ul style="list-style-type: none"> ➤ Improvement of the quality of the water environment and the ecology which it supports and continued high levels of drinking water from taps. ➤ Sustainably managed risks from flooding and coastal erosion, with greater understanding and more effective management of surface water. ➤ Sustainable use of water resources and fair, affordable and cost-effective water charges. ➤ Reductions of GHG emissions. ➤ Continuous adaptation to climate change. 	The LFRMS should take into account recommendations for management of flood risk.	The SEA should take into account the environmental protection objectives set out in the strategy.
Guidance for risk management authorities on sustainable development in relation to their flood and coastal erosion risk management functions (Defra, 2011)		
This guidance provides context with regard to the application of sustainable development principles when managing flood risk.	The LFRMS should take into account his guidance.	SEA to promote sustainable flood risk management.
Groundwater Protection: Policy and Practice (GP3) (Environment Agency, 2012)		
Sets out the aims and objectives and policy approach for protecting and managing groundwater in England and Wales. Seeks to balance the threat to the groundwater supply with the benefits of a proposed development or activity. LPAs to consider groundwater protection objectives when drawing up Local Development Documents.	Groundwater objectives should be reflected in the development of the LFRMS.	The SEA should ensure that the LFRMS protects and manages groundwater.
The Flood Risk Regulations (2009)		
The regulations implement the EU Floods Directive. They state that the Environment Agency assesses and manages flood risk from main rivers, the sea and reservoirs and that Lead Local Flood Authorities do the same for all other types of flood risk. The regulations require the following actions: <ul style="list-style-type: none"> ➤ Preliminary assessment maps and reports. ➤ Flood hazard maps and flood risk maps. ➤ Flood risk management plans. ➤ That all assessments should be updated every six years. 	The LFRMS will need to demonstrate the requirements for the Lead Local Flood Authority as set out in the regulations.	The SEA should take account of the Regulations.

Flood and Water Management Act (2010)		
<p>The Flood and Water Management Act provides for better and more comprehensive management of flood risk for people, homes and businesses, helps safeguard community groups from unaffordable rises in surface water drainage charges and protects water supplies to the consumer.</p> <ul style="list-style-type: none"> ➤ Part 1 of the Act requires the Environment Agency to develop a national strategy for flood and coastal erosion risk. It also requires all lead flood authorities in England to develop and maintain, apply and monitor a strategy for flood risk in their area. ➤ Schedule 3 introduces standard for the design, construction, maintenance and operation of new rainwater drainage systems and introduces an approving body (generally the local authority). ➤ Amends section 106 of the Water Industry Act, 1991 to make the right to connect surface water run off to public sewers conditional on the approval of the drainage system by the approving body. 	<p>The LFRMS will need to demonstrate the requirements for the Lead Local Flood Authority as set out in the Act.</p>	<p>The SEA should take account of the Act.</p>
Marine and Coastal Access Act (2009)		
<p>The Act seeks to ensure clean, healthy, safe, productive and biologically diverse oceans and seas. It introduces new systems for delivery of coastal objectives from: planning; nature conservation; fisheries; and seeks to improve public access to the coast.</p>	<p>Policies should ensure that the LFRMS does not harm the marine environment or coastal access.</p>	<p>SEA objectives need to cover protection of the marine environment and maintenance of coastal access.</p>
HM Government UK Marine Policy Statement (2011)		
<p>The Marine Policy Statement, together with future marine plans form a new plan-led system for marine activities. It sets out a UK Vision for the marine environment as being for 'clean, healthy, safe, productive and biologically diverse oceans and seas'.</p> <p>Section 1.3 affirms that the MPS and marine planning systems will sit alongside and interact with existing planning regimes across the UK. (The two planning systems will physically overlap with marine plan areas extending up to the level of mean high water spring tides while terrestrial planning boundaries generally extend to the mean low water spring tide.) A number of key issues are identified where there is overlap between terrestrial and marine planning regimes, such as effect of development on seascape, air quality, noise, ecology etc.</p>	<p>Policies should ensure that flood risk management and mitigation work does not harm the marine environment.</p>	<p>SEA objectives need to cover protection of the marine environment.</p>
Water Environment (Water Framework Directive) Regulations, 2003		
<p>Implements the Water Framework Directive in England via measures such as requiring the Environment Agency to set environmental objective for river basin districts. Requires public bodies, when exercising their functions, to have regard to relevant river basin management plans and gives the Environment Agency powers to request information from public bodies on how they are adhering</p>	<p>The LFRMS policies should not prevent status objectives in River Basin Management Plans from</p>	<p>The SEA will need to carry out a WFD assessment to ensure consistency with the directive.</p>

to the regulations.	being achieved.	
Climatic Factors		
Climate Change Risk Assessment (Defra, 2012)		
<p>The Climate Change Risk Assessment (CCRA) is the first-ever comprehensive assessment of potential risks and opportunities for the UK arising from climate change. The CCRA represents a key part of the Government's response to the Climate Change Act 2008, which requires a series of assessments of climate risks to the UK, both under current conditions and over the long term.</p> <p>Key messages which will need to be addressed are:</p> <ul style="list-style-type: none"> ➤ The global climate is changing and warming will continue over the next century. ➤ The UK is already vulnerable to extreme weather, including flooding and heatwaves. ➤ Flood risk is projected to increase significantly across the UK. ➤ UK water resources are projected to come under increased pressure. ➤ There are health benefits as well as threats related to climate change, affecting the most vulnerable groups in our society. ➤ Sensitive ecosystems are likely to come under increasing pressure. ➤ Some changes projected for the UK as a result of climate change could provide opportunities for agriculture and other businesses, although not outweighing the threats. ➤ Despite the uncertainties related to future climate change and its impacts, the evidence is now sufficient to identify a range of possible outcomes that can inform adaptation policies and planning. 	The LFRMS needs to ensure that consideration for climate change is at the heart of the document.	The SEA should ensure that climate change is factored into the assessment process.
National Adaptation Programme (Defra, 2013)		
The programme addresses the risks set out in the UK Climate Change Risk Assessment. It highlights what government, businesses and society will need to do to become more resilient to the effects of climate change.	The LFRMS needs to ensure that consideration for climate change is at the heart of the document.	The SEA should ensure that climate change is factored into the assessment process.
Climate Change Act (2008)		
This Act provides a legal framework for ensuring that Government meets its commitments to tackle climate change. The Act requires that emissions are reduced by at least 80% by 2050, compared to 1990 levels.	The LFRMS will need to support the Act.	The SEA will need to ensure that the LFRMS is in line with the Act.
Additional Environmental Issues		
Red Tape Challenge – Environment Theme Proposals (Defra, 2012)		
In response to the UK Government's Red Tape Challenge, 'crowd sourced' comments and inbox submissions, views from a sounding board of environmental organisations and business along with a separate panel of businesses have been considered by Defra in regard to removal of obsolete	N/A	The SEA baseline, including the review of PPPs will need to be kept under review to

regulations. The result is that of 255 regulations, 132 will be improved, 70 will be kept as they are and 53 obsolete regulations will be removed. The document lists the proposed changes.		reflect the changes proposed when they are implemented.
Geological Conservation Review, held by the Joint Nature Conservation Committee (1977 onwards)		
The aim of the Geological Conservation Review Series is to provide a public record of the features of interest and importance at localities already notified or being considered for notification as 'Sites of Special Scientific Interest' (SSSIs).	The LFRMS must be aware of SSSIs within North Yorkshire and seek to protect and enhance them.	The SEA objectives need to consider protection and enhancement of geological diversity.
Cultural Heritage and Landscape		
Ancient Monuments and Archaeological Areas Act (1979)		
Defines archaeological sites of national importance, such as ancient monuments and areas of archaeological importance, which are to be protected. Section 2 of the Act applies to the control of works affecting ancient monuments, making an offence of: <ul style="list-style-type: none"> ➤ any works resulting in the demolition or destruction of or any damage to a scheduled monument; ➤ any works for the purpose of removing or repairing a scheduled monument or any part of it or of making any alterations or additions thereto; ➤ any flooding or tipping operations on land in or under which there is a scheduled monument. Section 35 of the Act describes the circumstances where offences may occur due to operations in areas of archaeological importance.	The importance of protecting archaeological assets should be recognised.	The SEA should include an objective to protect and enhance the historic environment. Archaeology should be recognised as an important element of the historic environment.
White Paper: Heritage Protection for the 21st Century (DCMS, 2007)		
The proposals in this White Paper reflect the importance of the heritage protection. They are based around three core principles: <ul style="list-style-type: none"> ➤ developing a unified approach to the historic environment; ➤ maximising opportunities for inclusion and involvement; and ➤ supporting sustainable communities by putting the historic environment at the heart of an effective planning system. 	The LFRMS will need to consider heritage issues within policy formulation.	The SEA should take heritage issues and assets into account within the SEA framework.
UK Government's Statement on the Historic Environment for England (2010)		
The Vision: That the value of the historic environment is recognised by all who have the power to shape it, that Government gives it proper recognition and that it is managed intelligently and in a way that fully realises its contribution to the economic, social and cultural life of the nation. A number of commitments are made, including: ensure that all heritage assets are afforded an appropriate and effective level of protection, while allowing, where appropriate, for well managed and intelligent change.	Policies within the LFRMS should be sensitive to the cultural, architectural and archaeological heritage of North Yorkshire.	The SEA should include an objective to protect and enhance the historic environment.

Climate Change and the Historic Environment (English Heritage, 2008)		
This report outlines the wide-ranging actions needed to adapt the historic environment to the changing climate. This statement updates the previous 2006 position paper. Outlines English Heritage's thinking on the implications of climate change for the historic environment. Some parts of this guidance are out of date due to publication of the NPPF. However, the document is still suggested as useful guidance.	The LFRMS will need to consider the impact climate change on heritage within policy formulation.	The SEA should take into account climate change impact on within the SEA framework.
Sustainable Development		
Securing the Future – UK Government sustainable development strategy (HM Government, 2005)		
This strategy establishes five principles of sustainable development: <ul style="list-style-type: none"> ➤ Development that is within environmental limits. ➤ Promotion of a strong, healthy and just society. ➤ Achievement of sustainable economic growth. ➤ Promotion of good governance. ➤ Use of sound science, responsibly. 	The LFRMS should aim to contribute towards these principles of sustainable development.	The SEA should seek to promote sustainable development.
Mainstreaming Sustainable Development – The Government's vision and what this means in practice (Defra, 2011)		
Builds on Securing the Future and sets out the refreshed vision of the Coalition Government for sustainable development and what this means in practice. Sets out key areas where the Government will take action. These are: <ul style="list-style-type: none"> ➤ Sustainable development in government; ➤ Green economy; ➤ Action to tackle climate change; ➤ Protecting and enhancing the natural environment; ➤ Fairness and improving wellbeing; ➤ National and international sustainable development; ➤ Building a Big Society; ➤ Business planning; ➤ Operations and procurement commitments; ➤ Transparency and public accountability. 	No specific targets for the LFRMS, however the vision and actions should be recognised by the policies that will be set out by the LFRMS.	The SEA should recognise the Government's vision for sustainable development.
Material Assets		
The Carbon Plan (DECC, 2011)		
The Carbon Plan sets out how the UK will achieve decarbonisation within the framework of our energy policy: to make the transition to a low carbon economy while maintaining energy security, and	The LFRMS will need to support the aims of the Carbon Plan through the	The SEA objectives should seek to drive down carbon emissions and help achieve

<p>minimising costs to consumers, particularly those in poorer households.</p> <p>Relevant targets:</p> <ul style="list-style-type: none"> ➤ By 2050, the Government expects industry to have delivered its fair share of emission cuts, achieving reduction of up to 70 per cent from 2009 levels. ➤ Over the next decade we need to continue reducing emissions from electricity generation through increasing the use of gas instead of coal, and more generation from renewable sources. 	<p>use of sustainable materials in flood risk management.</p>	<p>carbon budgets by supporting hydropower initiatives, but also to take account of any effects that hydro-power installations may have on watercourses.</p>
<p>Agricultural Land Classification: protecting the best and most versatile agricultural land (Natural England Technical Information Note TIN049, second edition, December 2012)</p>		
<p>This note sets out guidance on the protection of the best and most versatile agricultural land. It states that where significant development of agricultural land is unavoidable, poorer quality land should be used in preference to that of higher quality, except where this would be inconsistent with other sustainability considerations.</p> <p>The Agricultural Land Classification gives a high grading to land which allows more flexibility in the range of crops that can be grown (its 'versatility') and which requires lower inputs. Defra should be consulted on applications for mineral working if the after use is agriculture or where the loss of high quality agricultural land will be 20 ha or more.</p>	<p>The LFRMS should consider the importance of 'best and most versatile land'.</p>	<p>The SEA objectives should consider the importance of 'best and most versatile land'.</p>
<p>Planning</p>		
<p>National Planning Policy Framework (DCLG, 2012)</p>		
<p>The National Planning Policy Framework sets out the Government's planning policies for England and how these are expected to be applied. It replaces all previous planning policies set out in Planning Policy Statements (PPSs) and Planning Policy Guidance (PPGs), although PPS10 is temporarily retained. It provides a framework within which local people and their councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities. At the heart of the planning system is a presumption in favour of sustainable development.</p>	<p>The NPPF sets out the requirements for the LFRMS. Where the LFRMS proposes actions that involve the planning system this is the main reference terms of national planning policy and procedure, which should be adhered to.</p>	<p>SEA should have regard to the NPPF where assessment makes links to the planning system.</p>
<p>Technical Guidance to the National Planning Policy Framework (DCLG, 2012)</p>		
<p>This document gives additional guidance for the effective implementation of the National Planning</p>	<p>The LFRMS should</p>	<p>The SEA should ensure the</p>

<p>Policy Framework on development in areas at risk of flooding. The guidance gives detailed recommendations in relation to planning for flood risk.</p>	<p>recognise the role played by Strategic Flood Risk Assessments in guiding planning at a local level.</p>	<p>LFRMS does not conflict with the sequential approach where it overlaps with planning issues (e.g. when considering cumulative effects).</p>
<p>Localism Act (2011)</p>		
<p>The Localism Act gives greater powers to councils and neighbourhoods. The five key measures intended to decentralise power are:</p> <ul style="list-style-type: none"> ➤ Community Rights. ➤ Neighbourhood planning. ➤ Housing. ➤ General power of competence. ➤ Empowering cities and other local areas. <p>The Act also amends the Planning and Compulsory Purchase Act to include a 'duty to co-operate in relation to sustainable development'. According to Government, the effect of the Act will be to:</p> <ul style="list-style-type: none"> ➤ Give more freedom and flexibility to local government. ➤ Give new rights and powers to local communities, including the community right to challenge, making it easier for them to improve local services and save important local facilities. ➤ Reform the planning system, putting more power in local peoples' hands. ➤ Ensure that housing decisions are taken locally. 	<p>The LFRMS should recognise the powers and rights granted under the Act and work with local communities to deliver flood prevention.</p>	<p>The SEA will need to ensure that it uses up-to-date local evidence to support its analysis.</p>

Key objectives, targets and indicators relevant to the LFRMS and SEA	Implications for the LFRMS	Implications for SEA
3.3 REGIONAL/SUB-REGIONAL CONTEXT		
Biodiversity, Flora and Fauna		
Regional Biodiversity Strategy for Yorkshire and Humber (Y&H Biodiversity Forum, 2009)		
<p>The Yorkshire and Humber Regional Biodiversity Strategy has been developed by the Yorkshire and Humber Regional Biodiversity Forum (YHBF) (now Yorkshire and Humber Biodiversity Partnership). It sets a framework for the integration of biodiversity into our regional and local policies, programmes and processes, and promotes a more joined up approach to biodiversity. The strategy also represents the region's contribution to the England Biodiversity Strategy and the UK Biodiversity Action Plan.</p> <p>While still an active strategy the advent of the North Yorkshire and York Local Nature Partnership has become a key focus of biodiversity activity at a sub-regional level.</p> <p>Most relevant to the LFRMS are:</p> <ul style="list-style-type: none"> ➤ Theme A: Protecting the best sites for wildlife in the region. ➤ Theme B: Focussing conservation action on the region's Priority Habitats and Species. ➤ Theme C: Improving functional habitat networks and enhancing the wider environment. ➤ Theme D: Developing a robust evidence base for the region. ➤ Theme E: Engaging people with the region's biodiversity. ➤ Theme F: Helping the region's biodiversity adapt to climate change. 	<p>The LFRMS should take consideration of the strategy.</p>	<p>The SEA should use the strategy as well as emerging priorities from the LNP to inform the SEA framework.</p>
Yorkshire and Humber Biodiversity Delivery Plan 2010-2015 (Y&H Biodiversity Forum, undated)		
<p>Outlines the plan to take forward the delivery of the Yorkshire and Humber portion of the UK BAP habitat targets. Promotes integrated actions for the period 2010-2015. The plan aims to meet targets by identifying a number of priority landscape-scale project areas where activity will be increased/sustained. Major programmes currently delivering biodiversity should continue to receive resources and must be maintained and enhanced – this is the core aim of the conservation work in addition to restoration and creation of habitats.</p>	<p>The LFRMS should take consideration of the plan.</p>	<p>The SEA should use the plan as well as emerging priorities from the LNP to inform the SEA framework.</p>
North Yorkshire and York Local Nature Partnership Strategy (2014)		
<p>Objectives:</p> <p>Nature – We will conserve, restore and create natural sites and strengthen natural corridors for species movement</p> <p>People and Communities – We will increase access to nature to improve public health and increase engagement with local communities on nature projects</p> <p>Economy – We will develop connections between nature and the local economy</p> <p>Climate Change – We will strengthen climate change mitigation and adaptation through natural</p>	<p>The LFRMS should contribute towards the LNP Strategy objectives wherever possible.</p>	<p>The objectives of the LNP Strategy should be incorporated in the SEA framework.</p>

solutions		
Water and Soil		
Water Resources Management Plan 2010-2035 (Yorkshire Water, United Utilities, Northumbria Water, 2009 and 2010)		
The Plan incorporates future pressures on supply and demand driven by predicted changes to the climate. It also incorporates future changes to the Yorkshire population, housing, future water use and metering trends. The Plan provides a response to development and growth within Yorkshire that is balanced and sustainable, whilst maintaining a minimum level of service of no more than one hosepipe ban per 25 years, in line with the Yorkshire Water Drought Plan. It takes into account future greenhouse gas emissions, the potential impact of abstraction on the environment and the volume of water lost through leaks.	The LFRMS should promote water resource efficiency.	This issue should be included for consideration in the baseline data and analysis.
Preliminary Flood Risk Assessment for North Yorkshire (NYCC, 2011)		
PFRA are produced under the requirements of the Flood Risk Regulations (2009). PFRAs contain: a summary of significant historic floods; and a summary of information of future flood risk based on the Environment Agency's national datasets. It provides a high level overview of flood risk from local flood sources.	The LFRMS should take into account the findings of the PFRA.	N/A.
Esk and Coast Catchment Abstraction Management Strategy (Environment Agency, 2007) Derwent Catchment Abstraction Management Strategy (Environment Agency, 2006) Aire and Calder Catchment Abstraction Management Strategy (Environment Agency, 2007) Don and Rother Catchment Abstraction Management Strategy (Environment Agency, 2003) Swale, Ure, Nidd and Upper Ouse Catchment Abstraction Management Strategy (Environment Agency, 2005) Tees Catchment Abstraction Management Strategy (Environment Agency, 2008) Wharfe and Lower Ouse Catchment Abstraction Management Strategy (Environment Agency, 2005)		
Set out the policy basis for the abstraction of water to protect the environment and ensure a supply of water in the rivers – no specific objectives but consideration must take account of impacts on Natura 2000 sites and water flows.	Ensure that policies in the LFRMS are consistent with this approach to water abstraction. Effects on N2K sites will be tested through the Habitats Regulations Assessment.	The SEA framework will need to include consideration of the effects of the LFRMS on water resources.
Esk and Coastal Streams Catchment Flood Management Plan (Environment Agency, 2010) Derwent Catchment Flood Management Plan (Environment Agency, 2010) Ouse Catchment Flood Management Plan (Environment Agency, 2011) Tees Catchment Flood Management Plan (Environment Agency, 2009) River Aire Catchment Flood Management Plan (Environment Agency, 2010) Don Catchment Flood Management Plan (Environment Agency, 2010) Hull and Coastal Streams Catchment Flood Management Plan (Environment Agency, December, 2010)		

River Lune Catchment Flood Management Plan (Environment Agency, 2009) Ribble Catchment Flood Management Plan (Environment Agency, December, 2009)		
<p>CFMPs aim to promote sustainable approaches to managing flood risk. They set out policies in relation to channel maintenance, improving flood warning services and promoting land management to reduce flood risk downstream.</p> <p>The catchments in CFMPs are divided up into sub areas, and each sub area is allocated a headline policy approach taken from 6 possible policy approaches. These are:</p> <ul style="list-style-type: none"> ➤ Policy Option 1 – Areas of little or no flood risk where we will continue to monitor and advise (areas that fall under this option are: Skelton Beck, Halnaby Beck, Upper Ribble and Hodder and Wath Beck and Carrs). ➤ Policy Option 2 – Areas of low to moderate flood risk where we can generally reduce existing flood management actions (Gypsey Race). ➤ Policy Option 3 - Areas of low to moderate flood risk where we are generally managing existing flood risk effectively (Loftus and Skinningrove, Holbeck and Hovingham, Rural Esk, Catterick, Ripon, Knaresborough and Wetherby, Wharfe Foothills, Cock and Oak Beck, Middle Ure and Lower Dunsforth, Potto and Swainby, Lower Don, Upper Derwent and Sea Cut, East and West Ayton, Rye and Derwent). ➤ Policy Option 4 – Areas of low, moderate or high flood risk where we are already managing the flood risk effectively but where we may need to take further actions to keep pace with climate change (Rye and Derwent, Lower Derwent and the Wolds; Lower Esk, Boroughbridge, Tidal Ouse and Wharfe, Rural Lune). ➤ Policy Option 5 – Areas of moderate to high flood risk where we can generally take further action to reduce flood risk (Guisborough, Filey, Wiske and Cod Beck, York, Wharfe Rural Towns; Tees Mid Catchment, Skipton Wenning Sub catchment, Eastern Tees). ➤ Policy Option 6 – Areas of low to moderate flood risk where we will take action with others to store water or manage run off in locations that provide overall flood risk reduction or environmental benefits; (Middle Tees, Derwent Uplands, Ouse Uplands, Ouse Washlands; Aire Headwaters, Lower Aire, Upland Headwaters [Derwent], Sleightholmedale, Costa Beck). 	<p>The LFRMS should have regard to all North Yorkshire CFMPs and their policies.</p>	<p>The SEA should take account of CFMP policies.</p>
Humber River Basin Management Plan (Environment Agency, 2009) Northumbria River Basin Management Plan (Environment Agency, 2009) North West River Basin Management Plan (Environment Agency, 2009)		
<p>River Basin Management Plans are statutory plans which deliver the requirements of the EU Water Framework Directive (WFD) (2000/60/EC). They identify the current status of waters in England and Wales and propose a programme of actions to protect and improve the aquatic environment over the period 2009–2015. RBMPs adopt the principles of sustainable water management and set out where we are now, where we need to get to by 2015, and how we intend to get there.</p>	<p>The LFRMS should have regard to the two RBMPs and their policies.</p>	<p>The SEA framework should include consideration of the effects of the LFRMS on the status of water bodies consistent with the Water Framework Directive.</p>

<p>To take forward the aims of the Water Framework Directive which are to:</p> <ul style="list-style-type: none"> ➤ prevent deterioration in aquatic ecosystems, protect them and improve the ecological condition of waters; ➤ aim to achieve at least good status for all water bodies by 2015. Where this is not possible, aim to achieve good status by 2021 or 2027; ➤ meet the requirements of WFD protected areas; ➤ promote sustainable use of water as a natural resource; ➤ conserve habitats and species that depend directly on water; ➤ progressively reduce or phase out the release of individual pollutants or groups of pollutants that present a significant threat to the aquatic environment; ➤ progressively reduce the pollution of groundwater and prevent or limit the entry of pollutants; ➤ contribute to mitigating the effects of floods and droughts. 		<p>The SEA should take account of RBMP policies.</p>
River Tyne to Flamborough Head Shoreline Management Plan (North East Coastal Authorities Group, 2007)		
<p>Supports national aims:</p> <ul style="list-style-type: none"> ➤ to reduce the threat of flooding and coastal erosion to people and their property; and ➤ to deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles. <p>Sets out headline flood defence plans for individual policy units. Headline policies are one of 5 policy options:</p> <ul style="list-style-type: none"> ➤ Hold the Line. ➤ Managed Realignment. ➤ Advance the Line. ➤ Retreat. ➤ Hold the Line on a Retreated Alignment. 	<p>The LFRMS should be consistent with these aims and the headline policies as they apply to specific areas.</p>	<p>The SEA framework should include consideration of the effects of the LFRMS on the coastal area.</p>
Climatic Factors		
Climate Change Plan for Yorkshire and Humber 2009-2014 : Your Climate, Our Future (Yorkshire and Humber Climate Change Partnership, 2009)		
<p>This plan aims to drive the understanding and action in terms of tackling climate change within the region. The emphasis is now on delivery rather than strategy.</p> <p>The Climate Change Plan does not set targets but relies on national, regional local initiatives for delivery. The Plan identifies gaps and where value can be sought from the partnership as a way forward. There are 7 key priorities identified:</p> <ul style="list-style-type: none"> ➤ Strategy and Monitoring. ➤ The built environment. ➤ Transport. ➤ Health services. 	<p>The LFRMS should embed climate change within policy.</p>	<p>The SEA should embed climate change issues within the SEA framework.</p>

<ul style="list-style-type: none"> ➤ Business. ➤ Land Management. ➤ Citizen Engagement. <p>There are 3 cross cutting themes:</p> <ul style="list-style-type: none"> ➤ Energy: because the consumption of fossil fuel based energy sources is the biggest direct influence on the volume of greenhouse gases. ➤ Waste: Because waste streams are important potential sources of materials and energy. ➤ Water: Because pressure on water resources and water and sewerage infrastructure will increase. 		
Additional Environmental Issues		
Leeds City Region Green Infrastructure Strategy (Leeds City Region Local Enterprise Partnership, 2010)		
<p>The Leeds City Region has produced this Green Infrastructure Strategy to ensure that future growth is underpinned and supported by high quality green infrastructure. As such, the strategy sits alongside the other core city region initiatives such as Housing & Regeneration, Employment & Skills, Transport and Economic Drivers and Innovation.</p>	<p>The LFRMS should be consistent with ensuring that opportunities for green infrastructure can be created.</p>	<p>The SEA framework should include consideration of the effects of the LFRMS on the provision of green infrastructure.</p>
Cultural Heritage and Landscape		
North Yorkshire and Cleveland Heritage Coast – Management Plan 2008-2013 (North Yorkshire and Cleveland Coastal Forum, 2007)		
<p>Objectives:</p> <ul style="list-style-type: none"> ➤ To conserve, protect and enhance the natural beauty of the coasts, including their terrestrial, littoral and marine flora and fauna, and their heritage features of architectural, historical and archaeological interest. ➤ To facilitate and enhance their enjoyment, understanding and appreciation by the public by improving and extending opportunities for recreational, educational, sporting and tourist activities that draw on and are consistent with, the conservation of their natural beauty and the protection of their heritage features. ➤ To maintain and improve (where necessary) the environmental health of inshore waters affecting heritage coasts and their beaches. ➤ To take account of the needs of agriculture, forestry and fishing, and of the economic and social needs of the small communities on these coasts. 	<p>The LFRMS should contribute towards protecting and enhancing the coastal environment.</p>	<p>The SEA framework should ensure that effects of the LFRMS on the coastal environment are considered.</p>
National Character Area Profiles (Natural England, 2012)		
<p>According to Natural England, “NCA profiles are guidance documents which will help to achieve a more sustainable future for individuals and communities. The profiles include a description of the key ecosystem services provided in each character area and how these benefit people, wildlife and the economy. They identify potential opportunities for positive environmental change and provide the</p>	<p>According to Natural England, “NCA profiles are guidance documents which will help to achieve a more</p>	<p>According to Natural England, “NCA profiles are guidance documents which will help to achieve a more</p>

<p>best available information and evidence as a context for local decision making and action". Revised profiles for all 159 Character Areas are due to be published by April 2014.</p> <p>The following NCA Profiles were available in February 2013:</p> <ul style="list-style-type: none"> ➤ NCA Profile 21: Yorkshire Dales ➤ NCA Profile 25: North York Moors and Cleveland Hills. ➤ NCA Profile 26: Vale of Pickering. ➤ NCA Profile 27: Yorkshire Wolds. ➤ NCA Profile 28: Vale of York. ➤ NCA Profile 33: Bowland Fringe and Pendle Hill. ➤ NCA Profile 36: Southern Pennines. ➤ NCA Profile 39 Humberhead Levels. 	<p>sustainable future for individuals and communities. The profiles include a description of the key ecosystem services provided in each character area and how these benefit people, wildlife and the economy. They identify potential opportunities for positive environmental change and provide the best available information and evidence as a context for local decision making and action". Revised profiles for all 159 Character Areas are due to be published by April 2014.</p> <p>The following NCA Profiles were available in February 2013:</p> <ul style="list-style-type: none"> ➤ NCA Profile 21: Yorkshire Dales ➤ NCA Profile 25: North York Moors and Cleveland Hills. ➤ NCA Profile 26: Vale of Pickering. ➤ NCA Profile 27: Yorkshire Wolds. ➤ NCA Profile 28: Vale of York. ➤ NCA Profile 33: Bowland Fringe and Pendle Hill. ➤ NCA Profile 36: 	<p>sustainable future for individuals and communities. The profiles include a description of the key ecosystem services provided in each character area and how these benefit people, wildlife and the economy. They identify potential opportunities for positive environmental change and provide the best available information and evidence as a context for local decision making and action". Revised profiles for all 159 Character Areas are due to be published by April 2014.</p> <p>The following NCA Profiles were available in February 2013:</p> <ul style="list-style-type: none"> ➤ NCA Profile 21: Yorkshire Dales ➤ NCA Profile 25: North York Moors and Cleveland Hills. ➤ NCA Profile 26: Vale of Pickering. ➤ NCA Profile 27: Yorkshire Wolds. ➤ NCA Profile 28: Vale of York. ➤ NCA Profile 33: Bowland Fringe and Pendle Hill. ➤ NCA Profile 36: Southern Pennines. ➤ NCA Profile 39
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	Southern Pennines. ➤ NCA Profile 39 Humberhead Levels.	Humberhead Levels.
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Key objectives, targets and indicators relevant to the LFRMS and SEA	Implications for the LFRMS	Implications for SEA
3.4 LOCAL CONTEXT		
Biodiversity, Flora and Fauna		
Craven, Hambleton, Harrogate, Richmondshire, Ryedale, Scarborough, Selby and the North York Moors Biodiversity Action Plans		
Includes lists of priority species and habitats that should be conserved and where possible enhanced through the planning system.	Policies on protection and enhancement of biodiversity (including BAP priorities) and geodiversity need to be included. Baseline data and on-going monitoring of biodiversity are needed to inform the LFRMS.	Include specific reference to BAP priority species and habitats in the SEA framework.
Water and Soil		
Strategic Flood Risk Assessment (CYC, 2011) North Yorkshire Draft Strategic Flood Risk Assessment (in draft) North East Yorkshire Strategic Flood Risk Assessment (2010) Hambleton District Strategic Flood Risk Assessment (2006) North West Yorkshire Strategic Flood Risk Assessment (2010) Selby Level 1 and Level 2 Strategic Flood Risk Assessment (2008 and 2010 respectively).		
<p>These Strategic Flood Risk Assessments assess the different levels of flood risk within North Yorkshire and provide maps of this information. They recognise the increasing threat of global warming and explain how climate change could increase flood risk due to more intense rainfall and sea level rise.</p> <p>These SFRAs provide concise information on flood risk issues to aid planners in the preparation of Development Plans and in the assessment of future planning applications.</p>	The LFRMS needs to take account of the findings from the SFRAs.	The SEA should take account of the findings of these SFRAs as part of the evidence base of the SEA.
Ouse Flood Risk Management Strategy (Environment Agency, 2010)		
The Ouse Flood Risk Management Strategy focuses on the River Ouse and the rivers and streams which join it. The strategy puts the spotlight on people, properties and land at risk from flooding along the River Ouse between Linton Lock (which is to the North West of York) and Boothferry Bridge (which is to the SE of Selby) and the River Wharfe (between the A64 bridge at Tadcaster and where it joins with the Ouse at Wharfe's mouth).	Ensure that the key actions and targets of the flood risk strategy are taken into account when developing the policies in the LFRMS.	Incorporate any relevant targets and indicators into the development of the SEA framework.

<p>The primary objective of the study is to identify the preferred ways of managing flood risks in the long-term over the next 100 years. The strategy adopts targets based on both national and local objectives. These targets reflect not only flood risk management objectives but also relevant wider issues and concerns including the environment, sustainability and climate change.</p>		
<p>Climatic Factors</p>		
<p>Adapting to Climate Change in the North York Moors National Park – Assessment of Risks and Opportunities (North York Moors National Park Authority, 2011)</p>		
<p>The purpose of this report is to assess what effects the projected climate change may have on the NYMNP and operation of the park authority. The main climate change impacts for the NYMNP are expected to be:</p> <ul style="list-style-type: none"> ➤ Flooding of infrastructure and habitats, with a significant impact on the economy. ➤ Drought, which will affect flora and fauna. ➤ Coastline changes. ➤ Increased moorland fire risk. ➤ Cumulative effects on agricultural production. ➤ Cumulative effects on conditions for biodiversity. ➤ Change in composition of native woodland. ➤ Increased occurrence of disease in wildlife. <p>The current actions to address these projected impacts include:</p> <ul style="list-style-type: none"> ➤ The Slowing the Flow Project (aimed at reducing flooding of communities along the Pickering Beck). ➤ Ensuring new infrastructure is resistant to flooding. ➤ Fire management plans. ➤ Developing climate change resilience at the landscape scale. ➤ Provision of all-weather visitor facilities. ➤ Management and monitoring of habitats for certain species of flora and fauna. ➤ Restoration and re-vegetation of peat bogs. 	<p>The aims of this strategy should be reflected in the LFRMS.</p>	<p>The aims and targets should be incorporated into the SEA framework and climate change should be a specific SEA objective.</p>
<p>Delivering on Climate Change (North Yorkshire County Council’s Climate Change Strategy, 2009)</p>		
<p>Objectives:</p> <ul style="list-style-type: none"> ➤ County Council plays a leading role in supporting a reduction in the contribution which North Yorkshire makes to climate change. ➤ County Council works with people, communities and other organisations in North Yorkshire to develop an effective response to the current and predicted future changes in climate. ➤ County Council seeks to ensure maximum value for money and efficiency savings from actions taken in response to climate change. 	<p>The aims of this strategy should be reflected in the LFRMS.</p>	<p>The aims and targets should be incorporated into the SEA framework and climate change should be a specific SEA objective.</p>

<p>There are seven key priority areas across three cross cutting themes:</p> <ul style="list-style-type: none"> ➤ Strategy, monitoring and target setting. ➤ The built environment. ➤ Transport. ➤ Health and care services. ➤ Business. ➤ Land management. ➤ Citizen engagement. <p>The cross cutting themes are: energy, waste and water.</p>		
<p>Additional Environmental Issues</p>		
<p>Your Dales Rocks: Local Draft Geodiversity Action Plan 2006-2011 (North Yorkshire Geodiversity Partnership, 2006)</p>		
<p>The draft Action Plan aims to:</p> <ul style="list-style-type: none"> ➤ record, conserve and where practicable, enhance geodiversity within the project area; ➤ increase public awareness of, and involvement in, conserving geodiversity; ➤ contribute to the conservation of geodiversity on a national and international scale; ➤ create, maintain and support the North Yorkshire Geodiversity Partnership RIGS group, and to work with other relevant RIGS organisations. 	<p>The LFRMS should support geodiversity.</p>	<p>The SEA objectives should seek to contribute to the objectives of the action plan, where relevant.</p>
<p>Cultural Heritage and Landscape</p>		
<p>Forest of Bowland AONB Management Plan 2009 – 2014 Howardian Hills AONB Management Plan 2009 – 2014 Nidderdale AONB Management Plan 2009 – 2014 North Pennines AONB Management Plan 2009 – 2014</p>		
<p>These documents identify the important features of the AONBs and sets out guidance and objectives on the ways in which these features can be protected, restored and enhanced. They do not contain land use policies but deal with good management practice of the area.</p>	<p>Ensure that policies take into account protection of the features of the AONBs.</p>	<p>The SEA should ensure environmental protection of the AONBs.</p>
<p>Craven Landscape Character Appraisal (CDC, 2002) Hambleton Landscape and Settlement Character Assessment (HDC, 2008) Harrogate Landscape Character Assessment (HBC, 2004) North York Moors Landscape Character Assessment (White Young Green for North York Moors National Park Authority, 2003) North Yorkshire Landscape Character Assessment (NYCC, 2011) Ryedale Landscape Character Assessment (RDC, 1999) Scarborough Landscape Appraisal (SBC, 1994) Selby Landscape Character Assessment (SDC, 1999)</p>		

<p>In order to understand more about the landscapes that form the plan area and manage landscape change within the plan area, several landscape character assessments (LCAs) have been carried out which include North Yorkshire County, the North York Moors, the City of York and many of the North Yorkshire districts. LCAs aim to identify landscape character types and areas and develop strategies for their management.</p>	<p>Policies should consider effects on landscape character.</p>	<p>The SEA should use this as baseline evidence and seek to conserve and enhance landscape character.</p>
<p>Fountains Abbey and Studley Royal World Heritage Site Management Plan 2009 – 2014 (National Trust and English Heritage, 2009)</p>		
<p>The Management Plan provides a framework for the holistic and sustainable management of the site. It balances the interests of conservation and access to conserve the cultural significance of Fountains Abbey and Studley Royal.</p> <p>The key management issues for 2009-14 are: ‘sustainable management’; ‘conservation of the historic and natural environment’; ‘access, enjoyment and understanding’ and ‘local community links and partnerships’.</p>	<p>The LFRMS should ensure appropriate protection of the World Heritage Site.</p>	<p>The SEA should maintain the quality and local distinctiveness of the World Heritage Site.</p>
<p>Planning</p>		
<p>Craven, Hambleton, Harrogate, Richmondshire, Ryedale, Scarborough and Selby Local Development Frameworks</p>		
<p>District and borough Local Development Frameworks provide the detailed strategy for all other local spatial planning (housing, retail, etc.) within the county.</p>	<p>The LFRMS policies will be consistent with district and borough LDF policies.</p>	<p>The SEA should consider requirements of LDFs during the assessment.</p>
<p>Yorkshire Dales Local Plan (Yorkshire Dales National Park Authority, 2006)</p>		
<p>The national park core strategy provides detail on development and the use of land within the national park.</p>	<p>The LFRMS should contribute towards meeting the objectives of the local plan.</p>	<p>The SEA should consider requirements of the local plan during the assessment</p>
<p>North York Moors Core Strategy and Development Policies (North York Moors National Park Authority, 2008)</p>		
<p>The national park core strategy provides detail on development and the use of land within the national park.</p>	<p>The LFRMS should contribute towards meeting the objectives of the core strategy.</p>	<p>The SEA should consider requirements of these development plans during the assessment.</p>

4 Appendix 4 – Baseline: Contents

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4.1 Introduction

An important part of the scoping stage for Strategic Environmental Assessment (SEA) is establishing the baseline. The baseline is a set of data, both quantitative and qualitative, which establishes the current state of the area and trends over time, in terms of environmental themes. Whilst highlighting themes or pieces of information that may be particularly relevant to the Local Flood Risk Management Strategy (LFRMS), it does not aim to consider possible ways of addressing any issues. It is purely a factual account.

The topics addressed in the baseline have been identified against the relevant Strategic Environmental Assessment (SEA) topic, as listed in the SEA Directive. The table below identifies the topic areas covered and how these relate to the SEA topics.

Key messages arising from the baseline and predicted future trends have been summarised at the end of each section and these have informed the development of environmental objectives, as detailed in the scoping report.

Indicators have also been identified against each of the topic areas which have also been used in the development of the environmental objectives as detailed in the scoping report. As the SEA process progresses, trends will be measured against a number of these indicators. A list of proposed indicators is presented in Section 6.1 of the Environmental Report and a final list of indicators for monitoring the effects of the LFRMS will be presented upon adoption of the strategy.

4.3 SEA Topic – Biodiversity, Flora and Fauna

Protected Sites

A significant proportion of the land in North Yorkshire, particularly within the NYMNP, the northern part of YDNP and the Nidderdale AONB, is protected at European level under the Habitats Directive² as Special Area of Conservation (SAC) and/or under the Birds Directive³ as a Special Protection Area (SPA) for its nature conservation importance. A total of 102,100 hectares of land are designated as SAC and a total of 89,920 hectares are SPA. These areas do overlap, for example most of the moorland in the North York Moors National Park is designated as both SAC and SPA and the most northerly moors of the YDNP are classified as both SAC and SPA. There are two Ramsar sites, Malham Tarn and the Lower Derwent Valley, designated under the Convention of Wetlands of International Importance, which are in the Yorkshire Dales National Park and in the eastern part of Selby District in the south of the county, respectively. Figures 3.1 and 3.2 below show the extent of European protected sites in North Yorkshire.

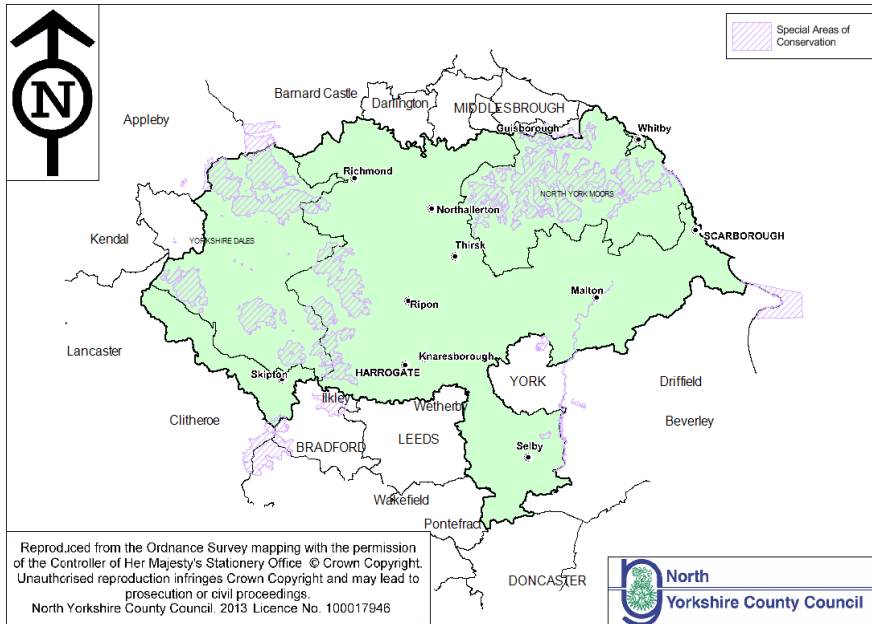


Figure 3.1: Special Areas of Conservation.

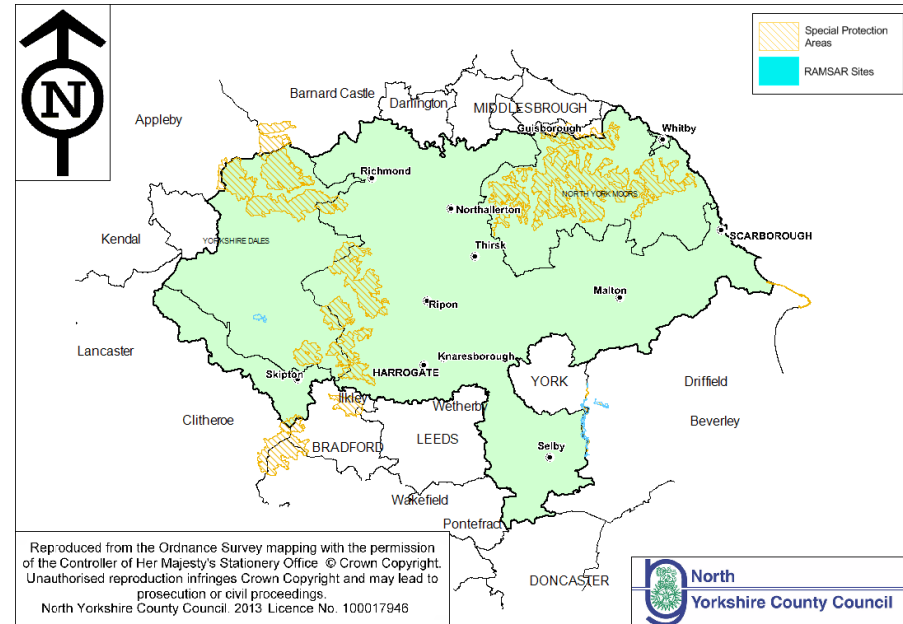


Figure 3.2: Special Protection Areas.

² EC Habitats Directive (92/43/EEC).

³ EU Birds Directive (2009/147/EC).

Important Bird Areas are identified by the global BirdLife partnership of conservation organisations due to the presence of rare or vulnerable species or importance for bird congregations. Large parts of North Yorkshire, particularly the North York Moors National Park and the Yorkshire Dales National Park, are identified as Important Bird Areas, as shown in Figure 3.3.

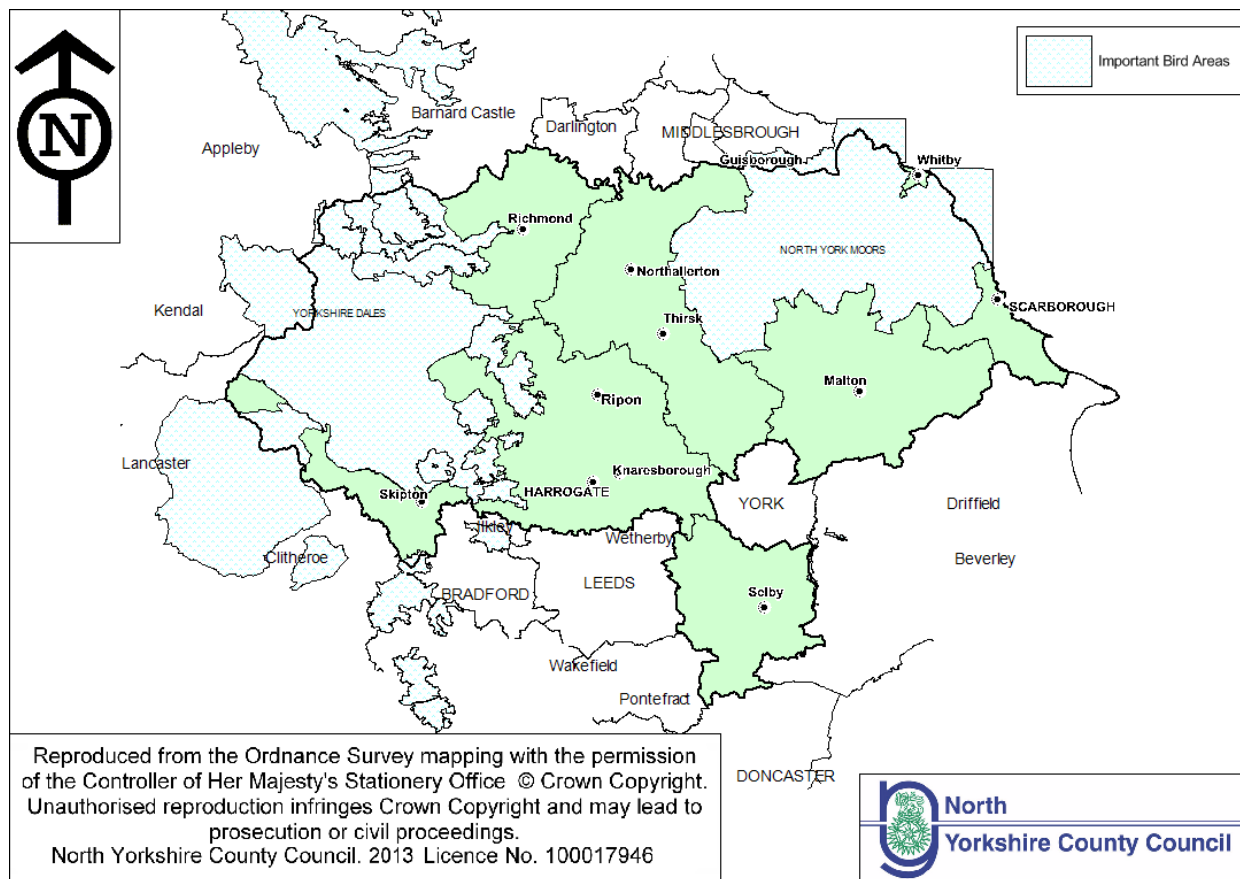


Figure 3.3: Important Bird Areas.

At the national level, many parts of North Yorkshire are protected as Sites of Special Scientific Interest. These represent some of the country's best wildlife and geological sites. There are a total of 109,800 hectares of SSSIs within North Yorkshire. These are shown in Figure 3.4. The largest proportions of SSSIs in North Yorkshire are in the North York Moors National Park, the Yorkshire Dales National Park, and a significant area also in the Nidderdale AONB.

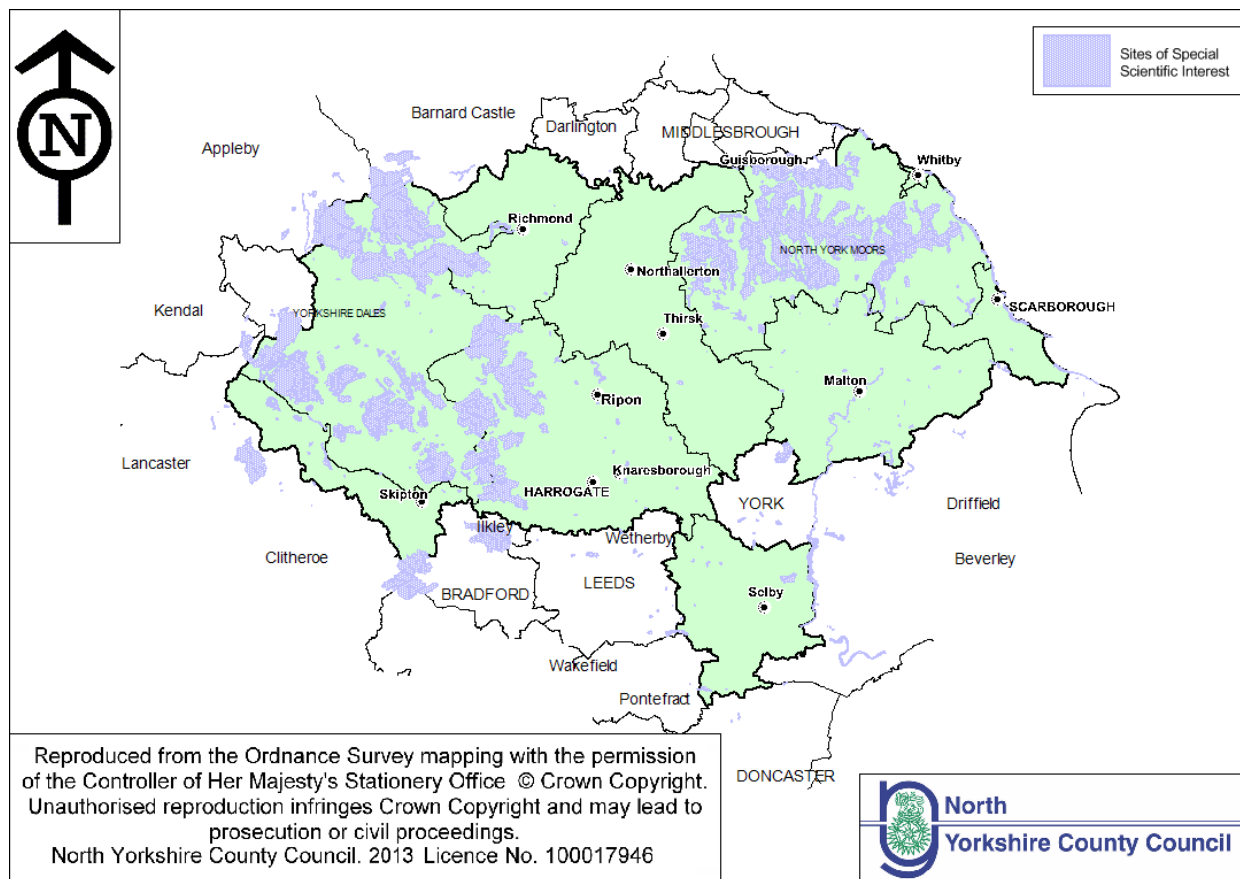


Figure 3.4: Sites of Special Scientific Interest.

Of the total area, 18.95% of SSSIs are in favourable condition and 79.23% are in an unfavourable recovering condition. This shows that only a small proportion of SSSI area is categorised as 'unfavourable declining' (0.49%) or 'unfavourable no change' (1.33%)⁴, showing that the trend is for improvement. Biodiversity 2020⁵ sets national targets for at least 50% of SSSIs to be in favourable condition, whilst maintaining at least 95% in favourable or recovering condition, by 2020.

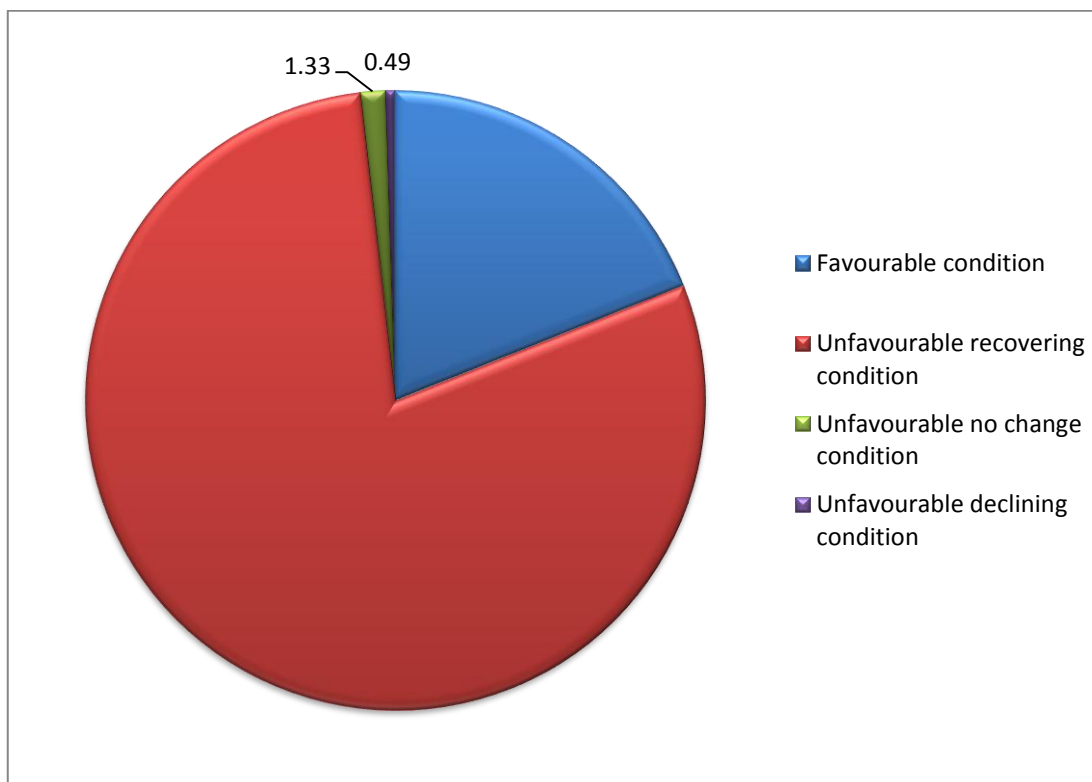


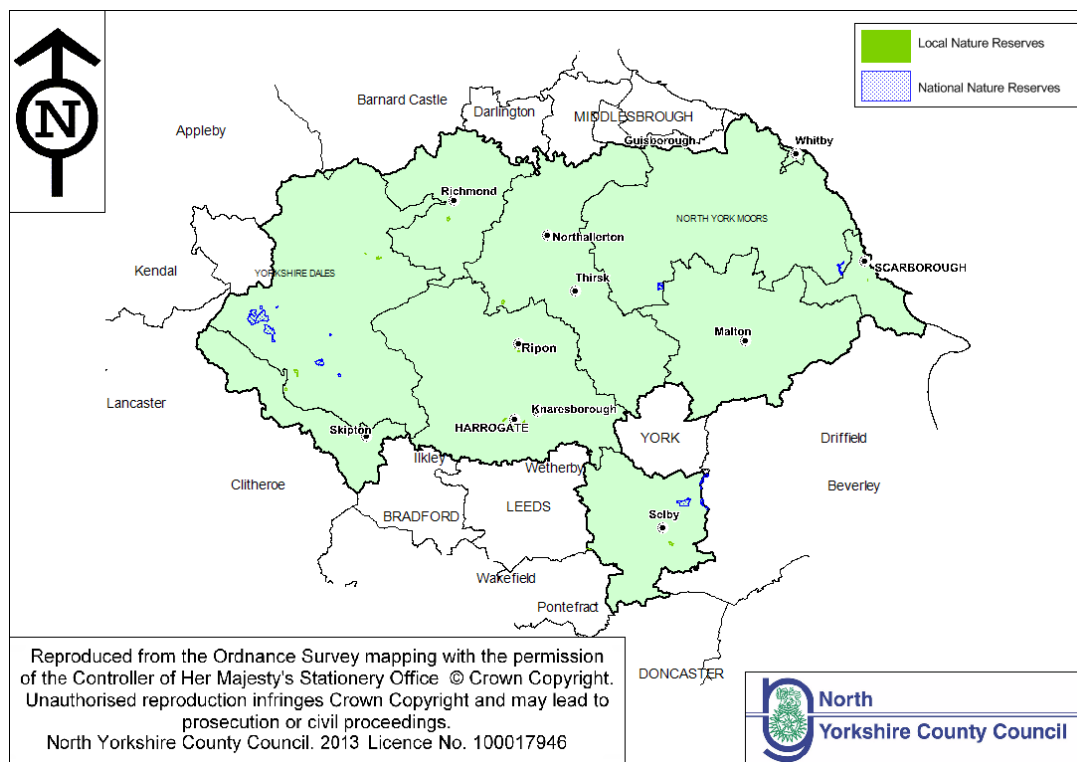
Figure 3.5: Chart showing the condition of SSSIs within North Yorkshire.

⁴ Natural England, March 2014. SSSI condition summary for North Yorkshire. Available at: [URL: sssi.naturalengland.org.uk/Special/sssi/reportAction.cfm?Report=sdrt18&Category=C&Reference=1029].

⁵ Biodiversity 2020 – A Strategy for England's wildlife and ecosystem services (Defra, 2011).

Part of the purpose of the designation of the national parks is also to conserve and where possible enhance the wildlife of the parks and therefore the whole of the Yorkshire Dales National Park and North York Moors National Park is protected nationally for its importance to wildlife. .

The 8 National Nature Reserves in the county occupy 1,783 ha. National Nature Reserves are defined as some of the finest wildlife sites in England for wildlife and/or geology. Local nature reserves are identified for their wildlife and the learning and recreation opportunities that people can experience from them. There are also 17 Local Nature Reserves covering 233 ha in the county. National and Local Nature Reserves are shown in Figure 3.6.



Local Sites, or Sites of Importance for Nature Conservation (SINCs) are locally important wildlife sites which are designated by a local sites panel made up of local authorities and other interested parties. These have been designated in North Yorkshire outside of the North York Moors and Yorkshire Dales national parks due to the parks' national significance and therefore already established level of protection. A total area of 11,104 ha of land is designated as Local Site, the spatial distribution of which can be seen in Figure 3.7. In 2013, out of 42 sites monitored, 30 were found to be in positive conservation management.

Figure 3.6: Local and National Nature Reserves.

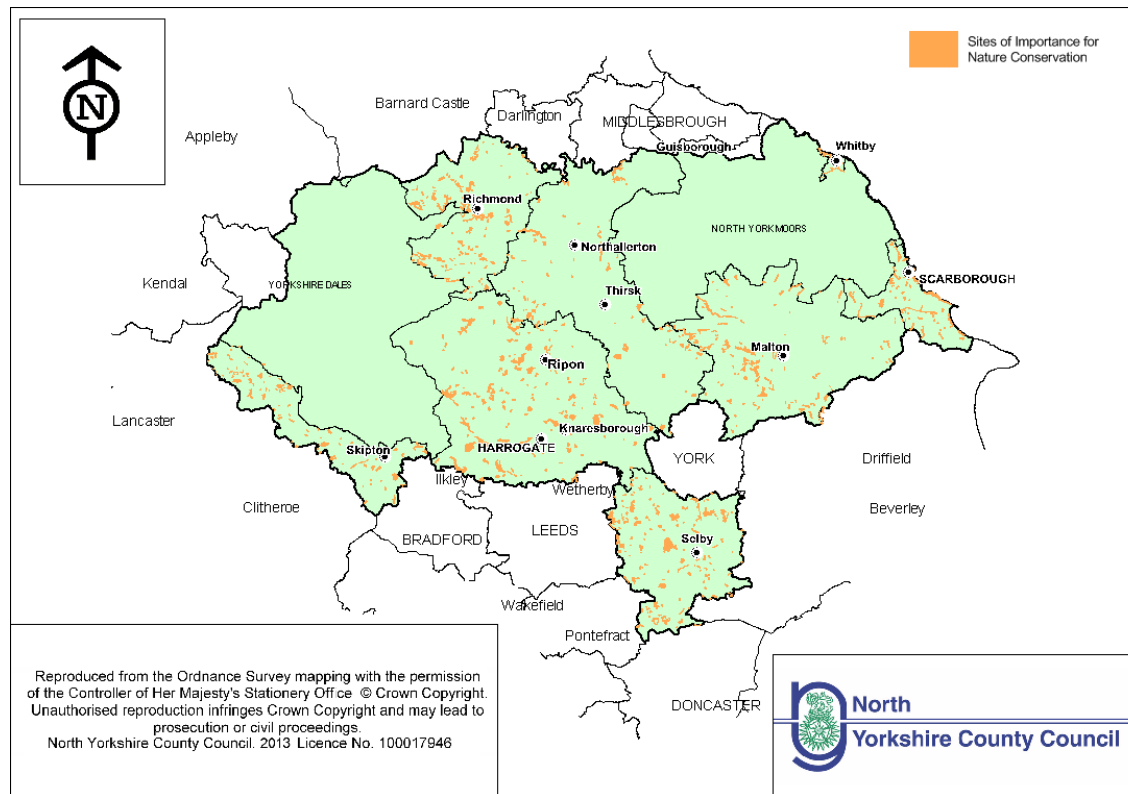


Figure 3.7: Local Wildlife Sites and Sites of Importance for Nature Conservation.

Trees and Woodland

Woodlands and trees provide a number of benefits including habitats for wildlife, timber production, recreation, carbon storage and flood alleviation. The total area of woodland in North Yorkshire is 60,843 ha. Figure 3.8 shows the extent of woodland within North Yorkshire and also identifies ancient woodland and accessible woodland. Plantation on Ancient Woodland Sites (PAWS) also contributes a significant portion of woodland in the County, especially in the North York Moors, where they constitute 58% of ancient woodland (the largest concentration in northern England).

Veteran trees⁶ are important habitats for a range of wildlife. Data on veteran trees in North Yorkshire can be found using the Woodland Trust's interactive map: ancient-tree-hunt.org.uk/discoveries/interactivemap. Veteran trees in North Yorkshire are concentrated in the Harrogate Borough (in particular, the Nidderdale AONB), the north east corner of the Richmondshire District and the northern parts of the Yorkshire Dales, the south east corner of the North York Moors, and the Howardian Hills AONB.

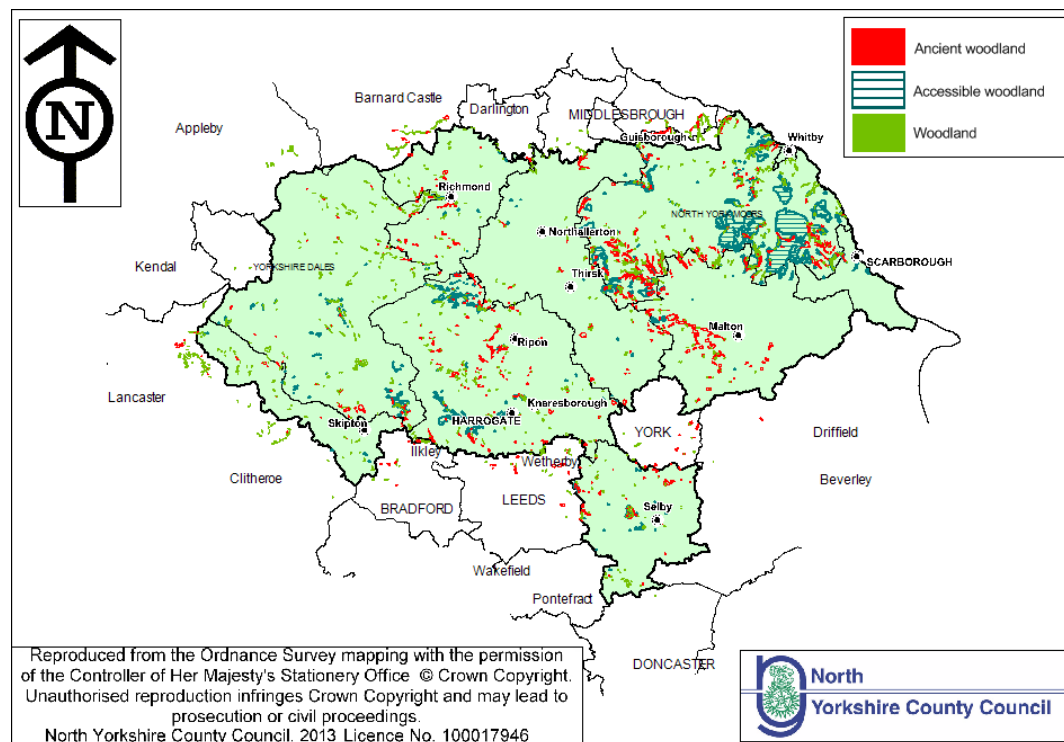


Figure 3.8: Woodland (including accessible woodland and ancient woodland).

⁶ A veteran tree is a tree in the second stage, or mature stage of its life and has important wildlife and habitat features.

Biodiversity Action Plans

The Post 2010 Biodiversity Framework, which succeeded the UK Biodiversity Action Plan, sets out priorities for biodiversity at a UK level, with county level strategies setting targets in each of the UK's four countries. In England, the England Biodiversity Strategy sets a target to achieve no net loss of priority habitat and increase their overall extent by at least 200,000 hectares by 2020⁷. The distribution of UK BAP priority habitats in North Yorkshire can be seen on the MAGIC website, which is managed by Natural England and can be found at:

<http://magic.defra.gov.uk/MagicMap.aspx>. The total areas of different UK priority habitat found within North Yorkshire are listed within Table 3.9. The National Planning Policy Framework advises that impact on biodiversity from planning should be minimised and that priority habitats should be preserved, restored and re-created and that suitable indicators should be used to monitor this.

Priority Habitat	Area (hectares)
Lowland Dry Acid Grassland	17,026.86
Blanket Bog	53,255.76
Coastal Vegetated Shingle	0
Lowland Meadows	1,110.17
Lowland Calcareous Grassland	6,709.54
Lowland Heathland	801.25
Lowland Raised Bogs	129.05
Maritime Cliff and Slopes	Area not supplied in source data
Mudflats	28.51
Limestone Pavement	Area not supplied in source data
Purple Moor Grass and Rush Pastures	630.63
Reedbeds	2,425.32
Saline Lagoons	Area not supplied in source data
Sand Dunes	0
Upland Calcareous Grassland	7,594.57
Upland Hay Meadows	Area not supplied in source data
Upland Heathland	Area not supplied in source data

Table 3.9: List and corresponding area of priority habitats within the Plan Area.

Source – Natural England.

⁷ Biodiversity 2020: A Strategy for England's Wildlife and Ecosystem Services (Defra, undated).

There are also a number of Local Biodiversity Action Plan Partnerships in North Yorkshire which set out local action plans for UK BAP priority habitats and species, alongside actions for locally significant species. These plans include:

- Bedale and Upper Swale Internal Drainage Board BAP;
- Craven BAP;
- Hambleton BAP;
- Harrogate BAP;
- North York Moors National Park BAP;
- Richmondshire BAP;
- Ryedale BAP
- Scarborough BAP;
- Selby Area Internal Drainage Board BAP; and
- Selby BAP.

In total, there are 93 habitats with actions in North Yorkshire and 27 species with actions, details of which can be found on Defra's BARS website: ukbars.defra.gov.uk/plans/nonj.asp.

The National Biodiversity Network Gateway gives broad details of the distribution of species: <http://data.nbn.org.uk/>.

Agri-Environment Schemes

Under agri-environment schemes, land managers (including farmers) select options to address environmental objectives, such as restoring biodiversity or managing soil erosion. National Parks also have the authority to offer locally-specific agri-environment grants and agreements. In 2009, 66% of the agricultural land in England was covered by some form of agri-environment scheme. There are a number of agri-environment schemes in operation, including:

- Environmental Stewardship;
- Countryside Stewardship;
- Environmentally Sensitive Areas; and
- Woodland Grant Schemes.

All current agri-environment schemes are mapped on Natural England's 'Nature on the Map' website. In addition, target areas for Higher Level Stewardship (a more comprehensive approach to land management in priority areas) are shown:

<http://natureonthemap.naturalengland.org.uk/map.aspx?map=aes>

Figure 3.10 shows that there is a large proportion of land within North Yorkshire that is under an Environmental Stewardship scheme (68.4%), which includes: Entry Level Stewardship; Organic Entry Level Stewardship; and Higher Level Stewardship. Within North Yorkshire there are 3,734 schemes in place. The Common Agricultural Policy will be reformed post-2013, which means there is currently uncertainty surrounding how this may affect Environmental Stewardship schemes in the UK.

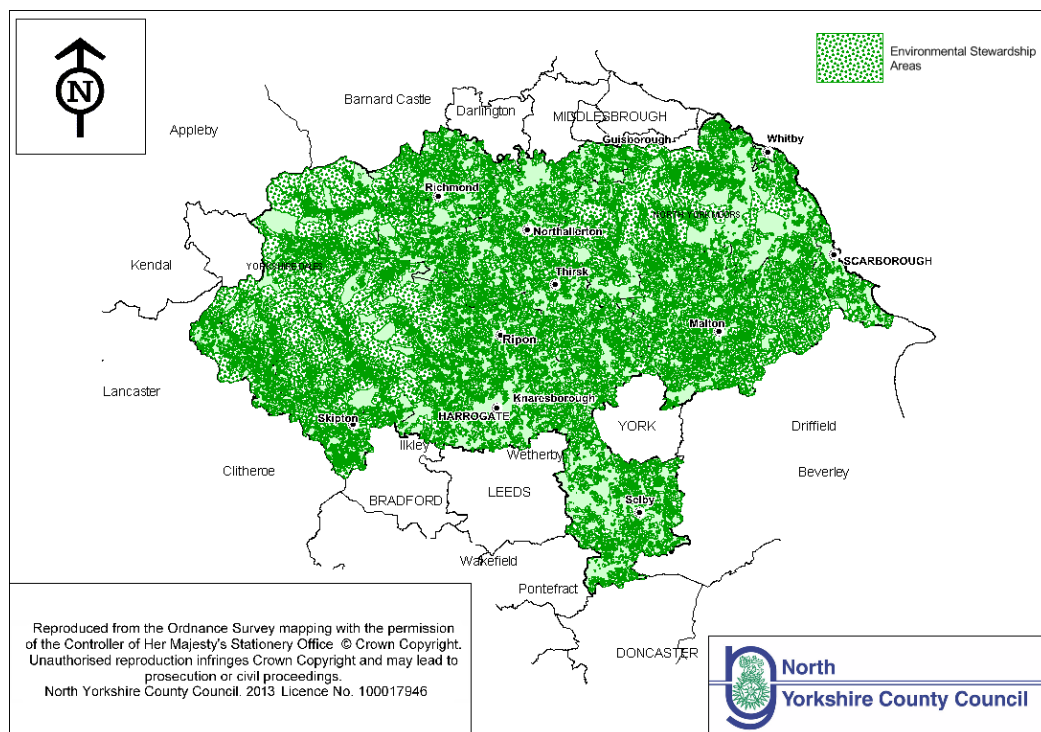


Figure 3.10: Environmental Stewardship Areas.

Invasive Species

Invasive species are non-native species which may cause harm to ecosystems. There are currently 30 species listed as high impact on the UKTAG list (compiled in January, 2014), of which 16 are listed as present inside North Yorkshire County (in May 2013), or within 10km of the county's boundary and are found within freshwater habitats, or close to them. These classifications are made by the National Biodiversity Network. These are shown in Table 3.11, below.

Common name	Scientific name
Australian swamp stonecrop	<i>Crassula helmsii</i>
Floating pennywort	<i>Hydrocotyle ranunculoides</i>
Water fern	<i>Azolla filiculoides</i>
Water fern	<i>Azolla caroliniana</i>
Canadian pondweed	<i>Elodea canadensis</i>
Nuttall's pondweed	<i>Elodea nuttallii</i>
Giant Knotweed	<i>Fallopia sachalinensis</i>
Himalayan balsam	<i>Impatiens glandulifera</i>
Giant hogweed	<i>Heracleum mantegazzianum</i>
North American signal crayfish	<i>Pacifastacus leniusculus</i>
Chinese mitten crab	<i>Eriocheir sinensis</i>
Slipper limpet	<i>Crepidula fornicata</i>
Zebra mussel	<i>Dreissena polymorpha</i>
Colonial tunicate	Non-native <i>Didemnum</i> spp.
Common carp	<i>Cyprinus carpio</i>
Goldfish	<i>Carassius auratus</i>

Table 3.11: Invasive species associated with Aquatic or Riparian habitats classified as high impact recorded in North Yorkshire in May, 2013. Sources – adapted from UKTAG list and data.nbn.org.uk/imt/ - National Biodiversity Network.

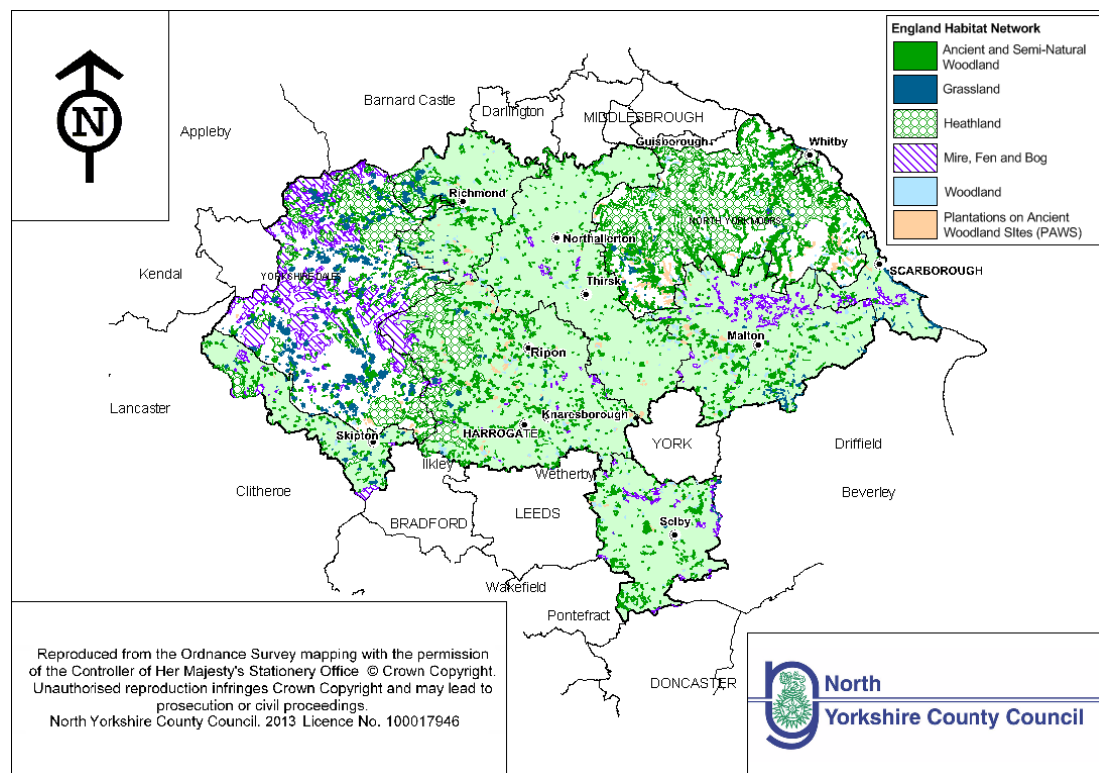
Defra provides alerts in relation to a number of invasive species as shown in Table 3.12, below. As at May 2013, none of these species are present in North Yorkshire.

Species Name	Status in North Yorkshire	Date of check made on website
Quagga Mussel	Not yet found in GB according to Defra website	10/04/2014
Asian hornet	Not yet found in GB according to Defra website n/a to freshwater habitats	10/04/2014
Killer Shrimp	Thus far found in East Anglia, Cardiff Bay and Port Talbot according to Defra website	10/04/2014
Water Primrose	Although noted as present in some parts of England, there are no records in the county according to the National Biodiversity Network Gateway	10/04/2014
Carpet sea squirt	Marine species n/a to freshwater habitats	10/04/2014

Table 3.12: Number of alerts for invasive species.
Sources – Defra.

Habitat Networks

Habitat networks are becoming increasingly important, particularly as the predicted effects of climate change may have a detrimental effect on these habitats through fragmentation. The England Habitat Network attempts to identify areas of functional connectivity of ecosystems across



landscapes. The network is built up from patches of defined habitat that are known to exist, plus areas of permeable landscape (dispersal intervals) that are connected to the patches. Dispersal intervals are based on information on the capacity of groups of species to move outside their core habitat. Movement of plant and animal species across the landscape allows populations to adapt to the changing environment and for plant and animal communities to adapt to these changes over shorter time periods as they can find optimal locations for growth and reproduction. Figure 3.13 shows where patches and dispersal intervals coalesce to give a broad indication of the networks that exist in the county, based on the types of land cover likely to have the greatest permeability to flora and fauna. The true extent of networks must distinguish between habitat types due to the impact that these different types of land cover have on the movement of species.

In addition to the England Habitat Network, mapping of ecological networks at a local scale within the county has also been carried out by the Yorkshire Wildlife Trust, the North Yorkshire and York Local Nature Partnership and the North York Moors National Park Authority.

Figure 3.13: England Habitat Network. Source – Natural England.

Local Nature Partnerships (LNPs) also carry out important work on Nature Improvement Areas at a local level around England. Nature Improvement Areas (NIAs) are defined as places where opportunities to deliver ecological networks exist and significant enhancement of the network can be achieved over a large area. They focus on improving habitat connectivity within 12 defined NIAs in England.

At present, no NIAs exist within the county. However, the LFRMS should take into account the effect of the plan on NIAs bordering the county, such as the Humberhead Levels and the Morecambe Bay Limestones and Wetlands.

The Yorkshire Wildlife Trust's (YWT) 'Living Landscapes' work has focussed on the restoration, recreation and reconnection of nature reserves and areas of ecological importance within nature corridors such as rivers, verges and hedgerows. A map of the YWT's broad areas of nature conservation can be found on the YWT website⁸. In addition, a more detailed map of the YWT's Living Landscapes is displayed in Figure 3.14. The work being carried out to join up Yorkshire's nature reserves and ecologically important areas is being carried out through partnerships between local communities, landowners, schools and businesses. At present, the YWT has identified 33 Living Landscape areas within the North Yorkshire Ecological Network. Identification of clusters of habitats and core biodiversity areas will then allow the YWT to create functional ecological networks and integrated habitats.

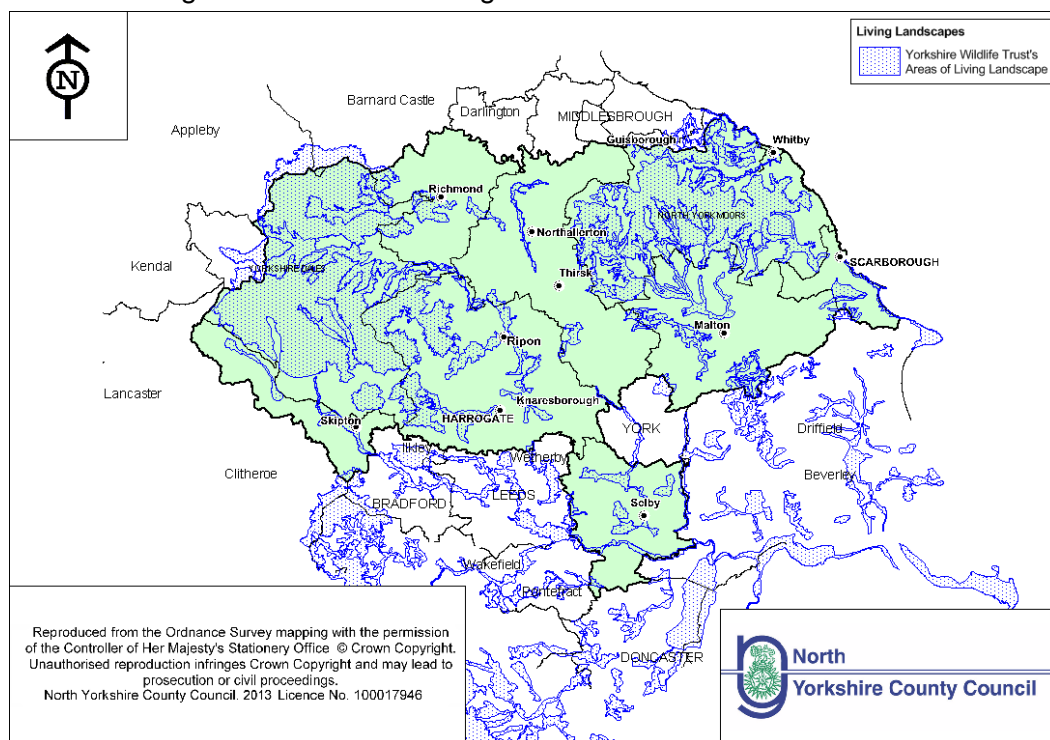


Figure 3.14: The Yorkshire Wildlife Trust's areas of Living Landscape across Yorkshire and the Humber.
Source – Yorkshire Wildlife Trust.

⁸ <http://www.ywt.org.uk/what-we-do/living-landscapes>.

Green Infrastructure

Green Infrastructure is the network of corridors and spaces that each provides a variety of functions such as nature conservation, opportunities for recreation, flood risk management or education. Green Infrastructure corridors for North Yorkshire are defined in the green infrastructure corridors map produced by Natural England. This shows corridors of regional, sub-regional and district significance within the county. This is based upon the provision of a range of functions including provision of rights of way, green linkages and flood control, as well as their importance for biodiversity. Figure 3.15 shows the green infrastructure corridors identified in the Yorkshire and Humber region.

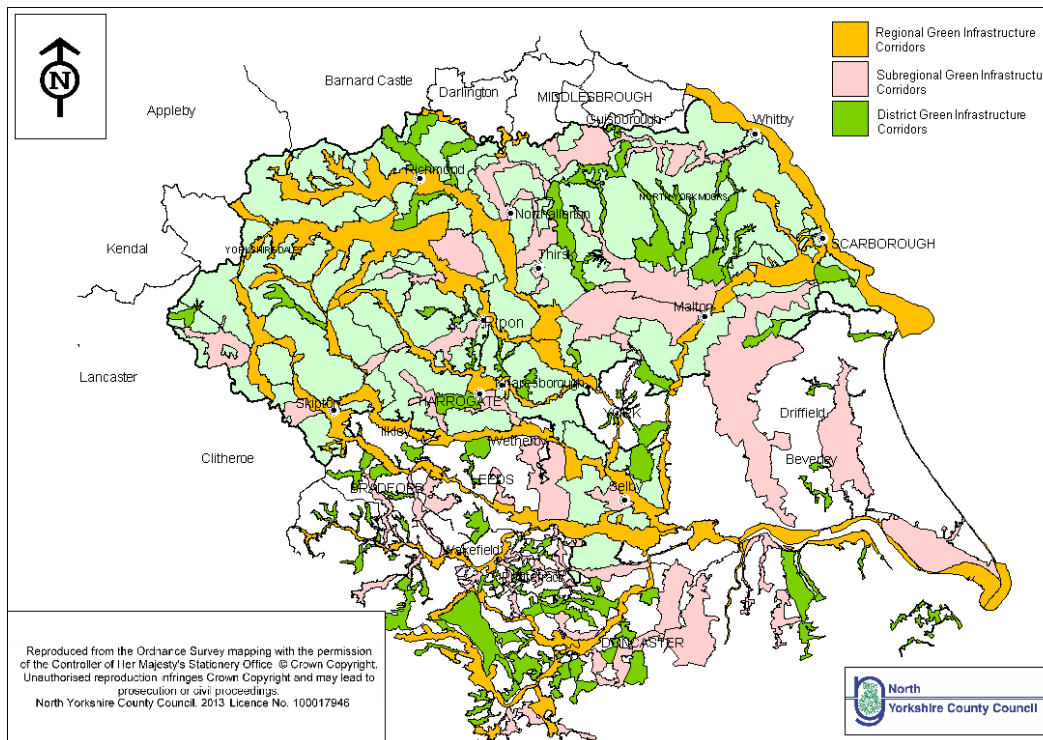


Figure 3.15: Green Infrastructure corridors in the Yorkshire and Humber region.
Source – Natural England.

Ecosystem Services

The natural environment provides many useful functions that help human communities survive and prosper. For example, the organisms that pollinate crops and cycle nutrients in soils provide a critical role in helping us to farm and produce food, while natural processes play a crucial role in removing carbon dioxide and other greenhouse gases that contribute to global warming from the air. Often we take these 'free' services for granted, but the UK's recent National Ecosystems Assessment showed that many services provided by nature are under pressure and could be enhanced by appropriate management. Four categories of ecosystem services are defined by the NEA: supporting services (provision of basic infrastructure of life on which all other ecosystem services depend, e.g. primary production and soil formation); regulating services (including pollination and pest, disease and climate regulation); provisioning services (goods that are obtained from ecosystems, such as food and building materials); and cultural services (cultural benefits derived from nature, such as recreational parks and opportunities for outdoor learning). In North Yorkshire there is a growing body of evidence that a wide range of ecosystem services across all four of the NEA's categories of services are present. Natural England has recently identified key provisioning, regulating and cultural ecosystems services being delivered in National Character Areas within the county in their NCA updates. Changes in ecosystems can lead to changes in the level of ecosystem services that they deliver. For instance, the replacement of lowland heath with farmland can lead to a flux of carbon dioxide to the atmosphere and the reduction of further capacity to absorb carbon from the atmosphere. The National Ecosystem Assessment provided a snapshot of changes in broad habitat types and summarised their contribution to ecosystem services in a technical report on 'Status and Changes in the UK Ecosystems and their Services to Society: England'⁹. This displays the following trends in service provision for key ecosystem services in the UK:

Table 3.16: Importance of key broad habitats for delivering ecosystem services in the UK.

Service group	Final Ecosystem Service	Moorland, Mountain and Heaths	Semi-natural Grasslands	Enclosed Farmland	Woodlands	Freshwaters, Open waters, Wetlands and Floodplains	Urban	Coastal Margins
Provisioning	Crops		→	↑			↗	↘
	Livestock	→	→	→	→			↘
	Fish			→		↓		↘
	Trees, standing vegetation	↘	↗	↗	↑		↗	
	Water supply	→	↘	→	→	↘	→	→

⁹ Defra et al, 2011. UK National Ecosystem Assessment Technical Report: <http://uknea.unep-wcmc.org/Resources/tabid/82/Default.aspx>.

	Wild species diversity	↗	→	↓	↗	↓	↗	→
Cultural	Recreation	↑	↑	↗	↑	↑	↑	↑
	Tourism	↑	↑	↗	↑	↑	→	↑
	Landscapes / seascapes	↑	↑	↑	↑	↗	→	↑
Regulating	Climate	↘	↗	↘	↑	→	↘	↘
	Hazard	→	↘	↘	↗	→	↘	↘
	Disease and pests		↗	↘	→	↘	↘	
	Water quality	↘	→	→	↗	↘	→	
	Soil quality	→	↘	↘	↗	→	↘	→
	Air quality	→	↘	↘	↗		→	→
Importance of broad habitat for delivering the ecosystem service					Direction of change in the flow of the service since 1990			
High	Medium - High	Medium - Low	Low	↑ Improving; ↗ Some improvement; → Improvement and/or deterioration in different locations; ↘ Some deterioration; ↓ deterioration				

Key messages from the baseline

- There are large numbers of nationally designated wildlife sites and significant areas of internationally designated wildlife sites in the county.
- Outside of these areas there are large numbers and a wide distribution of locally important Sites of Importance for Nature Conservation, UK BAP priority habitats and Local Nature Reserves.
- Much of the farmland in North Yorkshire is covered by some form of agri-environment scheme.
- Despite the above characteristics of the county, many habitats in North Yorkshire are fragmented and isolated, and many are also at risk from flooding. Certain species, such as the Great Crested Grebe and other nesting water birds (including ducks and swans), wading birds (such as the Redshank), the common lizard, adder and tansy beetle are more vulnerable to flood events than other species.

- Woodland and forest provide a valuable function for flood alleviation, in addition to other benefits such as carbon sequestration and provision of biodiversity. However, it should be noted that management of forest and certain forestry practices, such as clear felling, may contribute to flood risk and flood incidents. Outside of the NYM National Park, woodland is generally found in small fragments.
- Invasive species are an increasing threat to native wildlife.
- Native species are also at risk from increased flooding.
- Green infrastructure and green space provides a number of functions, including flood resilience. In addition, the LFRMS may enhance green infrastructure through land management practices.
- Key ecosystem services in the county include: regulating water flow and quality; regulating soil erosion and quality; provision of biomass energy and timber; water availability; food provision; climate regulation; regulation of coastal erosion; and cultural services such as the provision of a sense of history and recreational opportunities.
- Some species and habitats may also benefit from increased flooding.

Predicted Future Trends

- The overall condition of the protected site network is predicted to improve in the short and medium term as targets for SSSI condition are met. Similarly, the target of no net loss of priority habitat by 2020 is likely to mean that declines for priority habitats will halt over the short and medium term (assuming the target is successfully met). However, there is uncertainty over the short and medium term contribution of agri-environment schemes due to uncertainty over the outcome of Common Agricultural Policy reform, which may impact on populations of farmland species in particular. In addition, some habitats are continuing to show near term declines in the ecosystem services they deliver, such as freshwater habitats role in supplying wild species diversity, and uplands' role in climate and hazard regulation.
- Biodiversity faces some key threats which will become more significant in the longer term, including continued urbanising and development of land. The effects of climate change and invasive species / plant diseases will also become increasingly evident in the longer term¹⁰. For instance, because of changes in species ranges and the fragmented nature of the current protected sites network, smaller protected sites may no longer be fit for purpose, while coastal squeeze from sea level rise may affect protected coastal areas. This would have a negative effect on biodiversity. However, other species may spread northwards meaning that some previously uncommon species may become more widespread¹¹. The cumulative effect of future forces for change is predicted to be negative however.

¹⁰ For a comprehensive discussion paper on drivers of ecosystem change in England see Berry, P and Hopkins, J, 2011. UK National Ecosystem Assessment Technical report: Status and Changes in the UK Ecosystems and their Services to Society: England

¹¹ Defra, 2012. The UK Climate Change Risk Assessment 2012 Evidence Report. [URL: <https://www.gov.uk/government/publications/uk-climate-change-risk-assessment-government-report>]

Indicators

Indicator	Baseline Data and year (where available)	Source
Percentage of SSSIs safeguarded as part of flood risk management	Data not yet available	Natural England and NYCC
Total area of SSSI in favourable and unfavourable recovering condition	Figure 3.5 (18.95% favourable; 79.23% unfavourable recovering)	Natural England
Area of UK BAP Priority Habitat created as part of flood management	Data not yet available	Natural England and NYCC
Proportion of Local Sites where positive conservation management is being, or has been implemented	30	NYCC
Number of developments and schemes employing sustainable drainage which delivers ecological and amenity benefits	Data not yet available	NYCC

4.4 SEA Topic – Cultural Heritage and Landscape

Heritage Assets

There is a wealth of built and cultural heritage within North Yorkshire, ranging from castles and abbeys to ancient field systems, bridges and historic parks, as well as numerous important historic buildings and townscapes.

Listed Buildings are statutorily protected in recognition of their architectural or historic significance. According to English Heritage, 'Listing helps us acknowledge and understand our shared history. It marks and celebrates a building's special architectural and historic interest, and also brings it under the consideration of the planning system so that some thought will be taken about its future'¹².

There are three categories of listed buildings. These are:

- Grade 1: Buildings of exceptional interest, sometimes considered to be internationally important.
- Grade 2*: Particularly important, of more than special interest; 5.5% of listed buildings nationally are Grade 2.
- Grade 2: These buildings are nationally important and of special interest.

Within the county there are around 14,000 listed buildings. Of these listed buildings, 53 are on English Heritage's 'at risk' register¹³; although more are on local 'at risk' registers. The main reasons for buildings being at risk are being in remote and inaccessible locations, being replaced by modern agricultural buildings and through lack of repair.

Conservation areas are designated by local planning authorities; they can include a wide variety of environs, designated for their special architectural and historic interest. They can include areas such as the centres of historic towns, historic suburbs and country houses set in historic parks and gardens. Many conservation areas are the subject of conservation area appraisals. There are a total of 302 Conservation Areas in North Yorkshire. Like Listed Buildings, Conservation Areas are designated for their special architectural and historic interest although they do no benefit from statutory protection. Of the 302 Conservation Areas, 2 are identified on English Heritage's 'at risk' register.

According to English Heritage, 'Scheduling is shorthand for the process through which nationally important sites and monuments are given legal protection by being placed on a list or schedule'¹⁴. There are a total of 1,736 Scheduled Monuments in North Yorkshire, as well as many thousands more archaeological sites and features. Of the Scheduled Monuments in the county, 311 are on English Heritage's 'at risk' register. Scheduled Monuments are generally at risk from recreational pressure, upgrading access tracks and inappropriate land management such as drainage, arable ploughing and plant growth.

¹² English Heritage english-heritage.org.uk/caring/listing/listed-buildings/

¹³ Data in June 2013 risk.english-heritage.org.uk/register.aspx.

¹⁴ English Heritage english-heritage.org.uk.

Registered Parks and Gardens are designated for their importance as a planned landscape. There are a total of 41 Registered Parks and Gardens in North Yorkshire, and of these 6 are at risk. North Yorkshire also has five Registered Battlefields and one Protected Wreck Site, the Bonhomme Richard¹⁵, off the coast of Filey Bay.

Heritage at Risk

The current number of heritage assets 'at risk' is shown in Table 4.1.

	Listed Buildings	Scheduled Monuments	Conservation Areas	Registered Parks and Gardens	Registered Battlefields
North Yorkshire	53	311	2	6	1

Table 4.1: Heritage assets 'at risk'.

Source – English Heritage.

There are many other non-designated historic assets which are recorded on the Historic Environment Records of the authorities. Around 45,000 assets in North Yorkshire are identified on the Historic Environment Records. There are particular concentrations of non-designated assets in areas such as the Vale of Pickering.

Historic sites play a key role in the economy of the region, with hundreds of thousands of visits each year, as shown in Table 4.2.

Attraction	2009 (thousand visitors)	2010 (thousand visitors)
Castles / forts	446	733
Gardens	401	613
Historic houses	1338	1076
Historic monuments	255	226
Visitor / heritage centres	550	219
Places of worship	1729	1036
Other historic properties	35	378

Table 4.2: Visits to Historic Sites in Yorkshire and Humber region.

Source – Visitor attraction trends in England: annual report for Heritage Counts (BDRC/English Heritage, 2010).

¹⁵ Detailed assessment at www.english-heritage.org.uk/content/imported-docs/a-.

Landscapes across North Yorkshire

The county has a rich and varied landscape, which falls within a number of National Character Areas (see Figure 4.3). A large part of the area is designated nationally for the importance of its landscapes, as shown in Figure 4.3. National parks and AONBs are statutorily protected which is important in the context of the LFRMS as flood risk management work may have the potential to be intrusive.

Whilst designated landscapes enjoy the highest level of protection, the European Landscape Convention¹⁶ acknowledges that all landscapes are important and describes landscape as ‘An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors’.

Each of the National Character Areas has been defined in terms of their current condition. This shows that the North York Moors and Cleveland Hills, the Yorkshire Wolds and the Bowland Fells are ‘enhancing’, whilst the Tees Lowlands, Vale of Mowbray and Vale of York are classed as ‘neglected’. The rest of the plan area is either ‘maintained’ or ‘diverging’¹⁷.

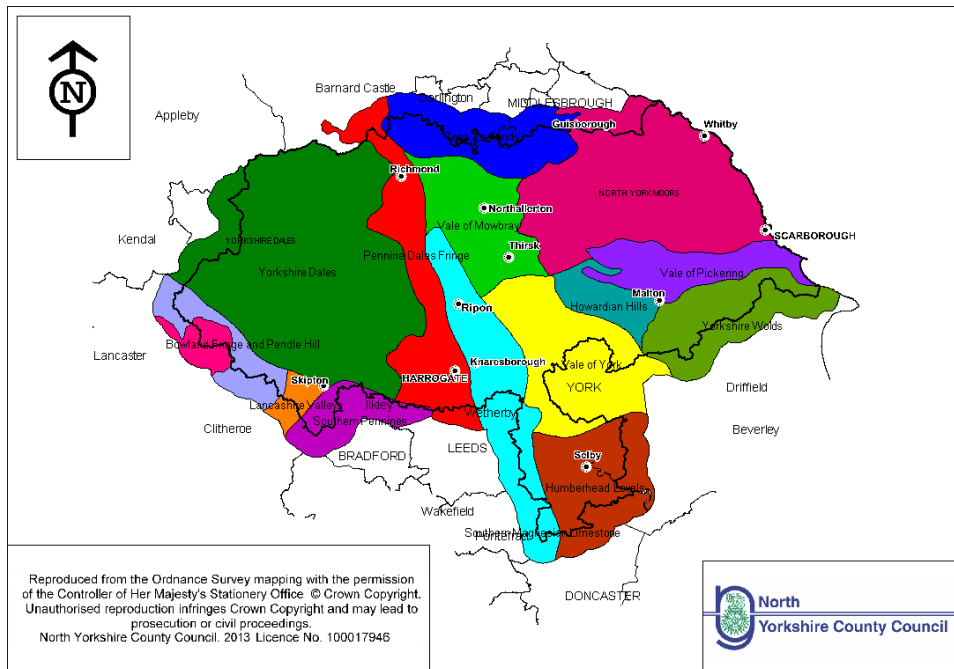


Figure 4.3: National Character Areas.

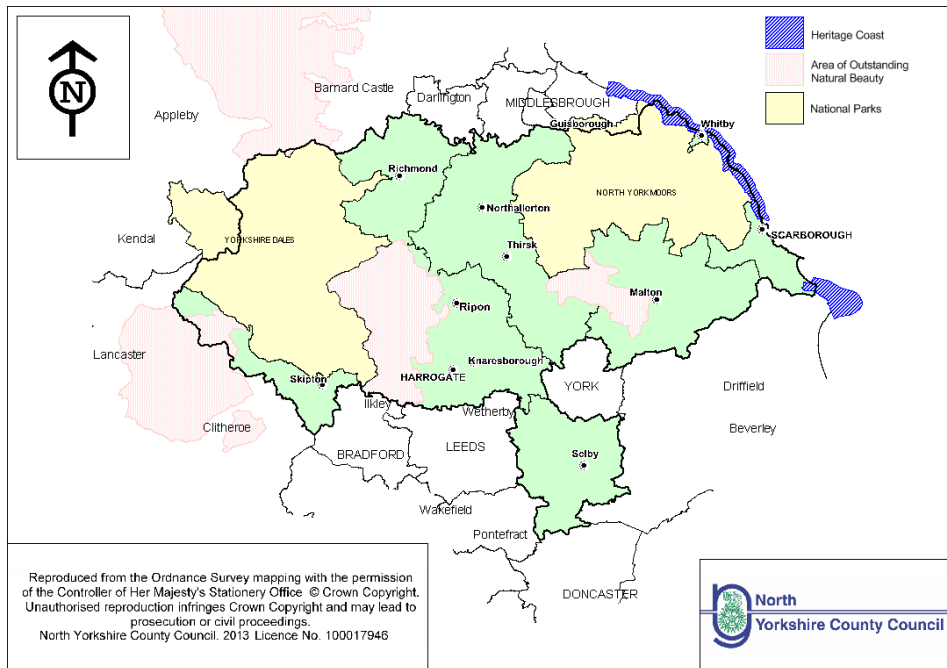
Source – Natural England.

¹⁶ Council of Europe, 2000.

¹⁷ State of the Natural Environment in Yorkshire and the Humber (Natural England, 2008).

Protected Landscapes

National parks and Areas of Outstanding Natural Beauty are part of a global network of protected landscapes. The North York Moors National Park, designated primarily for its landscape quality, extends to 1,436km² and was described in the 1947 Hobhouse Report as ‘within a relatively small compass an amazing wealth of variety and beauty’. The landscape of the National Park includes open heather moorland, intimate dales, the coast, the open landscapes of the Hambleton and Tabular Hills, extensive wooded areas and dramatic geological features such as Sutton Bank and Roseberry Topping. The latest Natural England report describes the North York Moors as ‘enhancing (changing)’ which means that the landscape is improving¹⁸. The Yorkshire Dales National Park covers an area of 1,762 km² and its designation to National Park arose from its outstanding scenery, range of wildlife habitats and rich cultural heritage. The Yorkshire Dales is renowned for its flower-rich hay meadows and pastures, heath and heather moorland, wet meadows and pastures, raised and blanket bog and woodland. Natural England has classified the Dales as ‘maintained (stable)’, meaning that the landscape is neither degrading, nor improving.



North Yorkshire includes two Areas of Outstanding Natural Beauty (Nidderdale and the Howardian Hills AONBs) and small parts of the Forest of Bowland AONB and North Pennines AONB. The primary aim of the designation is to conserve and enhance the natural beauty of the landscape. The Nidderdale AONB is recognised for its heather moorland to the west, where it abuts the Yorkshire Dales National Park, and its rolling farmland landscapes to the east. The Howardian Hills AONB is recognised for its woodland, rolling agricultural landscapes and parkland. The Forest of Bowland is characterised by upland fells and vast tracts of heather moorland and the North Pennines AONB is characterised predominantly by open heather moorlands. The landscape of the National Character Areas covering all four AONBs has been identified as ‘maintained (stable)’. North Yorkshire also contains the Cleveland Heritage Coast and part of the Flamborough Head Heritage Coast. Heritage Coasts are designated to conserve their natural beauty and improve accessibility.

Figure 4.4: National parks and AONBs in and surrounding North Yorkshire.

¹⁸ State of the Natural Environment in Yorkshire and the Humber (Natural England, 2008).

Green Belt

Green Belt is designated to maintain the open spaces around towns and cities, providing spaces for agriculture and leisure opportunities as well as maintaining open landscapes. The southern part of the county falls within the greenbelt designated around Leeds and an area of Green Belt is in the process of being designated around York. In relation to the latter, the outer boundary is designated in the adopted plans of York's adjoining districts and boroughs. Figure 4.5 shows the extent of Green Belt in the county.

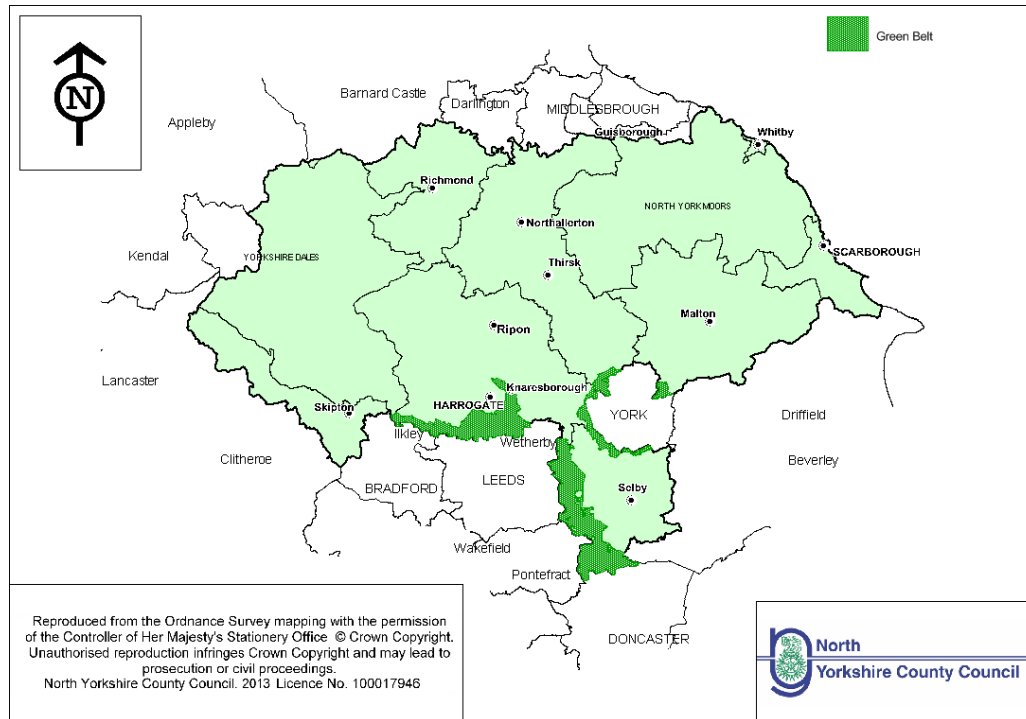


Figure 4.5: Green Belt land in North Yorkshire.

Key messages from the baseline

- The landscape of the county is varied, with parts which are relatively low lying, although variation in geology, soils, topography and historical factors have helped create a range of distinctive and valued landscapes. These features could potentially be at risk from erosion due to flooding and also from flood management/mitigation works.

- The North York Moors National Park and the Yorkshire Dales National Park make up a large part of the county and a significant portion of the county lies within Areas of Outstanding Natural Beauty or Heritage Coasts.
- The green belt and designated landscape areas of the county provide vital green space and limit development which aids flood resilience. In addition, the LFRMS measures may contribute to the enhancement of the green belt through the use of sympathetic land management practices.
- North Yorkshire is rich in historic assets.
- There are a large number of Listed Buildings.
- Historic assets and Listed Buildings may be at risk from erosion and damage due to flooding and also from flood management/mitigation works.
- The LFRMS will need to consider the settings of these assets as well as the protection of the assets themselves.
- Whilst most designated assets in the area are not 'at risk', more than a third of the designated historic assets identified as being at risk in the region are in the county.

Predicted Future Trends

- Changes in the landscape appear varied in nature across the Plan area with some areas enhancing and some not, and it is likely that this would continue to be the case depending upon levels of intervention across different areas. Effects could take place in the short, medium or long term, but major changes to the landscape are likely to only be evident in the longer term.
- In the short term there is unlikely to be significant changes to the historic and cultural environment. Over the medium to longer term, the number of designations may increase in various locations across the plan area in line with ongoing assessment.

Indicators

Indicator	Baseline Data and year (where available)	Source
Buildings, scheduled monuments, conservation areas, registered parks and gardens, registered battlefields 'at risk' as defined by the Heritage at Risk Register	Table 4.1 – 373 defined as at risk	English Heritage
Number of planning conditions related to visual amenity for flood risk management works	Data not yet available	NYCC
Number of planning conditions related to visual amenity for flood risk management works located in the green belt/designated landscapes/conservation areas	Data not yet available	NYCC
Number of Heritage Assets on the 'at risk' register where flooding is cited as a reason for that site being at risk.	Data not yet available	English Heritage

4.5 SEA Topic – Water and Soil

Water Quality

Nitrate Vulnerable Zones are areas where fresh water (in rivers, streams and lakes) may be adversely affected by nitrates (most of which come from agricultural sources). Groundwater Source Protection Zones are defined around large and potable groundwater abstraction sites and are designated in order to protect drinking water quality from nearby activities which have the potential to impact upon these sources. Figures 5.1 and 5.2 show the Nitrate Vulnerable Zones and Groundwater Source Protection Zones in the county.

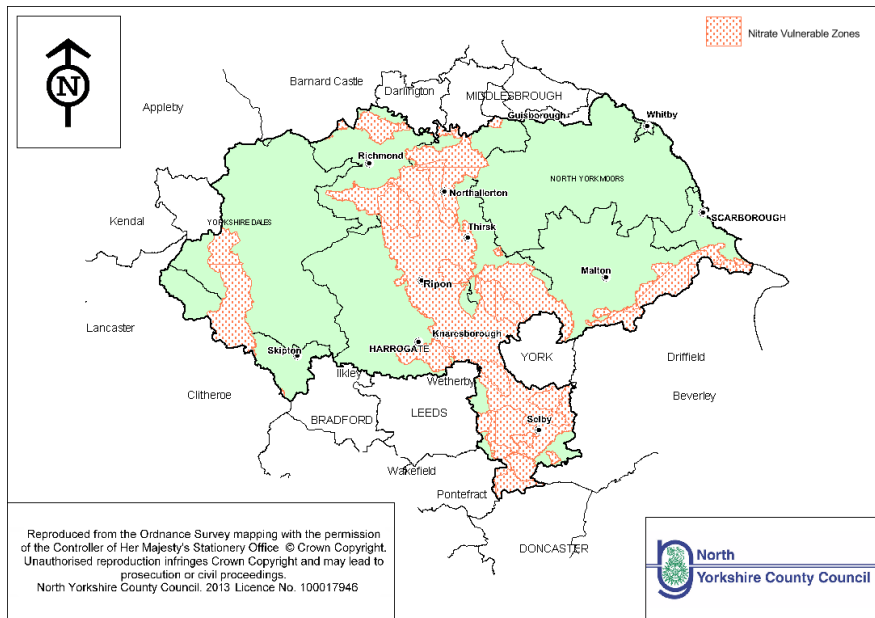


Figure 5.1: Nitrate Vulnerable Zones.
Source – Environment Agency.

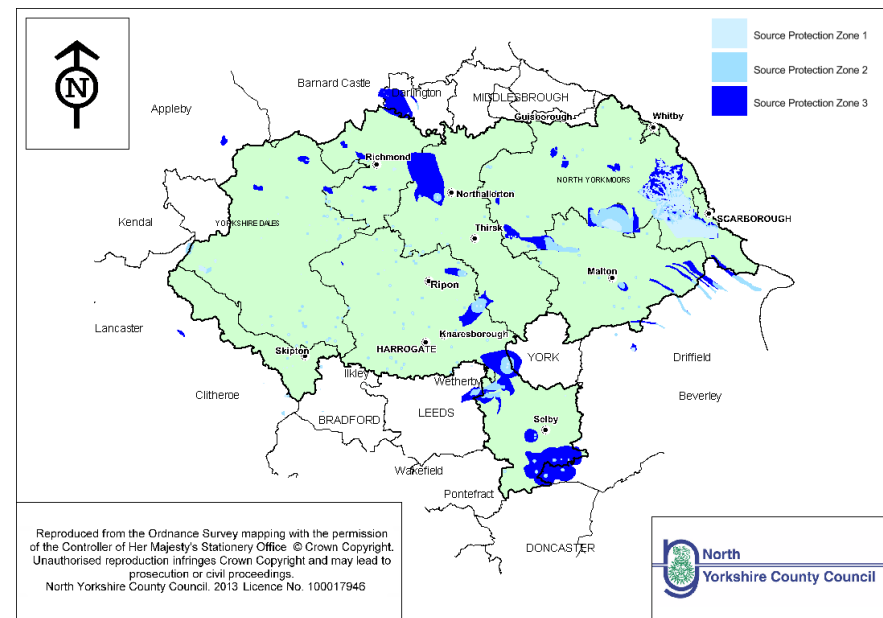


Figure 5.2: Groundwater Source Protection Zones.
Source – Environment Agency.

It can be seen that wetlands in North Yorkshire are especially vulnerable to pollution by nitrates, although groundwater protection is also a significant issue. A central corridor of water protection zones can be found in Selby, Hambleton, Ryedale and Harrogate from observation of the above map. The Nitrate Vulnerable Zones and Groundwater Source Protection Zones should be taken into account when carrying out flood management works and within the Water Framework Directive Assessment.

The quality and quantity of ground water resources is an important issue. Across the county the quantitative quality (the degree to which groundwater is affected by abstractions) is generally good whereas chemical quality is generally poor/deteriorating. In addition, there are also wide variances within the county.

Under the Water Framework Directive, good chemical and ecological status in inland and coastal waters must be achieved by 2015. North Yorkshire County falls within 10 catchments. Table 5.3 below shows the current overall (ecological and chemical) performance of water bodies in each of these catchments. The catchments within the county do not necessarily match the boundary of the area, but in the case of water it is relevant to look at the condition of the whole catchment not just the part within the county.

Catchment	% of waterbodies with 'good' status	% of waterbodies with 'moderate' status	% of waterbodies with 'poor' status
Aire and Calder	10.85	78.29	10.85
Derwent (Humber)	8.05	64.37	22.99
Esk and Coast	35.48	41.94	16013
Hull and East Riding	14.49	71.01	5.80
Swale, Ure, Nidd and Upper Ouse	21.86	51.56	16.41
Tees	36.84	41.29	18.42
Wharfe and Lower Ouse	22	66	10
Don	9.38	62.50	26.04
Lune	61.82	30.90	5.45
Ribble	28.43	62.74	6.86

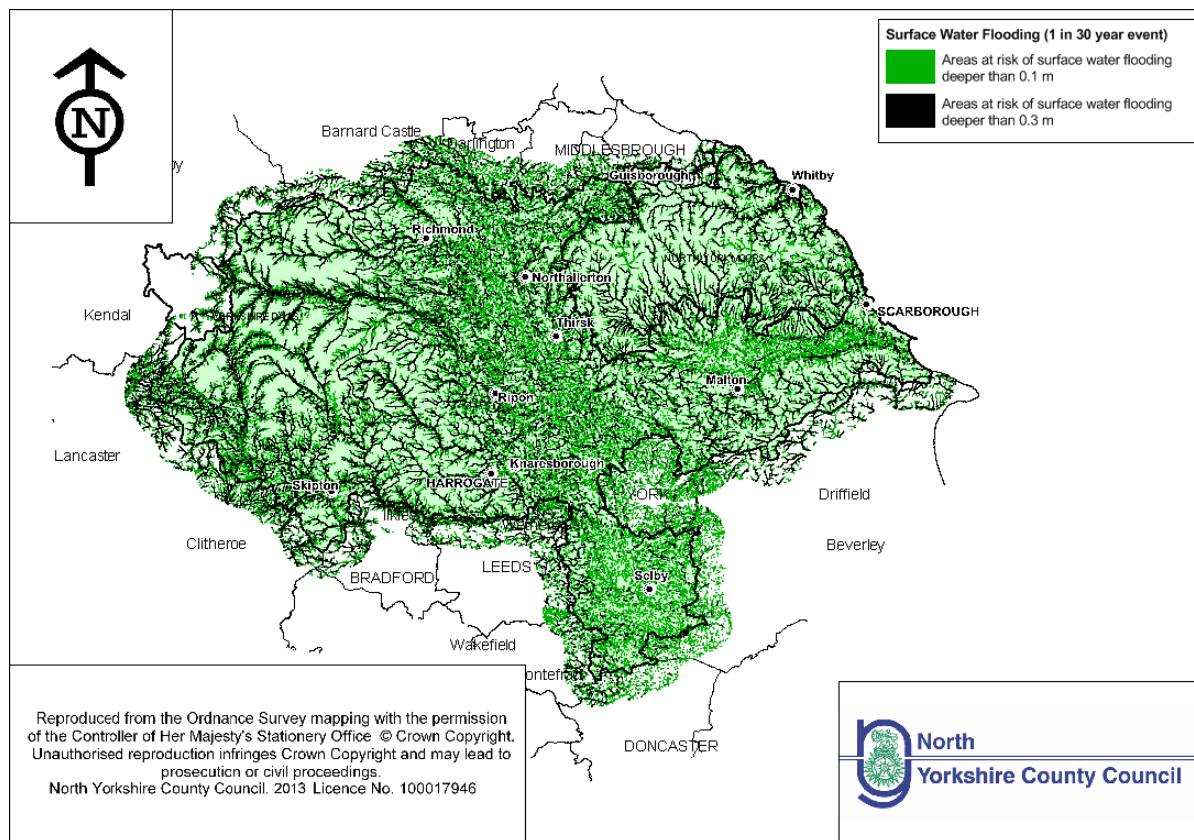
Table 5.3: Status of waterbodies in catchments falling within or partly within North Yorkshire County (2012).

Source: Environment Agency/HM Government¹⁹.

Across North Yorkshire there are a variety of reasons why waterbodies are failing to achieve good status. For the main catchments of the county, these include diffuse pollution from agriculture (e.g. the Esk and Coast, Swale, Ure, Nidd and Upper Ouse, Wharfe and Lower Ouse and Tees), point source discharges from industry or sewage (e.g. Esk and Coast, Swale, Ure, Nidd and Upper Ouse, Aire and Calder and

¹⁹Water Framework Directive – Surface Water Classification Status and Objectives (data.gov.uk/dataset/wfd-surface-water-classification-status-and-objectives).

Tees), water industry storm discharges (e.g. Aire and Calder, Swale, Ure, Nidd and Upper Ouse) and physical modification to watercourses for reasons such as flood protection (e.g. Tees and Derwent).



Flooding

Surface Water Flooding

Surface water flood events are usually associated with high-intensity rainfall (typically >30mm/hr) and occur when the local drainage system cannot cope with the rainfall. Figure 5.4 displays those areas which are the most susceptible to surface water flooding across the county. The data used to generate the map have been simplified and only give an indication of areas that may be more likely to suffer from surface water flooding.

Figure 5.4: Areas most susceptible to surface water flooding across North Yorkshire.
Source – Environment Agency, 2010.

Figures 5.5 and 5.6 display the Environment Agency's flood maps for the 1 in 30 and 1 in 200 rainfall events. These maps give a broad indication of areas likely to be at risk from surface water flooding from two different rainfall events (i.e. areas where surface water would be expected to flow or pond). Each map displays where this flooding is likely to be deeper than 0.1 metres and deeper than 0.3 metres.

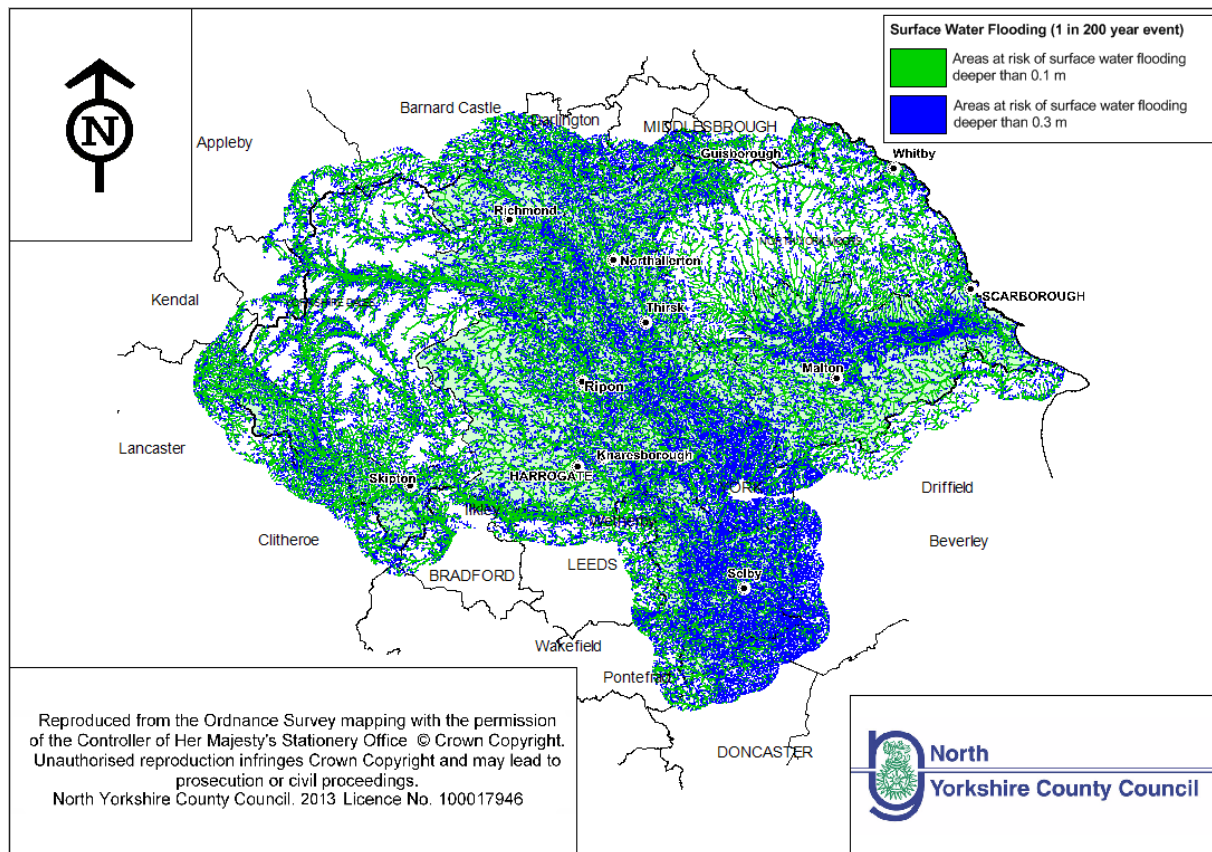


Figure 5.5: Flood map for surface water for North Yorkshire, displaying the 1 in 200 rainfall event for areas at risk of surface water flooding at depths of 0.1 and 0.3 metres.

Source – Environment Agency, 2010.

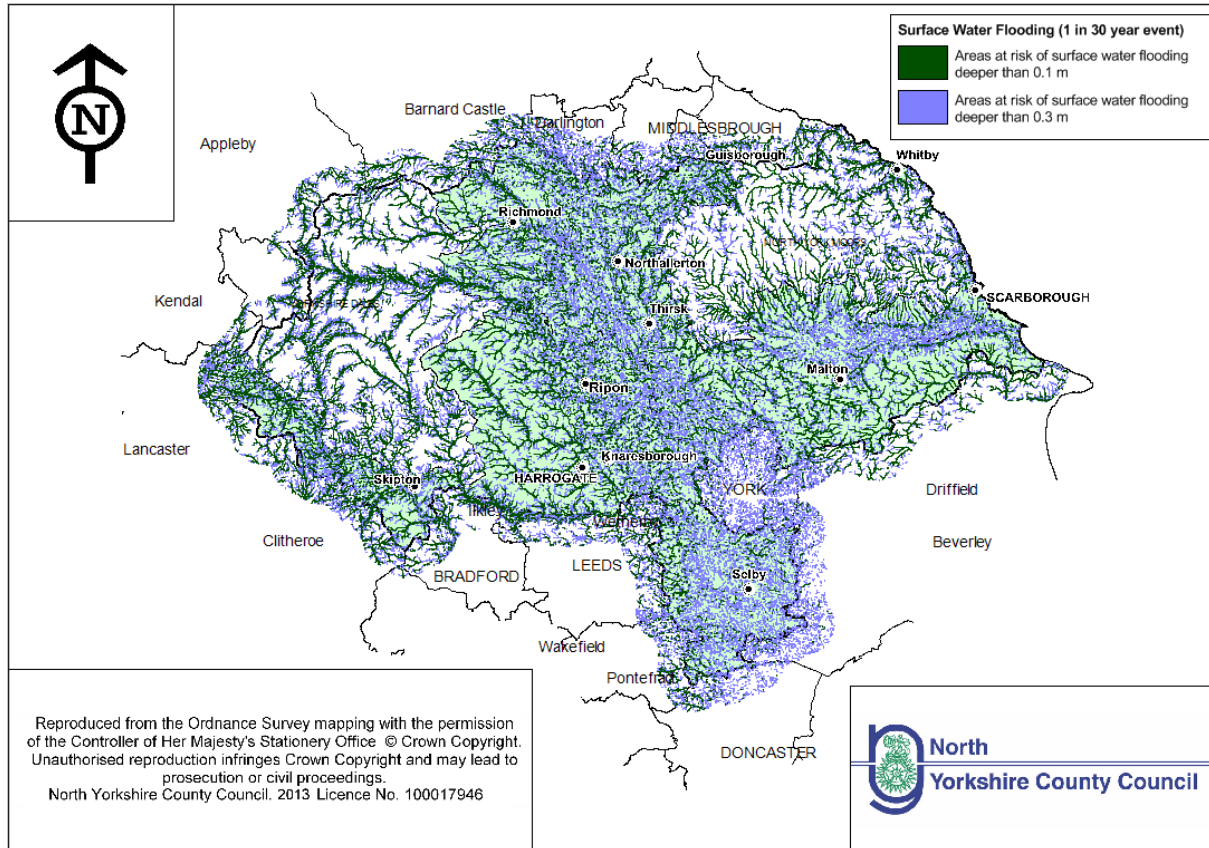


Figure 5.6: Flood map for surface water for North Yorkshire, displaying the 1 in 30 rainfall event for areas at risk of surface water flooding at depths of 0.1 and 0.3 metres.
 Source – Environment Agency, 2010.

Catchment Flood Management Plans

Catchment Flood management Plans have been prepared by the Environment Agency (EA) to manage flood risk from main rivers in all river catchments. Catchment Flood Management Plans can help inform areas where flood storage should be pursued. While at a broad scale flood storage may be appropriate, the CFMPs do not advise on specific locations where flood storage is suitable or unsuitable. Other factors may also influence the desirability of creating new flood storage or other flood mitigation measures including landscape character (as defined by the County and District Landscape Character Assessments) or the presence of aviation hazards²⁰. When developing flood storage, developers should discuss opportunities with the Environment Agency and the County Council.

Groundwater Flooding

Figure 5.7 displays a 1 km² grid across North Yorkshire of the areas susceptible to groundwater flooding and the level of their susceptibility. Each grid is classified as a proportion of that 1 km² that is susceptible to groundwater emergence. These classifications are: <25% of area; >25% to <50% of area; >50% to <75% of area; and >75% of area.

Figure 5.7 shows that much of the county displays relatively low susceptibility to groundwater flooding, with a lower proportion of land that is >75% and >50% to <75% susceptible to groundwater flooding compared to the area that is <50% susceptible. It should be noted, however, that areas of higher susceptibility exist in localised bands bordering higher land in the eastern portion of the county, as well as along the River Wharfe and in the lower Ouse catchment in the district of Selby.

²⁰ The International Civil Aviation Authority has established SARPS (Standards and Recommended Practices) that relate to birdstrike prevention. To comply with these ICAO standards the UK Government has established 8 nautical mile radius 'safeguarded zones' around major civil and military aerodromes, with features such as landfill sites and wetlands potentially affected. In these zones planning applications which have the potential to increase bird strike must be referred by the local planning authority to the Ministry of Defence or, in the case of civil airfields, the appropriate aerodrome manager. (Allan, J. Undated. Taking Account of Aviation Hazards in the Development of a Wetland Vision for England)

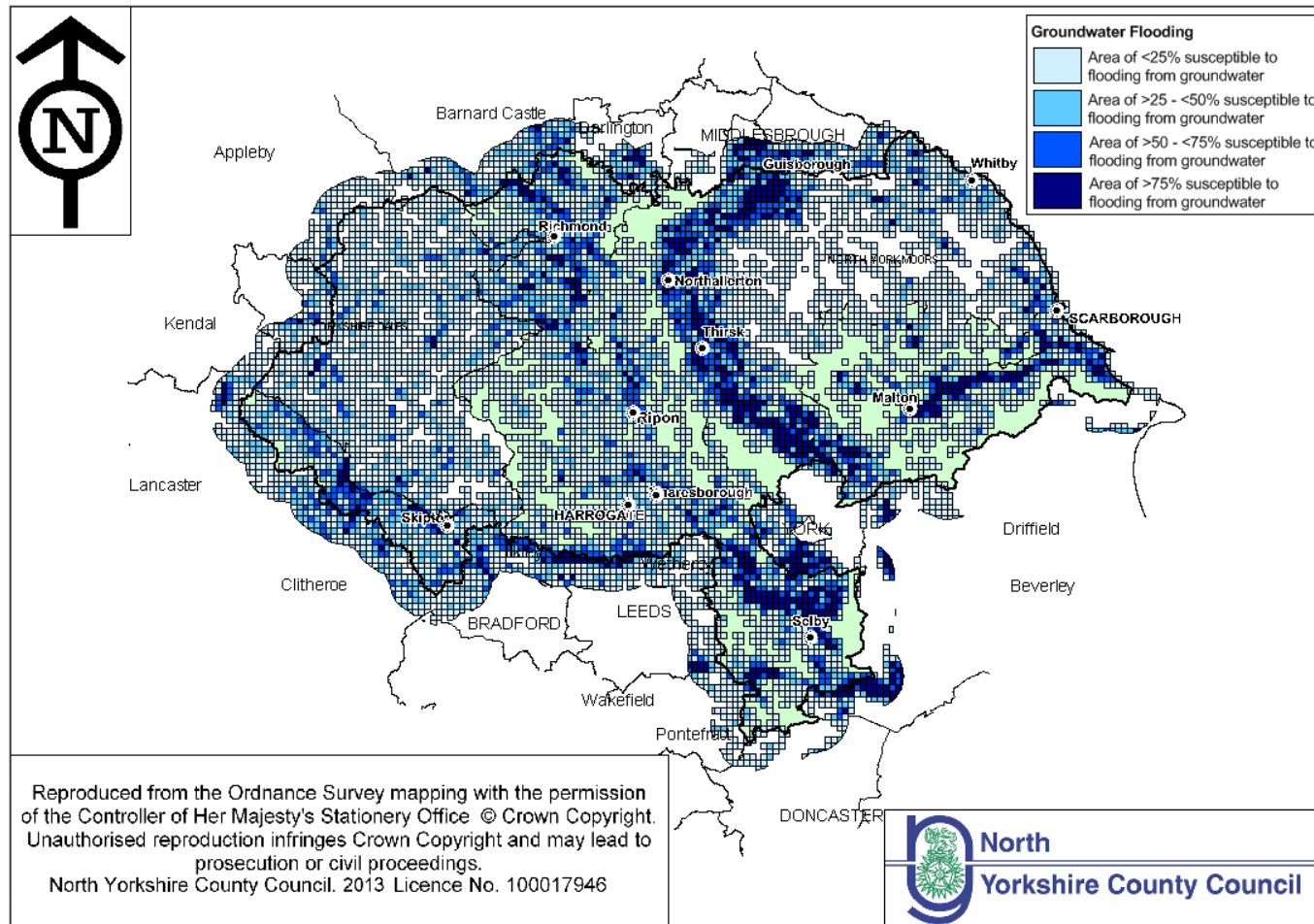


Figure 5.7: Areas susceptible to groundwater flooding across North Yorkshire.
 Source – Environment Agency, 2010.

The Flood Defence Network and Sustainable Drainage

Flood Defences

The flood defence network map, shown on Figure 5.8, displays linearly-raised flood defences (such as embankments and walls) that have been constructed within the last five years with protection equal to, or better than 1% (1 in 100) for rivers and 0.5% (1 in 200) from the sea.

The map that displays the floodplain across the county (comprising flood zones 2 and 3 – see Figure 5.9 below) does not take into account the presence of flood defences. Therefore, it is possible that development that takes place within flood zones 2 and/or 3 could have a reduced chance of flooding or a reduction in the impact of a flood event due to the presence of the flood defences outlined below. However, it should be noted that flood defences will not always provide sufficient protection from flood events.

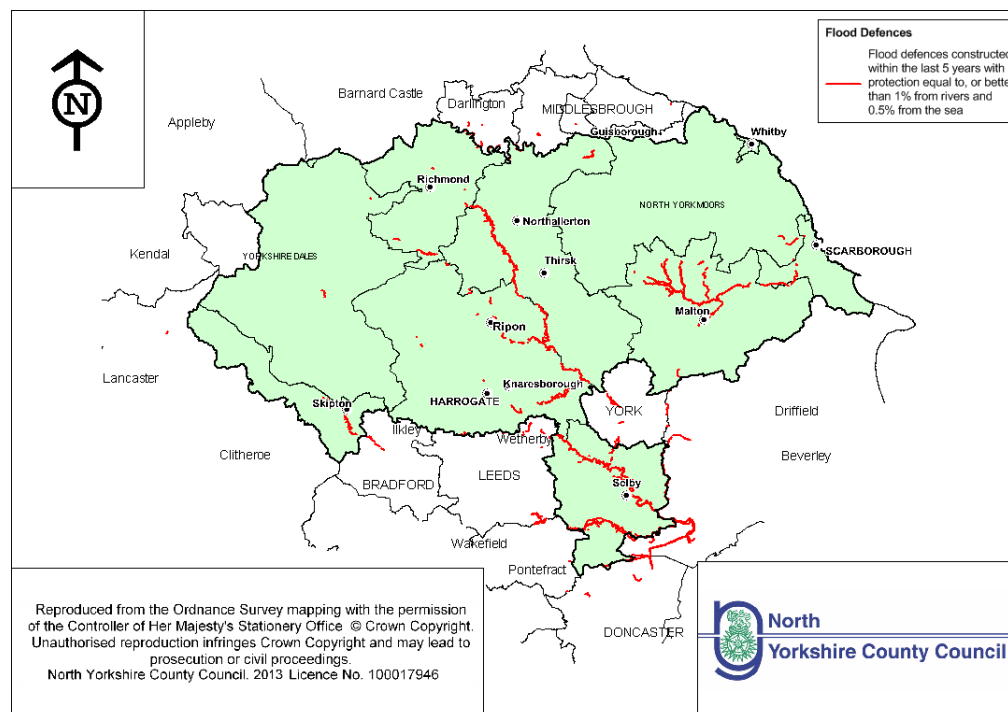


Figure 5.8: The flood defence network for North Yorkshire.

Source – Environment Agency, 2011.

Extent of Floodplains

The Environment Agency has mapped areas of land across England and Wales that could be affected by flooding from rivers and/or the sea. These areas have been split into flood zones 2 and 3, which are displayed in Figure 5.9, right. Flood zone 3 is an estimate of areas of land with a 1% (1 in 100) or greater chance of flooding each year from rivers, or with a 0.5% (1 in 200) chance or greater of flooding each year from the sea.

Flood zone 2 is an estimate of areas of land with a 0.1% (1 in 1000) chance of flooding in a given year.

As detailed in Figure 5.9, the county has an extensive network of rivers and many areas are susceptible to flooding from rivers. This means that there are many areas within the county that are susceptible to flood risk from rivers and/or the sea.

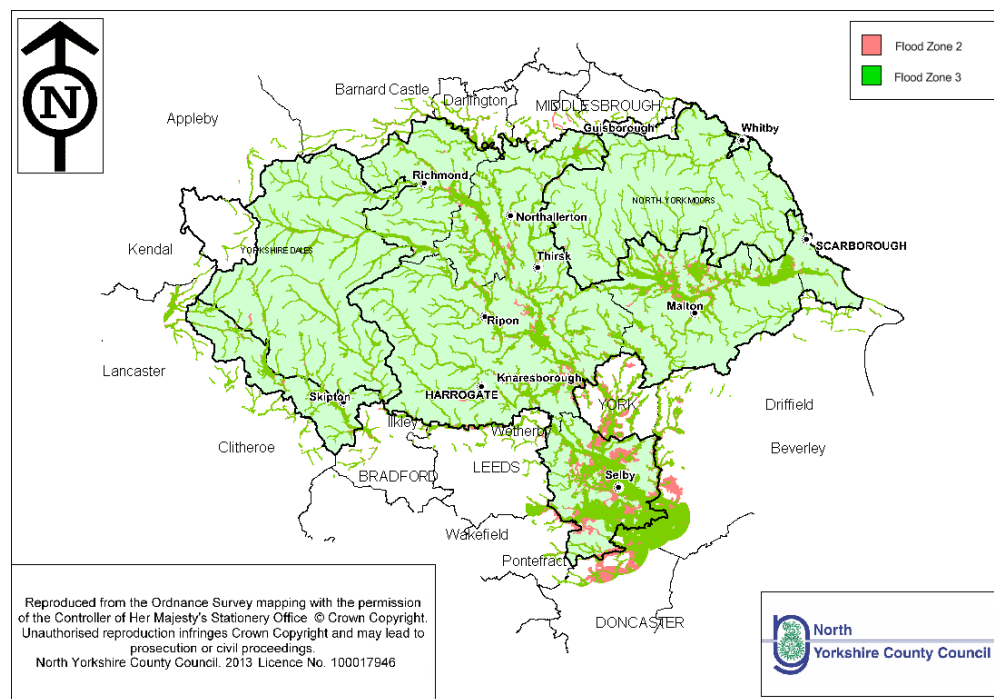


Figure 5.9: Extent of floodplains indicated by zones 2 and 3.

Source – Environment Agency, 2011.

Water Availability

The Environment Agency issues licenses for water abstraction depending upon the current availability of water. Table 5.10 below shows that at present there are 14 locations in the county where surface water is not available for licensing and 6 locations where groundwater is not available for licensing.

Catchment	Assessment Points (point on main rivers) with surface water not available for licensing ²¹	Areas where no groundwater available (restrictions may still be in place)	Date of CAMS
Aire and Calder	0/10	1/2 (Sherwood Sandstone)	February 2013
Derwent	3/10	0/2	February 2013
Don and Rother (note very little of this catchment is in the county)	0/9	1/4 (Sherwood Sandstone)	February 2013
Esk and Coast	1/4	No principal aquifers in this area	February 2013
Hull and East Riding (note only a small part of this catchment is in the county)	2/9	1 / 2 (Sherwood Sandstone)	February 2013
Swale, Ure, Nidd and Upper Ouse	3/18	0/4	February 2013
Tees	0/4	0/2	February 2013
Wharfe and Lower Ouse	1/6	0/3 (note 1 groundwater management unit (Magnesian Limestone (Tidal) has not been assessed and around Selby groundwater is not available).	February 2013
Lune and Wyre (note only a small part of this catchment is in the county)	For Lune CAMS 0/13	2/4 (none are in the county)	February 2013
Ribble, Douglas and Crossens (note only a small part of this catchment is in the county)	For Ribble CAMS 4/16	1/5 (none in the county)	February 2013

Table 5.10: Surface water resource availability at low flows as reported in Catchment Abstraction Management Strategies/groundwater resource availability as reported in CAMS.

Source – Environment Agency CAMS.

²¹ Restrictions may still be in place and locally, particularly in tributaries to main rivers, water may not be available.

Shoreline Erosion and Management

Shoreline Management Plans provide a policy framework for coastal defence management for selected time periods: now until 2025 (short-term), 2025 to 2055 (medium-term), and 2055 to 2105 (long-term). The range of policies includes:

- No Active Intervention (NAI): here a decision has been made not to invest in providing or maintaining defences.
- Hold the Line (HTL): this policy shows that the level of protection provided by defences will be maintained or changed, and includes operations to carry out work in front of or behind the current defence while still maintaining the current defence line.
- Advance the Line (ATL): this involves building new defences on the seaward side of the existing defence and is limited to policy units where significant land reclamation is considered.
- Managed re-alignment (R): this allows realignment of the shoreline with management to control movement.

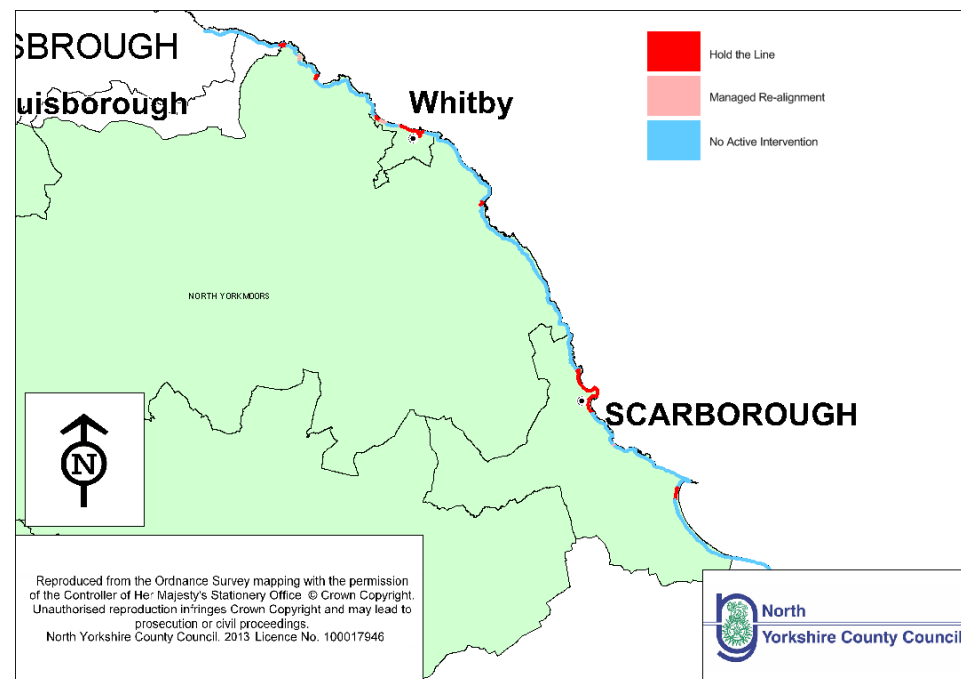


Figure 5.11: Shoreline Management Plan policies applicable along the North Yorkshire coastline.

Source – Environment Agency.

Figure 5.11 displays the Shoreline Management Plan policies for North Yorkshire County coastline under the North East Coastal Authorities Group Shoreline Management Plan 2 (SMP2).

Agricultural Land and Soil

Soil is an irreplaceable and fundamental natural resource which provides many essential services on which we rely including food production, water management and support for valuable biodiversity and ecosystems. It also plays a vital role in the fight against climate change as a major reservoir of carbon. 'Safeguarding our Soils: A Strategy for England', reported that the carbon stored in UK soils is in the order of some 10 billion tonnes.

The National Soil Resource Institute provides a map of soilscapes across England and Wales. This is based on a National Soil Map called NATMAPvector) and allows users to examine the variations that occur between soil types and how soils affect the environment. The maps are available through Defra's Magic website <http://magic.defra.gov.uk/>.

The soilscape maps show that there is a wide variety of soils across the county. For instance, the Vales of York and Mowbray contain large areas of *'slowly permeable, seasonally wet slightly acid but base rich loamey and clayey soils'*. These soils support grassland and arable farming, are of moderate fertility, and can support habitats such as seasonally wet pastures. There is also a large area of *'naturally wet very acid sandy and loamy soil'*, which supports arable and horticulture, and can support heathland habitats, that runs through the Vale of York and into Selby District.

Elsewhere, there are significant areas of *'freely draining, slightly acid loamy soils'* which support arable and grassland farming at various locations throughout the northern part of the county, and *'shallow lime rich soils over chalk or limestone'* in the eastern part of the county (e.g. in the Vale of Pickering and Yorkshire Wolds). The more upland parts of the county in the North York Moors, Yorkshire Dales and in Craven District support soilscape types such as the very low fertility *'blanket bog peat soils'*, and *'slowly permeable, wet, very acid upland soils'*, supporting rough grazing and forestry. Towards the south of the county *'naturally wet, loamey and clayey floodplain soils'* are often found.

The European Soils Data Centre map shows that some parts of the county (e.g. parts of the Vales of York and Mowbray) suffer from higher soils erosion rates (2 to 5 tonnes per hectare) than other areas. Similarly, there is variation in susceptibility to soil compaction, with parts of the county ranging from low susceptibility to very high

susceptibility. The soils map also shows the highest soil carbon in the North York Moors and the Pennines. The European Soil Data Centre MapViewer can be viewed at <http://eusoils.jrc.ec.europa.eu/wrb/>.

Agricultural land is categorised into 5 classifications, with the Best and Most Versatile falling into grades 1, 2 or 3a of the Agricultural Land Classification (ALC).

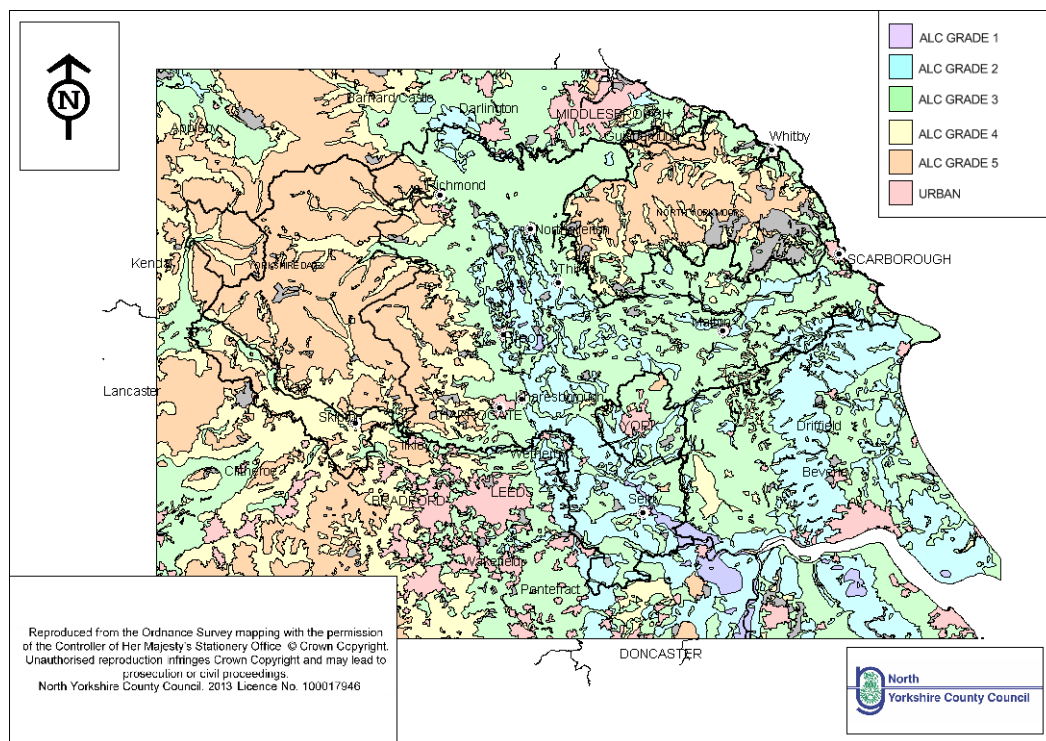


Figure 5.12: Extent of best and most versatile agricultural land (map does not distinguish between Grade 3a and Grade 3b). Source – Defra.

Table 5.13 shows that in the Yorkshire and Humber region a total of 300 hectares of agricultural land was lost to development between 2006 and 2009.

	Yorkshire and Humber	England
Agriculture	300	2610
All not previously developed	320	3330
All previously developed	450	3760
All uses	860	7100

Table 5.13: Land use change - previous use of land changing to developed use in hectares (2006 – 2009).

Source: DCLG, 2012. Live Tables on Land Use Change Statistics (Table P261 to P265; Land use change: changes to developed uses) [URL: <https://www.gov.uk/government/statistical-data-sets/live-tables-on-land-use-change-statistics>].

Key messages from the baseline

- Long stretches of river catchments can be found in the county, all of which ultimately drain to the Humber Estuary, with the exception of the Esk and Tees.
- Significant floodplains form around large parts of these rivers, becoming more significant as they travel south and east.
- River Basin Management Plans set demanding targets for water quality across many water bodies; there are still significant numbers of water bodies at poor or bad status. The LFRMS may help RBMPs to meet their targets in cases where flood risk management enhances the status of water bodies. Conversely, intrusive or cumulative works on water bodies may detract from the ambitions of the RBMPs.
- Important groundwater resources are protected by Groundwater Source Protection Zones and significant areas are at risk from nitrates.
- Flooding is already a problem in lower lying areas. However, climate change is likely to increase the risk of surface water and river flooding. The LFRMS's main purpose is to set a strategic plan for the management of flood risk across the county. The LFRMS will need to take into account climate change as part of this strategy.
- Much of the county is made up of high quality farmland, though there are significant areas of poorer soils, particularly in uplands.
- Poor land management and soil quality may increase the risk of flooding within certain areas.
- Parts of the county are subject to issues such as soil erosion and compaction, which can increase flood risk in certain areas.
- Areas of high soil carbon exist in the North York Moors and the Pennine uplands.

Predicted Future Trends

- Flooding is already a significant issue within North Yorkshire. However, because of climate change, flooding from rivers, the sea, and surface water is predicted to become a significantly greater risk²² in the medium and long term. However, policy interventions such as this Local Flood Risk Management Strategy and Catchment Flood Management Plans may moderate this to a degree.
- Climate change, together with other factors such as population growth and development and farming demands, is expected to have negative effects on water availability: a situation which is expected to get worse over time, most significantly in the longer term.
- Soils are also vulnerable resources, and erosion, loss of soil carbon, and reduction in soil biodiversity are all issues that may become worse in the long term as development and increasingly climate change (e.g. drought and flooding) increasingly impact upon soils²³.

Indicators

Indicator	Baseline Data (and year)	Source
Number of water bodies reported with a deterioration in status in River Basin Management Plans	Data not yet available	Environment Agency
Percentage of water bodies achieving GES or GEP in River Basin Management Plans	Data not yet available	Environment Agency
Percentage of surface water bodies achieving good chemical status in River Basin Management Plans	Data not yet available	Environment Agency
Groundwater achieving good quantitative status reported in River Basin Management Plans	Data not yet available	Environment Agency
Number of occurrences where the LFRMS objectives/actions impact on Natura 2000 sites reported in HRA	Data not yet available	NYCC
Proportion of water bodies with a reduction on pollution reported in River Basin Management Plans	Data not yet available	Environment Agency
Land use change: previous use of land changing to developed use annual average by region ²⁴	Table 5.13	DCLG

²² See CLG, 2012. Technical Guidance to the National Planning Policy Framework [URL: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6000/2115548.pdf] which sets out precautionary sensitivity ranges for different types of flooding.

²³ See for example, Defra, 2005. Impacts of climate change on soil functions [URL: http://randd.defra.gov.uk/Document.aspx?Document=SP0538_3603_FRP.doc]

²⁴ Derived from the Department for Communities and Local Government 'Live Tables on Land Use Change Statistics' which are collated by Government Office Region [<https://www.gov.uk/government/statistical-data-sets/live-tables-on-land-use-change-statistics>].

4.6 SEA Topic – Climatic Factors

A large proportion of climate change and global warming is considered to have been brought about due to large scale anthropogenic emissions of carbon dioxide and other greenhouse gases (GHGs) since the industrial revolution, with much of the warming impact having occurred in the last 50 years. Hotter summers, wetter winters, more storms and sea level rise are some of the consequences of climate change that are predicted to take place over the coming decades. The degree of future climate change depends upon the amount of future greenhouse gas emissions.

Climate Change Projections

The most up to date projection of future changes to the climate for the UK are contained in the UK Climate Projections 2009 (UKCP09). The projections are based upon a range of possibilities within different emissions scenarios, and are not predictions of precisely how it is expected the climate will change. The projections consider low, medium and high emissions scenarios to provide a range of projections for the 2020s, 2050s and 2080s in relation to summer temperature, summer rainfall, winter temperature and winter rainfall. For the Yorkshire and Humber region the projections are set out in Table 6.1

Timescale	Increase in average summer temperature is...			Change in average summer rainfall is...		
	very unlikely to be less than:	most likely to be:	very unlikely to be more than:	very unlikely to be less than:	most likely to be:	very unlikely to be more than:
2020s	0.5 °C	1.3 °C	2.3 °C	-24%	-8%	+10%
2050s	1.1 °C	2.3 °C	3.9 °C	-36%	-19%	+1%
2080s	1.7 °C	3.3 °C	5.4 °C	-44%	-23%	0%

Timescale	Increase in average winter temperature is...			Change in average winter rainfall is...		
	very unlikely to be less than:	most likely to be:	very unlikely to be more than:	very unlikely to be less than:	most likely to be:	very unlikely to be more than:
2020s	0.6 °C	1.3 °C	2.1 °C	-3%	+4%	+13%
2050s	1.1 °C	2.2 °C	3.4 °C	+1%	+11%	+24%
2080s	1.6 °C	3.0 °C	4.6 °C	+2%	+15%	+33%

Table 6.1: Climate change projections for the Yorkshire and Humber region based on a reference climate 30-year average (1961-1990).
Source – UKCP09.

Projections for sea level rise are made in relation to points around the UK's coastline. It is considered that the coastline of the NYMNP would fall somewhere between the projections for London and Edinburgh:

Timescale	London (cm)			Edinburgh (cm)		
	High	Med	Low	High	Med	Low
2020s	11.5	9.7	8.2	7.5	5.7	4.3
2050s	25.8	21.8	18.4	18.0	13.9	10.5
2080s	43.3	36.3	30.5	31.4	24.4	18.6

Table 6.2: Sea level rise projections, based on a reference climate 30-year average (1961-1990).

Source – UKCP09.

It is also considered that more extreme weather events, such as storms and flooding, will become more prevalent.

Emissions

Emissions of greenhouse gases are widely accepted as causing changes in the climate. The greenhouse gases emitted through human activities are carbon dioxide (CO₂), methane, nitrogen oxides and fluorinated gases. CO₂ emissions are the most commonly reported and are mainly the result of burning fossil fuels for transportation and energy production. In 2010, CO₂ emissions attributed to North Yorkshire were 5.7 million tonnes, a decline of 8.5% since 2006. The Climate Change Act 2008 sets a target for a reduction in the UK's greenhouse gas emissions by 80% (from 1990 levels) by 2050, and a reduction of 34% by 2020.

Local Authority	Emissions (kilotons)				
	2006	2007	2008	2009	2010
Craven	493.75	487.84	476.4	432.88	455.97
Hambleton	1,038.76	1,015.07	997.43	926.82	950.82
Harrogate	1,551.96	1,564.95	1,515.09	1,386.91	1,443.93
Richmondshire	535.49	529.11	532.55	506.16	514.98
Ryedale	610.62	598.61	576.78	543.66	568.44
Scarborough	825.47	795.20	786.49	716.19	750.34
Selby	1,213.77	1,213.62	1,083.62	994.32	1,053.50
North Yorkshire total	6,269.83	6,204.42	5,968.36	5,506.95	5,737.99

Table 6.3: Total CO₂ emissions by Local Authority area.

Source – Defra/DECC.

Per capita, CO₂ emissions vary across the county and tend to be higher in the more rural parts of North Yorkshire, as shown in Table 6.4.

Local Authority	Per Capita Emissions (tonnes)				
	2006	2007	2008	2009	2010
Craven	9.0	8.8	8.6	7.8	8.2
Hambleton	12.1	11.7	11.5	10.6	10.9
Harrogate	10.1	10.1	9.7	8.8	9.1
Richmondshire	10.8	10.5	10.4	9.6	9.7
Ryedale	11.6	11.3	10.8	10.1	10.6
Scarborough	7.6	7.3	7.2	6.6	6.9
Selby	15.3	15.1	13.3	12.1	12.7
North Yorkshire total	10.7	10.5	10.1	9.2	9.6
Yorkshire and Humber	10.2	9.9	9.5	8.2	8.7
England	8.7	8.5	8.2	7.4	7.6

Table 6.4: CO₂ emissions per capita by Local Authority area.

Source – Defra/DECC.

Emissions of methane and nitrous oxide are linked predominantly to agriculture. In rural areas these emissions can be as significant as CO₂ emissions. Table 6.5, below, shows the CO₂ emissions per capita in relation to industrial and commercial and transport emissions. This shows that urban local authorities generally have lower per capita emissions in these two sectors.

Local Authority	Industrial and Commercial			Road Transport		
	2008	2009	2010	2008	2009	2010
Craven	3	2.7	2.9	2.8	2.6	2.6
Hambleton	3.7	3.3	3.4	3.7	3.4	3.4
Harrogate	3.1	2.8	2.8	3.7	3.4	3.4
Richmondshire	2.8	2.6	2.6	5.1	4.7	4.7
Ryedale	4.3	3.9	4.1	3.4	3.3	3.2
Scarborough	2.9	2.6	2.7	7.2	6.6	6.9
Selby	6.9	6.2	6.7	3.8	3.5	3.5
North Yorkshire total	3.8	3.4	3.5	3.5	3.3	3.3
Yorkshire and Humber total	5.0	4.1	4.5	2.1	2.0	2.0

Table 6.5: Per capita CO₂ emissions.

Source - Local and regional CO₂ emissions estimates for 2005-2010 (DECC, 2012). For full dataset see: gov.uk/government/publications/local-authority-emissions-estimates.

Different types of land management can have a significant impact on CO₂ emissions. LULUCF stands for Land Use, Land Use Change and Forestry (LULUCF). A negative figure shows that land management is acting as a carbon sink; otherwise LULUCF is a net source of emissions. At a UK level LULUCF represents a carbon sink rather than a source of emissions. Table 6.6 shows that on the whole LULUCF in North Yorkshire represents an emission of carbon rather than a sink.

Local Authority	LULUCF net emissions (kt CO ₂)		
	2008	2009	2010
Craven	2.00	1.60	3.71
Hambleton	24.3	19.81	12.41
Harrogate	25.38	15.74	17.40
Richmondshire	-5.08	-5.09	-2.08
Ryedale	20.98	27.14	29.72
Scarborough	9.10	6.64	10.89
Selby	5.26	3.70	4.19
North Yorkshire total	81.93	69.53	85.25
Yorkshire and Humber total	238.04	152	169.83

Figure 6.6: Land Use, Land Use Change and Forestry Emissions.

Source - Local and regional CO₂ emissions estimates for 2005-2010 (DECC, 2012). For full dataset see: gov.uk/government/publications/local-authority-emissions-estimates.

Climate Change Vulnerability

The changes to the climate outlined above can have a range of effects. The degree and extent of these effects will depend upon the precise future changes to the climate and may vary across different parts of the county. Generally, for North Yorkshire, the predicted effects are as outlined below²⁵:

- Flooding of infrastructure (buildings, roads, footpaths) and habitats, having relatively short term but potentially fairly significant consequences;
- Drought, affecting flora and fauna and also productivity;
- Changes to the coastline as a result of a combination of sea level rise, increased rainfall and increased storminess;
- Increased risk of fire on the moorland;

²⁵ Climate Impact Profiles for North Yorkshire local authorities, Adapting to Climate Change in the Yorkshire Dales National Park (Yorkshire Dales National Park Authority, 2011) and Adapting to Climate Change in the North York Moors National Park (North York Moors National Park Authority, 2011).

- Cumulative effects of a number of changes to conditions for agricultural production may lead to different types and/or new ways of managing crops and stock in the future;
- Cumulative effects of a number of changes to conditions for biodiversity may result in loss of some species and an increase/introduction of other, potentially threatening, species;
- Changing composition of native woodland, including tree species and ground flora, and economic implications in relation to timber production;
- Increased occurrences of disease affecting wildlife, trees, crops and livestock;
- Pressure on water resources;
- Increased physical stress on cultural heritage;
- Increased pressure on health and emergency services;
- Damage to transport infrastructure.

Key messages from the baseline

- Harrogate has the highest total emissions of CO₂, followed by Selby, although across the county total emissions are falling.
- Per capita emissions are falling, but remain highest in the more rural parts of the county.
- Climate change is likely to have a range impacts on North Yorkshire including increased flooding, damage to infrastructure and effects on food production.
- The LFRMS should take account of the change in nature and frequency of flooding as a result of climate change in the short, medium and long term.
- The LFRMS should also be aware of the synergistic and/or cumulative effects that flood management works and other development may have on increasing the effects of climate change.

Predicted Future Trends

- The evidence suggests that temperatures will rise by around 3°C in the summer and 3.3°C in the winter by the 2080s, and rainfall will decrease by around 23% in summer whilst increasing by about 15% in the winter. The effects of this on the strategy area are likely to include increased flooding, drought, changes to agricultural production and changes to habitats and species. In the short to medium term effects may be less pronounced.
- It is likely that emissions of CO₂ will continue to fall, although this may have a negligible effect on overall changes to the climate.

Indicators

Indicator	Baseline Data (and year)	Source
Emissions of CO ₂ per capita by Local Authority (excluding LULUCF ²⁶)	Table 6.3	DECC
Land use change CO ₂ emissions per capita by Local Authority	Table 6.6	DECC
UKCP climate change scenarios ²⁷	Table 6.1	UKCP
Mapped extent of Flood Zones under Climate Change as reported in available NY Strategic Flood Risk Assessments	Data not yet available	NYCC

²⁶ LULUCF relates to emissions from Land Use, Land Use Change and Forestry.

²⁷ Changes to precipitation and temperature to be recorded in line with latest available data.

4.7 SEA Topic – Additional Environmental Issues

Tranquillity

Tranquillity has been mapped for England by the Campaign to Protect Rural England (CPRE). The mapping shows relative levels of higher or lower tranquillity. The mapping is based upon factors which are considered to either contribute to or detract from tranquillity including remote and wild landscapes, streams and rivers and native trees (contributing factors) and urban development, people, power lines and traffic noise (detracting factors). Figure 7.1 shows tranquillity on a sliding scale from green (most tranquil) to red (least tranquil). This shows that much of the county, compared to surrounding more urban areas, is relatively tranquil. This is with the exception of Harrogate, Scarborough and the market towns, and also the main roads show up as being particularly less tranquil. The most tranquil parts of the county are the most upland areas of the North York Moors National Park, the Yorkshire Dales National Park and the Nidderdale AONB.

The factors that contribute to tranquillity in the county are seeing remote, wild and natural landscapes, seeing deciduous woodland, seeing rivers and streams, seeing the sea and seeing stars at night. Factors that detract from tranquillity in the county include seeing urban development and signs of human impact and people, hearing noise from transport and seeing power lines and transport infrastructure.

Geologically Important Sites

On a national scale, many Sites of Special Scientific Interest are designated because of their geological interest. Locally important geological sites may be called either Regionally Important Geological Sites or (using the more recent term) Local Geological Sites.

Within North Yorkshire, there are 21,765 hectares of geological SSSIs, the majority of which are located within the Yorkshire Dales National Park (87%). Of the total area of SSSI, 34.3% are in favourable condition, 61.7% are in unfavourable recovering condition, 3.17% are in

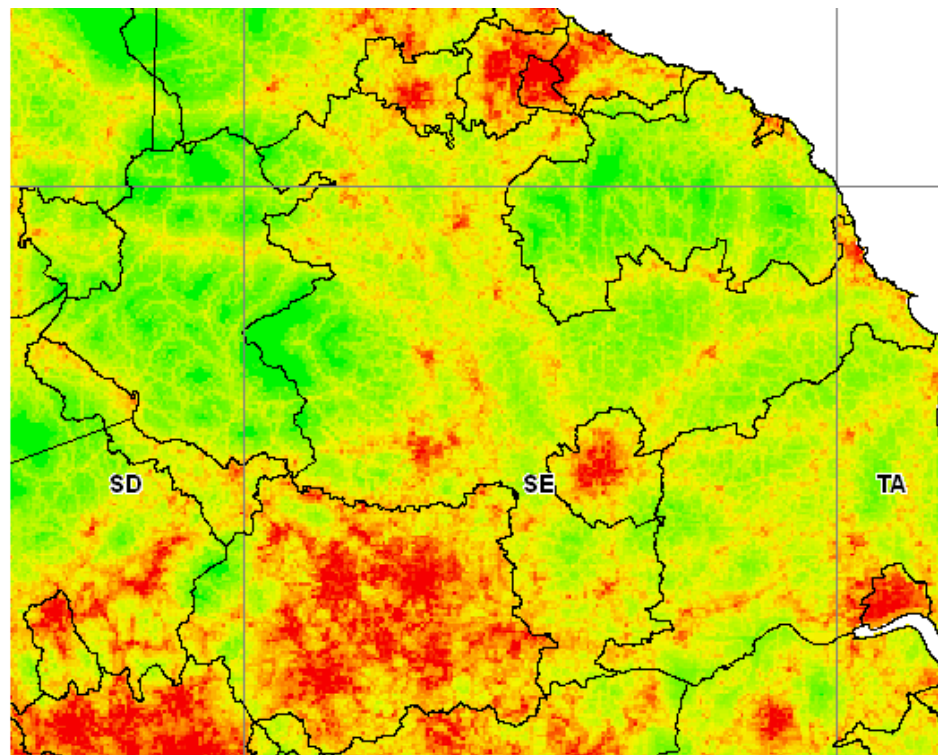


Figure 7.1 – Relative tranquillity across North Yorkshire.

Source – National Tranquillity Mapping Data 2007 developed for Campaign to Protect Rural England and Natural England by Northumbria University. OS Licence number 1000018881.

unfavourable no change condition and 0.79% are declining. As 96% of the designation in the County is in either favourable, or unfavourable recovering condition, this means that the Public Service Agreement (PSA) target, which aimed to bring 95 per cent of SSSIs to a target condition of favourable or recovering by December 2010, has been met for geological and geomorphological SSSIs.

In addition to geological SSSIs, there are a number of Regionally Important Geological Sites or Local Geological Sites in North Yorkshire but at present, mapped information on these is not available.

Marine and Coastal Environment

North Yorkshire has a long stretch of coastline and although the jurisdiction of the planning authorities only extends to the low water mark it is necessary to consider any significant elements of the marine environment that may be affected by the LFRMS. The 2009 Marine and Coastal Access Act will lead to the designation of Marine Conservation Zones – two on North Yorkshire’s coastline have been recommended for designation but have not been put forward for designation in 2013 as part of the first round. These are at Runswick Bay and at Castle Ground (focused around Scarborough and the coastline to the south of the town).

A Sensitive Marine Area is identified along the coastline south of Whitby to beyond Ravenscar. Sensitive Marine Areas are non-statutory designations notable for their animal and plant communities and which can provide education opportunities.

Heritage Coast is a non-statutory designation, managed to conserve natural beauty and to improve accessibility where appropriate. The North Yorkshire and Cleveland Heritage stretches for 55km from Saltburn (outside of the county) to Scalby Mills just north of Scarborough (excluding an area around Whitby). A small part of the Flamborough Head Heritage Coast also extends into the county. The designations extend inland and into the marine area, as shown on Figure 4.4 in Section 4.

Key messages from the baseline

- The county has a wealth of geological interest.
- Strategies and measures outlined in the LFRMS should take account of geodiversity, tranquillity and the marine and coastal environment and exploit the potential beneficial impacts that it may have on these features.

Predicted Future Trends

- It is unlikely that tranquillity would improve in North Yorkshire when considering factors such as increasing population and likely future development rates, although targeted efforts in particular areas may result in localised improvements. Changes are likely to be incremental and therefore in the short to medium term may not be particularly pronounced but may become greater in the longer term.
- It is possible that geological sites identified as declining may continue to do so, although targeted efforts to enhance particular sites may lead to improvements over the strategy area through the short, medium and long term.

- Coastal erosion is likely to continue to take place, particularly considering the predicted effects of climate change, and effects are likely to increase over time. Important marine environments may become better protected in the medium term through the potential designation of Marine Conservation Zones.

Indicators

Indicator	Baseline Data (and year)	Source

4.8 SEA Topic – Population and Human Health

Population

The population of the county was 598,400 in 2011. This is a 5% rise from the 2001 population of North Yorkshire, which was 569,660.

Population change is not evenly spread across the county council area and Table 8.1, below, shows that recently the population of some parts of the county have been increasing whilst others, particularly those more rural areas, have been decreasing.

	2008	2009	2010	2011	% change
Craven	55,700	55,500	55,400	55,400	-0.5%
Hambleton	86,900	87,300	87,600	89,100	+2.5%
Harrogate	156,100	157,900	158,700	157,900	+1.2%
Richmondshire	51,400	52,800	53,000	52,000	+1.2%
Ryedale	53,300	53,600	53,600	51,800	-2.8%
Scarborough	108,500	108,500	108,600	108,800	+0.3%
Selby	81,600	82,200	82,900	83,400	+2.2%

Table 8.1: Population change in North Yorkshire.

Source – 2008 – 2010 data ONS mid-year estimates. 2011 data from the Census.

Population projections suggest that North Yorkshire's population will increase by around 4% by 2021 to 627,900. The average age of residents in North Yorkshire is 43, although this is higher in some parts of the county, particularly in Craven and Ryedale. The England and Yorkshire and Humber average age is 39. At 9.7% in North Yorkshire, there is a higher proportion of people aged 75 or over in the county than the regional and national average of 7.8%. It is projected that there will be a further rise in the proportion of people in the older age groups and a fall in the proportion of people in younger age groups in the future. Table 8.2 shows the proportion of population in each age group for North Yorkshire compared to the regional and national proportions, which demonstrates the relatively large number of older people and lower proportion of younger people.

% of population	North Yorkshire	Yorkshire and Humber	England
0-14	16.2	17.6	17.7
15-29	16.2	21.7	20.0
30-44	17.9	19.7	20.6
45-59	21.7	18.3	19.4
60-74	18.4	14.9	14.6
75+	9.7	7.8	7.7

Table 8.2: Proportion of population in age groups, 2011. Source – Census.

North Yorkshire is sparsely populated with a population density of around 74 residents per km². The percentage of the population of North Yorkshire from black and minority ethnic groups is 5.6%²⁸. This is lower than the regional proportion of 14.2%. Within the county, Harrogate and Richmondshire have higher proportions of 8.3% and 6.6% respectively, whilst Ryedale and Hambleton have lower proportions of 3.8% and 3.7% respectively. Population projections are set out in table 8.3 below. Population projections are important factors in setting out management plans for future flooding.

	2008	2013	2018	2023	2026	2028	2033
North Yorkshire County	252000	266000	281000	297000	306000	311000	325000
England	21731000	22868000	24108000	25320000	26016000	26472000	27536000
Yorkshire and the Humber	2203000	2339000	2485000	2623000	2702000	2755000	2879000

Table 8.3 Population projections.

Source – ONS and CLG, 2010.

Households and Housing

There are a total of 256,594 households in North Yorkshire, an increase of 9.3% since 2001, slightly greater than the national increase of 7.9%²⁹. Over 10,000 houses have been completed in North Yorkshire since 2003, and as would be expected the majority have been built in the more urban parts of the county, namely Selby and Harrogate districts. As a result of the economic downturn in recent years, house building has slowed, as shown in Table 8.4 below. (It should be noted that data for 2009 is incomplete).

Year	Houses completed
2003	1481
2004	1322
2005	1326
2006	1494
2007	3194
2008	1722
2009	242*
2010	940
Total	10,781

*Incomplete data.

Table 8.4: Number of houses completed in North Yorkshire.

Source – CLG.

²⁸ 2011 Census.

²⁹ Census, 2001 and 2011.

Health and Wellbeing

Life expectancy at birth in the county is higher than the regional and national averages, as set out in Table 8.5 below. This varies across North Yorkshire and is higher in Craven, Hambleton and Ryedale than in those districts and boroughs with more urban areas, with life expectancy in Scarborough being slightly below the national, but not regional, average.

	Male	Female
North Yorkshire	79.7	83.5
Craven	80.2	84.2
Hambleton	81	84.2
Harrogate	79.6	83.8
Richmondshire	78.6	82.9
Ryedale	80.3	83.9
Scarborough	78.3	82.2
Selby	79.9	83.4
Yorkshire & Humber	77.7	81.8
England	78.6	82.6

Table 8.5: Life expectancy at birth. Source - ONS, life expectancy at birth and at age 65, England and Wales, 1991 - 1993 to 2008 - 2012 (2011).

North Yorkshire has a higher mortality rate per 1,000 populations (9.9) than both the regional and national averages (9.2 and 8.9 respectively)³⁰. However, this is most likely to be due to the relatively high number of older people living within the county.

³⁰ ONS 2012.

Area	All Deaths
North Yorkshire	9.9
Craven	11.3
Hambleton	9.4
Harrogate	9.6
Richmondshire	8.2
Ryedale	10.2
Scarborough	8
Selby	8.5
Yorkshire & Humber	9.2
England	8.9

Table 8.6: Mortality rate.

Source - ONS, 2012, all deaths (rate per 1,000)

Table 8.7 below shows that, with the exception of Scarborough borough, rates of mortality relating to coronary heart disease in all parts of North Yorkshire were lower than the regional average for the period 2005 to 2010. In relation to incidences of cancer North Yorkshire, as a whole these are below the national and regional levels of incidences per 100,000 people, although the rates vary considerably amongst the districts and boroughs, with Richmondshire in particular having a high rate. There does not appear to be any correlation with the how rural or urban an area is. Mortality for respiratory disease is generally lower than England as a whole.

	Standardised mortality ratio for coronary heart disease, 2005 to 2010	Incidences of cancer per 100,000 people, 2008	Standardised mortality ratio for deaths from respiratory diseases (all ages) 2006-2010
North Yorkshire	105.98	352.75	-
Craven	98.91	322.62	81.1
Hambleton	97.01	359.45	70.4
Richmondshire	101.28	422.68	75.3
Ryedale	110.47	361.01	90.5
Scarborough	121.44	343.82	98.2
Selby	101.07	346.76	98.9
England	100	382.14	100
Yorkshire and the Humber	112.77	391.74	-

Table 8.7: Coronary Heart Disease (all ages) 2005 to 2010/Incidences of Cancer/Deaths from Respiratory Disease.

Source – streamlis.org/Public Health England, 2011, Small Area Indicators for Joint Strategic Needs Assessment.

Deaths on the roads are particularly an issue in North Yorkshire which has an extensive network of rural roads. The table below shows that over 400 people are killed or seriously injured on the roads in the county every year.

	Number of people killed or seriously injured
2010	491
2011	454
2012	473
2013	456

Table 8.8: Road Accident Casualties (Killed and Seriously Injured).

Source: STREAM/North Yorkshire Joint Strategic Needs Assessment.

Within the county residents generally describe their health as good or very good, with 82% of North Yorkshire residents reporting this in the 2011 census.

Indices of deprivation measure a range of factors which can contribute to or detract from the quality of life of an area including employment, crime, access to services and health. Each local authority area in the country is ranked according to its overall level of deprivation – the lower the figure the higher the level of deprivation. Although most parts of the plan area are closer to the least deprived areas nationally, within the rural parts of the county a key factor in deprivation is related to difficulty of access to services whereas within the more urban areas issues such as crime and poorer education are more significant.

Local authority	Ranking
Craven	241
Hambleton	265
Harrogate	283
Richmondshire	261
Ryedale	200
Scarborough	83
Selby	236
York	244
Redcar and Cleveland	271
North Yorkshire	129

Table 8.9 – Indices of deprivation.

Source – English Indices of Deprivation: Local Authority Summaries 2010 (DCLG, 2011). District, boroughs and unitary authorities are ranked out of 354, North Yorkshire is ranked out of 149.

There are a total of 312,400³¹ economically active people in North Yorkshire, around 51% of the population and 80.9% of those aged 16-64, as shown in Table 8.10, below, which is higher than the regional and national rates.

	North Yorkshire %	Yorkshire and Humber %	England %
2007	76.2	75.5	76.6
2008	80.3	75.8	76.8
2009	78.7	75.5	76.9
2010	78.9	75.2	76.3
2011	79.1	75.0	76.4
2012	80.9	76.8	77.4

Table 8.10: Economically Active Rate of 16-64 year olds.

Source – ONS Annual Population Survey, 2012.

Of these, 297,500 are in employment and 14,800 are currently unemployed. Table 8.11, below shows unemployment rates over the past 8 years – North Yorkshire consistently has lower rates of unemployment than the Yorkshire and Humber Region and Great Britain, although there are variances between different parts of the county. Scarborough and Selby, although below the regional and national averages, have tended to have higher unemployment rates than other parts of the county. Following the national trend, unemployment levels have risen significantly over the past few years, peaking in 2011 and declining again in 2012.

Area	Unemployment levels ³² (% of economically active)								
	2004	2005	2006	2007	2008	2009	2010	2011	2012
North Yorkshire	2.7	2.5	3.9	3.4	3.4	5.6	5.8	7.6	4.7
Yorkshire and Humber	4.5	4.8	5.6	5.5	6.3	8.6	8.8	9.5	9.2
Great Britain	4.8	4.9	5.4	5.2	5.7	7.7	7.7	8.0	7.7
Craven	2.1	2.2	2.9	3.0	3.0	4.2	4.8	5.6	4.5
Hambleton	2.4	2.8	3.5	3.3	3.8	4.5	4.2	5.3	4.4
Harrogate	2.2	2.4	3.1	2.8	3.3	4.9	5.0	5.0	3.4
Richmondshire	3.2	3.1	3.0	3.5	3.5	4.5	4.8	5.9	4.5
Ryedale	2.3	2.3	3.6	3.7	3.8	3.8	4.4	4.9	4.3
Scarborough	4.0	4.0	5.6	5.5	5.6	7.9	9.5	7.6	7.7
Selby	3.2	3.3	4.9	3.7	4.4	7.0	5.9	6.5	5.2

³¹ www.nomisweb.co.uk – Oct 2012 – Sept 2013.

³² Data relates to the Jan – Dec figure for each year. Note that District and Borough council figures are ONS modelled estimates whereas the other figures are Annual Population Survey (APS) rates. APS rates are comparable to the Government's headline unemployment rate.

Table 8.11: Unemployment levels.

Source - nomisweb.co.uk.

The provision of spaces for recreation plays an important role in keeping people active and healthy. As well as rights of way there are numerous open spaces and parks throughout the county. Access to the natural environment is important for peoples' health and wellbeing, and also a key aim in the Natural Environment White Paper. A Natural England survey of visits to places outdoors shows that in North Yorkshire almost half of the population visit outdoors places once a week, greater than the England average, and most of these visit the countryside, as shown in Table 8.12. Where towns and cities are referred to, outdoors means the open spaces in these places.

	North Yorkshire (% of visitors)	England (% of visitors)
Town or city	25	38
Seaside resort or town	14	6
Other seaside coastline	4	4
Countryside	58	52

Table 8.12: Places visited 'outdoors'. Source - naturalengland.tns-global.com/viewtable.aspx.

North Yorkshire County Council is responsible for managing the longest public rights of way network in England at over 10,000km, The Yorkshire Dales and North York Moors National Park Authorities manage approximately 4,000km through an agency agreement with the county council. This network provides routes into some of the finest landscapes and countryside in Britain.

People who are deprived, or who are suffering from health issues, may be less likely to be able to cope with the effects of a flood event, or repeated flooding. Flooding may affect mental health, as well as cause stress which may affect physical health. The LFRMS should therefore take into account deprivation and health-related issues in its development.

Key messages from the baseline

- There are many sparsely populated parishes and most settlements are relatively small.
- The largest settlements are Selby, Harrogate and Scarborough, each with populations over 50,000. Most people, however, live outside of rural settlements.
- Population of the county as a whole is increasing and is expected to continue to rise, but at a lower rate than the region as a whole
- North Yorkshire as a whole has a higher proportion of older people than the region and nationally. In the future older people will form a larger proportion of the population.
- Most districts receive a net inflow of new residents, though there is a net outflow in Craven; Harrogate and Richmondshire receive the most new residents.

- Life expectancy is increasing in all districts in North Yorkshire, but there are significant geographical variations in both male and female life expectancy within the county; Scarborough is the only district with lower male and female life expectancy than England as a whole.
- Scarborough has the highest rates of mortality from cancer and circulatory diseases.
- Health and wellbeing may be affected by the negative health effects that flood events, and in particular, repeated flood events, can induce.
- The county provides many opportunities for recreation and leisure including the North York Moors National Park, the Yorkshire Dales National Park and an extensive network of rights of way.
- The natural environment and heritage are key attractions for recreation.
- Since the economic downturn unemployment has risen across the county, though small declines have been recorded in several districts more recently.
- There is, however, a higher rate of economically active people in the county than for the region and England.
- In Yorkshire as a whole, more than 1 in 10 people feel that they are underemployed.
- There are a large number of agricultural businesses within the County, many of which could be at risk of insolvency due to the potential impact of flooding.
- Rural communities may be more significantly affected by flood events than urban communities due to further reduced access to services and facilities.

Predicted Future Trends

- It is likely that there will be a continuation of current trends in the short to medium term in relation to population and households. Population and household growth is projected to grow across North Yorkshire although this is identified to be unevenly spread. Longer term effects on growth are likely to be influenced by social trends as well as strategic planning and house building rates, which vary within each authority both in terms of quantum and timescales for delivery. This may also effect settlement patterns and the locations people live and may have an impact on the urban/rural household split.
- Peoples' health in North Yorkshire is also likely to continue existing trends over the short, medium and long term. It is anticipated that life expectancy will continue to increase and that the general health of the population remains generally good. External influences on health in the medium to long term will be in line with improving / access to medical treatment as well as continuing implementation of safety schemes (such as road safety).

Indicators

Indicator	Baseline Data (and year)	Source
Proportion of households in at-risk areas that have been made aware of flood risk	Data not yet available	NYCC
Proportion of businesses in at risk areas that have been made aware of flood risk	Data not yet available	NYCC

4.9 SEA Topic – Material Assets

Transport and Critical Infrastructure

The county contains a number of strategic transport routes. The A1M is the main road route, crossing the centre of the county in a north-south direction. There are a number of A-roads linking the main settlements within North Yorkshire and linking the county with towns and cities beyond its boundaries.

York is a major hub in the rail network and the main east coast rail line passes through here and proceeds northwards through the county towards Darlington. There are also some branch lines linking settlements within North Yorkshire including the York to Scarborough line, the Leeds to Harrogate line, the Thirsk/Northallerton to Teesside line and the Esk Valley line.

There are no commercial airports in the county, the nearest being Leeds Bradford to the south and Durham Tees Valley to the north. Robin Hood Airport in Doncaster is also within easy reach of North Yorkshire.

There are also no major shipping ports in North Yorkshire, the nearest being Teesport to the north and Hull to the south. There is also an inland port at Goole, just outside the county.

Critical infrastructure in the county includes: electricity generation, transmission and distribution from the Selby district especially, water supply, agriculture (of which a large part of the county's economy is based), in addition to transport networks (outlined above), telecommunications, heating, public health (including hospitals) and security services.

Agriculture and farming

The county is considered largely rural, with five districts/boroughs having at least 80 per cent of their population living in rural settlements and larger market towns. The county is defined by a large number of agriculture, forestry and fishing Local Business Units³³, with a total number of 5,735 recorded in the county in 2012/13.

Key messages from the baseline

- The most significant transport corridors run north to south and include the A1, A19 and East Coast mainline.
- There are no airports and relatively few stretches of canal in the County. However three airports lie within close range of the County, and there are major seaports nearby on the Tees and Humber.
- Critical infrastructure, vital to the county's economy, wellbeing and vitality may be at risk from flooding.
- The County is largely rural, and contains large areas of farmland that are used for food production.

³³ Local Business Units are defined by Defra as individual sites (i.e. factories, shops, farms) based on the IDBR Local Unit dataset. Further information can be found at: <http://www.ons.gov.uk/ons/about-ons/who-we-are/services/idbr/about-the-idbr/index.html>.

Predicted future trends

- North Yorkshire currently has good strategic transport links and these existing links are unlikely to change from their current form in the short term, medium term and long term. It is likely that new/improved transport links will also be established in the medium and long term for example, the HS2 high speed rail network.
- In the short term it is likely that the county will continue to have a relatively high number of agricultural, forestry and fishing Local Business Units, however in the medium and longer term there is more uncertainty as potential changes in governance and policies such as agricultural policies and import/export policies will have an influence.

Indicators

Indicator	Baseline Data (and year)	Source
Land use change: previous use of land changing to developed use annual average by region ³⁴	Table 5.13	NYCC
Number of agriculture, forestry and fishing Local Business Units	5,735	Defra

³⁴ Derived from the Department for Communities and Local Government 'Live Tables on Land Use Change Statistics' which are collated by Government Office Region [<https://www.gov.uk/government/statistical-data-sets/live-tables-on-land-use-change-statistics>].

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