Introduction

Appendix E sets out the collated contextual and baseline information, on a topic-by-topic basis, for each of the 10 assessment topics:

1. **Biodiversity and Nature Conservation** (including Fauna and Flora)
2. **Population** including demographics, socio-economics
3. **Human health**
4. **Soil** including geology and land use
5. **Water** quality (including surface and ground water quality and availability)
6. **Air quality**
7. **Climatic Factors** including climate change and adaptation and flood risk
8. **Material Assets** including waste management and minerals
9. **Cultural Heritage** – including architectural and archaeological heritage
10. **Landscape and Townscape**

The information for each topic is structured as follows in compliance of the SEA Directive Annex I (b) – (g) requirements:

Annex I SEA Directive Requirements	Sub-section in the Topic Chapter
	Introduction - provides an overview and definition of the topic.
e) The environmental protection, objectives, established at international, Community or national level, which are relevant to the plan or programme and the way those objectives and any environmental, considerations have been taken into account during its preparation.	**Summary of national and regional plans and programmes** - provides an overview of the policy context in which the revocation plan sits and identifies the environmental protection, objectives, established at international, Community or national level that are relevant to the Regional Strategy.
b) The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.	**Overview of the baseline -** provides an overview of the relevant aspects of the current state of the environment at a national and regional level and the key topic specific baseline factors which will need to be considered as part of the assessment. **The likely evolution of these baseline conditions without the implementation of the revocation plan** - provides an overview of how the baseline is likely to change in the absence of the revocation plan, an understanding of this is key to understanding the effects of the revocation plan on the topic area;
c) The environmental characteristics of areas likely to be significantly affected.	**The environmental characteristics of areas likely to be significantly affected** – provides a summary of those key aspects of the region most likely to be affected by the plan.

Annex I SEA Directive Requirements	Sub-section in the Topic Chapter
d) Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC.	**Current problems in areas of particular environmental importance** (such as those designated under the Wild Birds and Habitats Directives and further expanded upon in **Appendix G**). Given the focus on European designated conservation sites this sub-section on appears in biodiversity.
f) The likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors. (Footnote: These effects should include secondary, cumulative, synergistic, short, medium and long-term permanent and temporary, positive and negative effects)	**Assessing significance** –provides an outline of the illustrative guidance used to assess the potential effects for each topic. **Assessment of likely significant effects of retention, revocation and partial revocation** - including information on the likely significant effects.
g) The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;	**Proposed mitigation measures** – including proposed measures identified.

1. Biodiversity and Nature Conservation

1.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the Revocation Plan on biodiversity and nature conservation. Information is presented for both national and regional levels.

Biodiversity in this context is defined by the ***Convention on Biological Diversity***[1] as 'the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.' Biodiversity is integral to the functioning of ecosystems and these, in turn, provide 'ecosystem services' which include food, flood management, pollination and the provision of clean air and water.

There are links between the biodiversity and nature conservation topic and other topics in the SEA, including water, soil and geology, land use, and climate change.

1.2 Summary of Plans and Programmes

1.2.1 International

The UK is a signatory (along with another 189 parties) to the **Convention on Biological Diversity** , Nagoya, Japan, 2010 which sets out a conservation plan to protect global biodiversity, and an international treaty to establish a fair and equitable system to enable nations to co-operate in accessing and sharing the benefits of genetic resources. The new global vision is: 'By 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people.' The parties also agreed a shorter-term ambition to 'Take effective and urgent action to halt the loss of biodiversity, [so] that by 2020 ecosystems are resilient and continue to provide essential services, thereby securing the planet's variety of life, and contributing to human well-being, and poverty eradication'.

In March 2010, the EU agreed to **an EU vision and 2020 mission for biodiversity**:

[1] The convention uses this definition to describe 'biological diversity' commonly taken to mean the same as biodiversity.

- 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;

- Halt the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restore them insofar as is feasible, while stepping up the EU contribution to averting global biodiversity loss.

The European Commission adopted a new **EU Biodiversity strategy** to help meet this goal. The strategy provides a framework for action over the next decade and covers the following key areas:

- Conserving and restoring nature;

- Maintaining and enhancing ecosystems and their services;

- Ensuring the sustainability of agriculture, forestry and fisheries;

- Combating invasive alien species;

- Addressing the global biodiversity crisis.

There are a number of EU Directives focusing on various types of wildlife and habitat that provide a framework for national action and international co-operation for conservation on land and in the sea. In particular the ***Habitats Directive*** and ***Birds Directive*** include measures to maintain or restore important natural habitats and species including through the designation of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). These Directives are transposed into British law through a number of regulations and planning policy documents. Under the ***Ramsar Convention***, wetlands of international importance are designated as Ramsar Sites. As a matter of policy, Ramsar sites in England are protected as European sites. The vast majority are also classified as SPAs and all terrestrial Ramsar sites in England are notified as Sites of Special Scientific Interest (SSSIs). The ***Freshwater Fish Directive*** includes measure on the quality of fresh waters needing protection or improvement in order to support fish life.

The ***Marine Strategy Framework Directive (2008/56/EC)*** requires Member States to develop a marine strategy, including determining Good Environmental Status (GES) for their marine waters, and designing and implementing programmes of measures aimed at achieving it by 2020, using an ecosystem approach to marine management. It takes account both of socioeconomic factors and the cost of taking action in relation to the scale of the risk to the marine environment. Draft regulations establish a legal framework which assigns duties to the Secretary of State, Welsh and Scottish Ministers

and the Department of the Environment in Northern Ireland have been published for consultation.

1.2.2 National

UK

The Wildlife and Countryside Act (1981) is the main UK legislation relating to the protection of named animal and plant species includes legislation relating to the UK network of nationally protected wildlife areas: Site of Special Scientific Interest (SSSIs[2]). Under this Act, Natural England now has responsibility for identifying and protecting the SSSIs in England. The ***Countryside and Rights of Way Act (2000)*** (CROW) strengthens the powers of Natural England to protect and manage Sites of Special Scientific Interest. The CROW Act improves the legislation for protecting and managing SSSIs so that:

- Natural England can change existing SSSIs to take account of natural changes or new information;
- all public bodies have a duty to further the conservation and enhancement of SSSIs;
- neglected or mismanaged sites can be brought into favourable management;
- new offences and heavier penalties now apply to people who illegally damage SSSIs.

The ***UK Biodiversity Action Plan (1994)*** was the UK Government's response to signing the Convention on Biological Diversity (CBD) at the 1992 Rio Earth Summit. The CBD called for the development and enforcement of national strategies and associated action plans to identify, conserve and protect existing biological diversity, and to enhance it wherever possible. The UK Biodiversity Action Plan was then established to conserve and enhance biodiversity in the UK through the use of Habitats and Species Action Plans to help the most threatened species and habitats to recover and to contribute to the conservation of global biodiversity. The plan set out a programme for conserving the UK's biodiversity. It also led to the production of 436 action plans between 1995 and 1999 to help many of the UK's most threatened species and habitats to recover. A review of the UK BAP priority list in 2007 led to the identification of 1,150 species and 65 habitats that meet the BAP criteria at UK level.

[2] As amended by the *Countryside and Rights of Way (CROW) Act 2000* and the *Natural Environment and Rural Communities (NERC) Act 2006.*

As well as having national priorities and targets, action was taken at a local level to create Local Biodiversity Action Plans (LBAPS). These identify local priorities for biodiversity conservation and work to deliver agreed actions and targets for priority habitats and species and locally important wildlife and sites.

Conserving Biodiversity – The UK Approach (2007) sets out an approach to halt UK biodiversity loss by 2010 using an integrated framework of an Ecosystem Approach[3]. Key targets include:

- for 95% of SSSIs to be in favourable or recovering condition by 2010;
- to halt the loss of biodiversity by 2010; and
- to reverse the long-term decline in the number of farmland birds by 2020.

These targets have then been reflected in Public Service Agreements (PSAs) with Natural England.

More recently the ***Conservation of Habitats and Species Regulations (2010)*** requires that sites of importance to habitats or species are to be designated and any impact on such sites or species must be considered in regards to planning permission applications.

The ***Environmental Protection Act (1990)*** sets out key statutory requirements for the UK regarding environmental protection (including waste and nature conservation).

The ***Marine and Coastal Access Act (2009)*** sets out a number of measures including the establishment of Marine Conservation Zones (MCZs) and Marine Spatial Plans. The ***Offshore Marine Conservation (Natural Habitats, &c.) Regulations (2007)*** apply in the 'offshore area' beyond 12 nautical miles from the UK coast. They provide protection for a variety of marine species and wild birds through a number of offences that aim to prevent damaging activities affecting protected species and habitats.

The ***National Parks and Access to the Countryside Act (1949)*** aims to conserve and protect countryside and National Parks through legislation.

The ***Offshore Marine Conservation (Natural Habitats, &c.) Regulations (2007)*** apply in the 'offshore area' beyond 12 nautical miles from the UK coast. They provide protection for a variety of marine species and wild birds through a number of offences that aim to prevent damaging activities affecting protected species and habitats.

[3] The Convention on Biological Diversity (http://www.cbd.int/ecosystem/) defines the Ecosystem Approach as *'a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.*

England

The Natural Environment and Rural Communities (NERC) Act (2006) establishes Natural England as the main body responsible for conserving, enhancing and managing England's natural environment. It also covers biodiversity, pesticides harmful to wildlife and the protection of birds.

The ***Natural Environment White Paper (2011)*** recognises that nationally, the fragmentation of natural environments is driving continuing threats to biodiversity. It sets out the Government's policy intent to:

- improve the quality of the natural environment across England;
- move to a net gain in the value of nature;
- arrest the decline in habitats and species and the degradation of landscapes;
- protect priority habitats;
- safeguard vulnerable non-renewable resources for future generations;
- support natural systems to function more effectively in town, in the country and at sea; and
- create an ecological network which is resilient to changing pressures.

By 2020, the Government wants to achieve an overall improvement in the status of the UK's wildlife including no net loss of priority habitat and an increase of at least 200,000 hectares in the overall extent of priority habitats. Under the White Paper, the Government has also put in place a clear institutional framework to support nature restoration which includes Local Nature Partnerships creating new Nature Improvement Areas (NIAs).

The ***National Planning Policy Framework (NPPF) (2012)*** replaces the majority of previously used planning policy including Planning Policy Statement 9 on Biodiversity and Geological Conservation. The NPPF includes key policies to ensure the planning system contributes to and enhances the natural and local environment by:

- protecting and enhancing valued landscapes, geological conservation interests and soils;
- recognising the wider benefits of ecosystem services;
- minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the

overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;

- preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and

- remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Generally, in regard to preparing plans to meet development needs, the NPPF sets out the expectation that there should be an aim to minimise pollution and other adverse effects on the local and natural environment. Building on this aim, it gives guidance such as criteria based polices or how distinctions can be made on levels of statutory designation for wildlife or other biodiversity designations. For example, the NPPF expects what it terms "great weight" to be given to the conservation of "landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty". The NPPF also gives examples of where planning permission should not be permitted, particularly where loss or deterioration of areas of biodiversity value may occur and expectations related to specific types of development such as minerals workings.

1.2.3 North East of England Regional Plans

The North East Strategy for the Environment was prepared by the North East Environment Forum to ensure that activities within the Region are within environmental limits and provides a Framework for actions to deliver a clean and healthy diverse environment. In relation to biodiversity and geodiversity the Strategy sets out an objective to:

Conserve, enhance and manage biodiversity and geodiversity for their own sake and to make the North East a better place.

The ***Regional Forestry Strategy*** (2005) provides for a partnership approach to woodland management. It sets targets to deliver the woodland element of the England Biodiversity Strategy and prioritises other biodiversity objectives such as management of Ancient and designated woodlands, and the creation and protection of functional woodland networks.

Shoreline Management Plans (SMPs) were introduced in 1994 by the Ministry for Agriculture, Fisheries and Food (MAFF) to provide a large-scale assessment of the potential risk of flooding and coastal erosion along the coast of England and Wales and present policies to guide future decision-making about coastal defence management. There are two SMP in the North East Region, The Northumberland to North Tyneside SMP and *River Tyne to Flamborough Head SMP.*

The **Scottish Borders** (**Northumberland) to North Tyneside SMP 2** covers the North East Coast between the Scottish Border and the River Tyne. The SMP supports a number of coastal communities and broadly comprises a series of dune systems and wide, sandy bays separated by lengths of cliffs and small islands (Holy Island, the Farne Islands and Coquet Island). Only a small proportion of the overall Northumberland coast is protected by man-made defences. The coastline is also characterised by its wildlife and habitats of great nature conservation value. The coast is also important for tourism and local industry.

The ***River Tyne to Flamborough Head SMP 2*** covers the North East coastline from the River Tyne down to Flamborough Head. The SMP relates to South Tyneside, Sunderland, Durham, Hartlepool and Redcar & Cleveland in the North East as well as Scarborough and East Riding of Yorkshire within the Yorkshire and Humber Region.

Catchment Abstraction Management Plans (CAMS) are prepared by the Environment Agency for the following catchments in the region and discussed further in the water section:

- River Till and Bremish;
- North East Northumberland;
- River Tyne;
- River Wansbeck and Blyth;
- River Wear;
- River Tees;
- Esk and Coastal Streams

There are 157 Local Biodiversity Action Plans (LBAPs) in England, of which 6 relate to the North East of England:

- Action for Wildlife: The Durham Biodiversity Action Plan;
- Tees Valley Biodiversity Action Plan;
- Your Wildlife: The Newcastle Biodiversity Action Plan;
- North Tyneside Biodiversity Action Plan;
- Northumberland National Park Biodiversity Action Plan;
- Working with Wildlife: The Northumberland Biodiversity Action Plan.

LBAPs are normally prepared and coordinated at the county level. The plans usually include actions to address the needs of the UK priority habitats and species in the local area, together with a range of other plans for habitats and species that are of local importance or interest.

1.3 Overview of the Baseline

1.3.1 England

There are over 4,100 SSSIs in England, covering 1,076,986ha (including open water and coastal habitats). In terms of land area, approximately 8% of England is designated as SSSI.[4]

In England there are 250 SACs, 85 SPAs and 74 RAMSAR sites.[5]

As at 1 May 2012 the overall condition of SSSIs in England was assessed by Natural England to be 37.25% as area favourable; 59.4% area unfavourable recovering; 2.21% area unfavourable no change; 1.11% area unfavourable declining and 0.03% area destroyed/part destroyed.[6] The reasons for adverse conditions at sites are set out in **Table 1.1**. This indicates that planning permission (general) was linked to 0.93% of the area not meeting the PSA targets and planning permission (mineral and waste) 0.25%.[7]

[4] Natural England http://www.naturalengland.org.uk/ourwork/conservation/designatedareas/sssi/default.aspx

[5] JNCC Protected sites http://jncc.defra.gov.uk/page-1456

[6] http://www.sssi.naturalengland.org.uk/special/sssi/reportAction.cfm?Report=sdrt15&Category=N&Reference=0

[7] http://www.sssi.naturalengland.org.uk/special/sssi/reportAction.cfm?Report=sdrt17&Category=N&Reference=0

Table 1.1 Reasons for Adverse Condition Summary

Reason for Adverse Condition	Percentage of Unit Area Not Meeting the PSA Target	Reason for Adverse Condition	Percentage of Unit Area Not Meeting the PSA Target
Inappropriate scrub control	14.46%	Fire - other	1.73%
Under-grazing	13.95%	Inappropriate coastal management	1.71%
Overgrazing	11.66%	Vehicles - other	1.68%
Water pollution - agriculture/run off	11.31%	Moor burning	1.62%
Inappropriate water levels	10.48%	Earth science feature obstructed	1.51%
Invasive freshwater species	8.75%	Vehicles - illicit	1.33%
Forestry and woodland management	5.90%	**Planning permission - general**	0.93%
Drainage	5.27%	Inappropriate css/esa prescription	0.79%
Coastal squeeze	5.16%	Sea fisheries	0.71%
Inappropriate weirs dams and other structures	4.46%	Air pollution	0.60%
Inappropriate weed control	4.28%	Peat extraction	0.50%
Water pollution – discharge	4.25%	Inland flood defence works	0.40%
Inappropriate cutting/mowing	3.95%	Game management - pheasant rearing	0.35%
Deer grazing/browsing	3.60%	Game management - other	0.32%
Public access/disturbance	3.30%	Inappropriate dredging	0.25%
Inappropriate ditch management	3.19%	**Planning permission - other mineral and waste**	0.25%
Siltation	3.06%	Inappropriate pest control	0.22%
Fish stocking	2.75%	Earth science feature removed	0.14%
Fertiliser use	2.67%	Inappropriate stock-feeding	0.09%
Water abstraction	2.06%	Pesticide/herbicide use	0.04%
Agriculture – other	1.77%	Other	14.07%

1.3.2 North East of England

The North East is a large area covering some 8,500 square kilometres and contains a wide variety of habitats and landscapes that go to make up the remarkable diversity of

plants and animals found in the Region. Whilst some, such as the Northumberland coastline and the Pennine moorlands of Upper Teesdale are recognised as being of national and even international importance (over 13% of the Region's area is designated as Sites of Special Scientific Interest –SSSI and 30% is covered by National Parks and Area of Outstanding Natural Beauty)[8].

Nearly 80% of agricultural land in the North East is under some sort of agri-environment management which is an indicator of the extent to which land is being managed in a sustainable way.[9] Significant parts of the region's countryside are protected by national and international legislation.

Designated Sites

Significant parts of the region's countryside are protected by national and international laws. National Parks and Areas of Outstanding Natural Beauty (AONBs) cover 30 per cent of Region and Sites of Special Scientific interest (SSSIs) cover about 13 per cent of the land area of the region. The protected areas are listed below:

- 2 Areas of Outstanding Natural Beauty (AONB);
- 254 Sites of Special Scientific Interest (SSSIs);
- 19 Special Areas of Conservation (SAC);
- 8 Special Protection Areas (SPA);
- 16 National Nature Reserves (NNR – the region's most vulnerable wildlife-rich landscapes);
- 122 Local Natural Reserves (LNR); and
- Two National Parks (Northumberland, which comprises 13% 113,000 hectares of the region, and part of the North York Moors).[10]

SSSIs are national important nature conservation sites which support England's very best wildlife and geology. The national public service agreement requires that 95% of SSSIs should be in favourable or recovering condition by 2010, anything below favourable or recovering is deemed not to meet the public service agreement target. The North East region has 246 sites covering 107,044 hectares. The State of the Environment North East reports that in 2009 84.13% of the region's SSSIs were in favourable condition (Figure 1.1). Table 1.2 demonstrates that progress made in

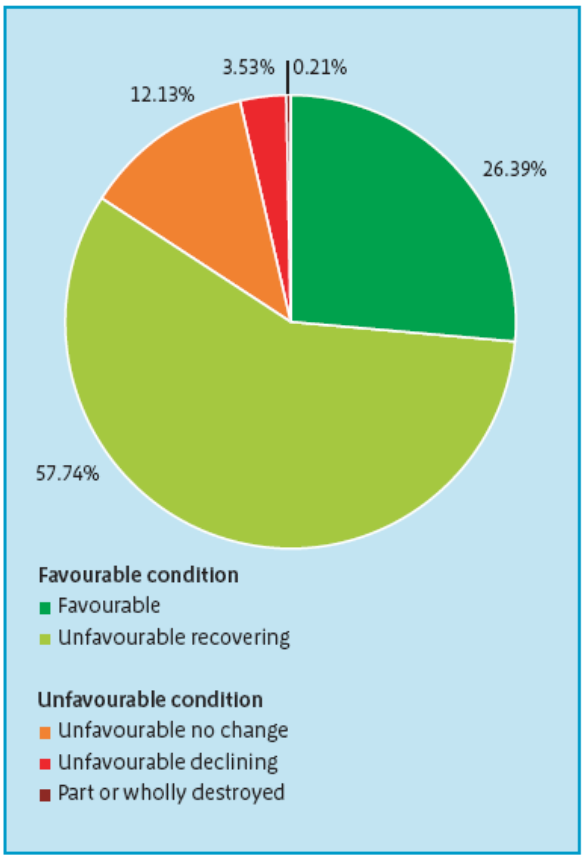
[8] A Biodiversity Audit of the North East, 2001.

[9] State of the Environment North East, Natural England, 2009.

[10] Environment Agency (no date) North East State of the Environment http://www.environment-agency.gov.uk/research/library/publications/34023.aspx

improving the condition of SSSIs since 2004 demonstrating the significant improvement made in progressing towards meeting the PSA targets.

Figure 1.1 Condition of SSSIs in the North East Region 2009



Source: Natural England, State of the Environment

Table 1.2 Progress Towards Meeting SSSI PSA Target 2004-2009

	March '04	March '05	March '06	April '07	April '08	October '09
% meeting PSA target	46	50	54	64	81	91
Unfavourable no change	41	39	36	27	15	7
Unfavourable declining	13	10	10	8	4	2
Destroyed/partially destroyed	0	0	0	0	0	0
Total % in adverse condition in terms of PSA target	54	50	46	36	19	9

Source: Associated of North East Councils RSS Annual Monitoring Report, 2010.

At a sub-regional level, Northumberland has the highest percentage of SSSI land that meets the PSA target at 94%, and Tees Valley has the least at 87%. These figures indicate that the region is making significant progress in improving the condition of SSSIs.

The North East is renowned for its range of coastal, freshwater, wetland and grassland habitats (both lowland and upland) and its spectacular coastline. These include the blanket bogs of the North Pennines and north Northumberland, the limestone grasslands of east Durham, the heather moors of Simonside Hills, the diverse and beautiful coastal dunes and cliffs and the mudflats of Lindisfarne and the Tees estuary.

The region supports a high proportion of some of England's most endangered habitats as well as large areas of internationally important habitats. Table 1.3 outlines the habitat type and percentage in comparison to England.

Table 1.3 North East Habitat Type

Habitat Type	Size (ha)	Percentage of England Total
Upland hay meadow	275	41
Coastal sand dunes	1,570	15
Blanket bog	61,500	18
Upland heath	57,350	19
Magnesian limestone grasslands	200	70

Source: EA State of the Environment Report North East, 2009.

The region also hosts a number of nationally and internationally rare species, the best known being the red squirrel and black grouse. It is also important for resident species such as the otter, summer visitors such as roseate tern and winter birds such as purple sandpiper and pale-bellied brent goose.

The region's bird populations are considered a good indicator of the broad state of wildlife. In the North East, farmland and woodland bird species have increased in population. The region's native bird species increased by 16%; with 45 out of 87 individual bird species experiencing a population increase of 10%. There has, however been a 10% decline in population for 25 native bird species.

Woodland and farmland bird species also experienced an increase of population of 14% and 2%; in particular the population of Nuthatch and Great Spotted Woodpeckers saw increases of more than 100%. Overall, the region saw the highest increase in farmland population in comparison to declines in nearly all other English regions and an overall long term national decline since 1994. Nevertheless nearly a third of the region's farmland bird species continue to decline, a key factor being the move to more intensive and specialised farming methods. There is a considerable variation in species and some well known species remain in an extremely vulnerable position. The corn bunting was a once familiar bird of arable and mixed landscapes but is now missing altogether from some former strongholds in the North East.

The North East Farmland Birds Initiative is a project designed to help sustain the fragile recovery of farmland bird numbers and species variety in the North East. The initiative is a partnership between Natural England and the RSPB, with support from Northumberland National Park and the two Areas of Outstanding Natural Beauty in the North East, the Northumberland Coast and the North Pennines.

Nearly 4,100 ha of land is now under 'arable options' designed to provide food and cover for key species of birds such as corn bunting and tree sparrow. There are also significant areas being managed in upland areas that benefit black grouse and breeding waders such as lapwing.

Improving river quality has led to an increased salmon rod catches in several of the region's rivers with the River Tyne being one of the best salmon rivers in England.

1.4 Environmental Characteristics of Those Areas Most Likely to be Significantly Affected

The locational strategy set out in the RSS is based on planning for two city-regions, the Tyne and Wear City Region and the Tees Valley City Region which would see the majority of developed focused therefore avoiding the majority of areas of higher biodiversity value located in the more rural and coastal areas.

- The Northumberland National Park, The North Pennines AONB, Border Forest Park and Kielder Reservoir located on the western edge of the North East region will largely be restricted from development. There are however up to six potential indicative areas outlined to the east of these environmentally important areas designated in principle for wind farm development;
- The Northumberland Coast AONB is largely protected from development although may potentially be affected by coastal squeeze;
- The coastal regions running from Castle Morpeth through to Redcar and Cleveland are likely to be exposed to the build up of development associated with the larger conurbations on this stretch of heritage coastline which would include regeneration/growth areas including East Northumberland Rural Coalfield, Durham Coalfield, South East Northumberland and East Cleveland;
- The Magnesian Limestone, which underlies part of eastern County Durham into south Tyne and Wear is of economic importance in terms of extraction. Although development will be concentrated within this area it's importance is recognised and would be protected;
- The Whin Sill which lies within County Durham and Northumberland is of biodiversity importance to the region (supporting an important grassland flora), and is of economic importance for the aggregates extraction industry. It largely falls along the western boundary of the region so will largely not be affected by development;
- One of the thirty five areas designated nationally with major concentrations of ancient woodland is in the North East, which includes the Derwent Valley, parts of Wear Valley and Durham City. These areas lie on the

periphery of the existing main urban areas were development is concentrated;

- Many of the SSSIs in unfavourable condition are located in the West and to the South of the region, including the North Pennine Moors, Moor House – Upper Teesdale and the North York Moors.

1.5 Summary of Existing Problems Relevant to Revocation of the Plan

The following existing problems for biodiversity have been identified:

- Condition of some SSSIs, including internationally designated sites along the Northumberland Coast ANOB and Teesmouth, Cleveland and Durham Coasts. , could particularly be affected by the effects of coastal squeeze;
- Direct and indirect impacts of development and infrastructure on biodiversity more generally (e.g. from habitat loss and fragmentation; recreational pressure; over abstraction of water, and air and water pollution);
- The impacts of climate change on habitats and species, including the loss of habitat resulting from sea-level rise;
- Loss of wider biodiversity interest within non-designated areas – e.g. within non-designated countryside and built up urban areas – including on some brownfield land.

The Appropriate Assessment undertaken in 2006 identified 23 Special Areas for Conservation (SACs), 10 SPAs and 5 Ramsar sites which were potentially susceptible to a range of pressures including direct and indirect effects of urbanisation, deterioration of air quality, over abstraction of water, deterioration of water quality, coastal squeeze and loss of supporting habitat outside of the boundary of the designated area.

An overview of their characteristics are summarised below:

Special Areas of Conservation

- Four of the sites within or bordering the region are designated for coastal features. The Berwickshire & North Northumberland Coast, Durham Coast, North Northumberland Dunes and the Tweed Estuary SACs all lie along the coast, designated for their intertidal mud and sandflats, shallow inlets and bays, reefs, cliffs, sand dunes and estuarine features;
- A further seven sites are designated for their upland or montane habitats, with blanket bog being a particular feature in several. Bordering the region

are the Border Mires and Kielder-Butterburn SACs, designated primarily for their blanket bog features. The North Pennine Moors SAC, listed for 6 Annex I habitats, the two priorities being blanket bog and petrifying springs with tufa information (Cratoneurion);

- The two remaining border sites are the North Pennine Dales Meadows SAC, containing most of the UK's mountain hay meadows and North York Moors SAC, which have the largest continuous tracts of wet and dry heaths in England;

- The three upland sites found wholly within the region are Ford Moss SAC, an active raised bog area, Harbottle Moors SAC, a relatively low-lying area of dry heath and Moor House-Upper Teesdale SAC, designated for no fewer than 17 Annex I habitats, priorities being blanket bog and Alpine pioneer formations of the *Caricion bicoloris-atrofuscae.* Moor House- Upper Teesdale also supports two Annex II species that are primary reasons for its designation: the roundmouthed whorl snail and the most important population of Marsh Saxifrage in the UK;

- Five SAC sites within the region and one lying on the border are designated for rather more individual features. They are as follows:

  - Castle Eden Dene, having the most northerly extensive native Yew woodland in the UK;

  - Newham Fen, a rare example of alkaline fen in the northeast of England;

  - Roman Wall Loughs, designated for natural eutrophic lakes, which hold a rich diversity of pondweed (*Potamogeton* spp) in particular;

  - Thrislington, the largest remaining stand of *Sesleria albicans – Scabiosa columbaria* grassland in the country, now covering less than 200ha;

  - Tyne and Allen River Gravels, the most extensive, structurally varied and diverse Calaminarian grasslands in the UK, with several nationally rare plant species present; and

  - River Tweed, a bordering site shared between England and Scotland, designated for the highly diverse watercourse.

Outside the region, yet with potential to be affected by activities within the region, the following sites occur:

- Borders Woods (Scottish Borders);
- Ox Close (North Yorkshire;
- River Eden (Cumbria);
- St Abbs Head to Fast Castle (Scottish Borders);

- Tyne & Nent (Cumbria).

Special Protected Areas

The majority of SPAs in the region are coastal. Coquet Island and the Farne Islands are designated for their significant populations of breeding terns.

- Lindisfarne also qualifies as an SPA with breeding tern colonies;
- Northumbria Coast and the Teesmouth & Cleveland Coast SPAs are designated in terms of breeding Little Terns;
- Holburn Lake and Moss is included on the strength of its winter Greylag Goose roost;
- The bordering sites of the North Pennine Moors and the North York Moors SPAs are both designated for their populations of breeding raptors (Hen Harrier, Merlin and Peregrine) and Golden Plover.

Outside the region, yet with potential to be affected by activities within the region are the following sites:

- Langholm-Newcastleton Hills (Scottish Borders), designated for breeding Hen Harrier;
- St Abbs Head to Fast Castle (Scottish Borders), holding approximately 10% of the British population of Annex I species Common Guillemot, as well as an internationally important assemblage of breeding seabirds.

Ramsar Sites

Four of the region's five Ramsar sites are also designated for the same features as the SPAs:

- Northumbria Coast;
- Teesmouth & Cleveland Coast ;
- Lindisfarne;
- Holburn Lake and Moss;
- On the western border of the region, Irthinghead Mires are designated a Ramsar site as an outstanding example of undamaged blanket bog.

1.6 Likely Evolution of the Baseline

1.6.1 Likely Evolution of the Baseline - England

Results of the 2008 reporting round of the UK Biodiversity Action Plan indicate that in England.[7]

Habitats:

- 17% of priority habitats were increasing (compared to 24% in 2005);
- 12% of priority habitats were stable (compared to 12% in 2005);
- 12% of habitats were declining (continuing/accelerating) (compared to 2% in 2005);
- 24% of habitats were declining (slowing) (compared to 34% in 2005);
- 24% of habitats were fluctuating (compared to 7% in 2005); and
- The status of 10% of habitats was unknown (compared to 20% in 2005).

Species:

- 8% of species were increasing (no change since 2005);
- 22% of species were stable (no change since 2005);
- 24% of species were fluctuating (compared to 19% in 2005);
- 6% of species were declining (slowing) (compared to 8% in 2005);
- 8% of species were declining (continuing/accelerating) (compared to 10% in 2005);
- 3% of species were lost (pre BAP publication) (no change since 2005);
- 5% of species showed no clear trend (compared to 7% in 2005); and
- The status of 21% of species was unknown (no change since 2005).

In England, in 2009 over 80% of SACs and SPAs were in favourable or recovering condition. SSSI condition in England has experienced a dramatic improvement in the overall site condition over the last 10 years as a result of protection and management[11]. However, some species in particular continue to be impacted upon.

[11] Natural England (2008) State of the Environment Report.

The trend in populations of breeding wading birds on unprotected lowland wetland grasslands is towards a major decline.[12]

Despite the increase in area protected for its biodiversity there is concern that the protected site network as it exists is insufficient to protect biodiversity in England as a whole and that some species and habitats will be confined to these protected areas and more vulnerable to pressures and threats, including climate change.[13]

1.6.2 Likely Evolution of the Baseline North East of England

The SEA Directive requires a consideration of the evolution of the baseline without the proposed plan or programme being in place. Slightly confusingly in this assessment, 'without the proposed plan or programme' actually refers to the plan to revoke the Regional Strategy. So the evolution of the baseline without the plan will mean in this instance, the evolution of the baseline with the existing Regional Strategy in place. Therefore, the assessment has used the findings of the 2008 sustainability appraisal and appropriate assessment to the North East of England plan to provide an informed understanding of likely future evolution of the biodiversity/wildlife baseline.

The key general implications for the biodiversity baseline with the RSS in place will be:

- Loss of habitat through land take for residential and economic development and transport infrastructure;
- Cumulative 'habitat nibbling' and degradation due to disturbance and pollution, counteracted to some extent by land remediation efforts;
- An increase of water use associated with increased residential and economic development which could affect supply (volume & quality) to European sites;
- An increase in the production of waste water and other waste from more development and more people generally;
- Increased air pollution, affecting species and plant communities sensitive to air quality, from development, its construction and operation and from the increase in transport movements particularly road schemes and aviation;
- More disturbance by light, activity and noise of urbanisation, affecting wildlife;
- Disturbance and erosion at sites through an a increase in visitors numbers; and

[12] Joint Nature Conservation Committee, Protected Areas, http://www.jncc.gov.uk/page-4241).

[13] Lawton *et al* (2010) Making Space for Nature: A review of England's Wildlife Sites and Ecological Network.

- Disturbance (light and noise) from major wind farm proposals.

The more specific predicted baseline trends which are relevant are:

- The North East has the highest $C0_2$ emissions per head of all the English regions due to existing fossil-fuelled power stations. (Considerable potential to reduce emissions with the deployment of renewable energy technology);
- Predicted sea level rises (66cm by 2080) will increase flood risk across the region, particularly in tidal river estuaries;
- 46% of SSSI land in the Region is in a favourable condition it has been recognised that around 103,000 hectares of SSSI land needs to be improved to meet national biodiversity targets;
- Air quality in the region has been improving in recent years due to a decline in emissions from industrial sources. Air quality objectives are exceeded in all areas (with the possible exception of Newcastle);
- Farmland bird indicator species have increased (2000-04), against the general national decline;
- Woodland bird indicator species show no significant change since 1994, against the general national decline;
- Woodland now covers 12% of the region. 50% of woodland growth in recent years has been in urban areas;
- 41% of land is covered by statutory designations, such as National Park, AONB etc, twice the England-wide average.

1.7 Assessing Significance

Table 1.4 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on the biodiversity objective. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 1.4 Approach to Determining the Significance of Effects on Biodiversity

Effect	*Description*	*Illustrative Guidance*
++	Significant positive	• Alternative would have a significant and sustained positive impact on European or national designated sites and/or protected species. (e.g. – fully supports all conservation objectives on site, long term increase in population of designated species); • Alternative would have a strong positive effect on local biodiversity (e.g. – through removal of all existing disturbance/pollutant emissions, or creation of new habitats leading to long term improvement to ecosystem structure and function); • Alternative will create new areas of wildlife interest with improved public access in areas where there is a high demand for access to these sites.
+	Positive	• Alternative would have a minor positive effect on European or national designated sites and/or protected species (e.g. – supports one of the conservation objectives on site, short term increase in population of designated species); • Alternative may have a positive net effect on local biodiversity (e.g. – through reduction in disturbance/pollutant emissions, or some habitat creation leading to temporary improvement to ecosystem structure and function); • Alternative will enhance existing public access to areas of wildlife interest in areas where there is some demand for these sites.
0	No (neutral effects)	• Alternative would not have any effects on European or national designated sites and/or any species (including both designated and non-designated species); • Alternative would not affect public right of way or access to areas of wildlife interest.
-	Negative	• Alternative would have minor short-term negative effects on non-designated conservation sites and species (e.g. – through a minor increase in disturbance/pollutant emissions, or some loss of habitat leading to temporary loss of ecosystem structure and function); • Alternative will decrease public access to areas of wildlife interest in areas where there is some demand for these sites.
--	Significant negative	• Alternative would have a major negative and sustained effect on European or national designated sites and/or protected species (e.g. – prevents reaching all conservation objectives on site, long term decrease in populations of designated species). These impacts could not reasonably be compensated for; • Alternative would have strong negative effects on local biodiversity (e.g. – through an minor increase in disturbance/pollutant emissions, or considerable loss of habitat leading to long term loss of ecosystem structure and function).
?	Uncertain	• From the level of information available the impact that the Alternative would have on this objective is uncertain.

1.8 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 1.5 summarises the significant effects identified in the detailed assessment of the East of England Plan policies against the biodiversity topic.

Table 1.5 Significant Effects Against the Biodiversity Topic

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Policy 8: Protecting and Enhancing the Environment	Retention	++	++	++	This policy sets high level objectives for protecting and enhancing the Environment, which are developed further in other policies (including RSS policies 31-34 and 37). Protecting woodlands, including ancient woodlands, will have a very significant positive impact on protecting biodiversity and contribute to maintaining cultural heritage. The Regional Economic Strategy (RES) acknowledges the need to protect, enhance and capitalise upon the region's unique and special natural and historic environment, recognising that the quality of the environment can do much to attract inward economic investment. Protection and enhancement of the local landscape, particularly designated areas, will have significant benefits for biodiversity and landscape, and through better recreational opportunities should have benefits to human health. It is likely to have cultural benefits as well. Provision of green infrastructure should have biodiversity benefits through the creation and enhancement of new habitats, as well as provide flood attenuation and provide recreational space, so improving air quality, reduce carbon emission and protect soils. Conservation and enhancement of historic buildings and areas, as well as seeking to ensure high quality development that is sympathetic to its surroundings should also have significant cultural benefits. Protecting woodlands, including ancient woodlands, will have a very significant positive impact on protecting biodiversity and contribute to maintaining cultural heritage. The legal requirement for local planning authorities to ensure that internationally and nationally designated sites are given the strongest level of protection and that development does not have adverse effects on the integrity of sites of European or International Importance for nature conservation would not be unchanged by the revocation of Policy 8.
	Revocation	++	++	++	
Policy 31: Landscape	Retention	++	++	++	The RES Actions identifies that the quality of place is crucial to supporting the interventions and goals

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Character	Revocation	++	++	++	within the Business and People Sections. The RES acknowledges that the region's environmental heritage and cultural assets are vital factors in contributing to its competitive advantage in terms of place. The first part of the policy effectively sets out the statutory requirements to afford the highest level of protection to nationally designated landscapes. Protection and enhancement of landscape character across the region, and particularly the nationally designated landscapes – including the Northumberland National Park, and Northumberland Coast and north Pennines Areas of Outstanding natural beauties as set out in part a of the policy – will have significant landscape and biodiversity benefits . The latter part of the policy addresses Town Design Statements and Shoreline Management Plans. It is considered that the protection of landscape character will have positive and significant effects for biodiversity. No differences are anticipated between revocation and retention given the protection afforded to nationally important landscapes in the NPPF.
Policy 33: Biodiversity and Geodiversity	Retention	++	++	++	The National Planning Policy Framework makes clear that the planning system should contribute to and enhance the natural environment, including by protecting and enhancing valued landscapes, minimising impacts on biodiversity and providing net gains in biodiversity where possible. The NPPF underlines that pursuing sustainable development means moving from a net loss of biodiversity to achieving net gains for nature. This means that local planning policies should promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan. In particular NPPF section 11 on conserving and enhancing the natural environment, and paragraphs 109 to 119 are particularly relevant. The NPPF policies relating to green infrastructure and planning for climate change to mitigate the effects on biodiversity (paragraph 99 of the NPPF) are also relevant. The NPPF also makes clear that planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss. New initiatives set out in the Natural Environment White Paper (June 2011), including Local Nature Partnerships and Nature Improvement Areas, along
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					with existing non-statutory biodiversity strategies can be expected to assist in protecting and enhancing biodiversity. Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 requires all public bodies to have regard to biodiversity conservation when carrying out their functions. Policies on green infrastructure, planning for climate change to mitigate the effects on biodiversity (paragraph 99 of the NPPF) are also relevant. The legal requirement for local planning authorities to ensure that internationally and nationally designated sites are given the strongest level of protection and that development does not have adverse effects on the integrity of sites of European or international importance for nature conservation would be unchanged by revocation of the policy. Overall given the commitment in the Natural Environment White Paper to work towards a net gain in the value of nature and to assist with the delivery of green infrastructure it is concluded that revocation of the policy will leave a stronger policy framework in its place. The magnitude of any enhancement will depend on local circumstances and decisions.
Policy 34: The Aquatic and Marine Environment	Retention	++	++	++	Although the region has an abundance of water supply, the purpose of this policy is to ensure the sustainable provision and use of water (including through water efficiency and sustainable urban drainage systems) in a manner which protects and enhances the river and marine environment. This approach should protect the habitats for many species whilst steering development to appropriate locations away from the risk of coastal change. This policy will therefore have significant biodiversity benefits. The European Water Framework Directive introduces a more integrated system of water management based on river basin districts, with a view to reducing water pollution, reducing the effects of floods and droughts, and ensuring that most inland and coastal waters attain 'good ecological status' by 2015. River Basin Management Plans will identify the standards in the North East. The Water Framework Directive requires 'no deterioration' from current water status and local authorities will need to take this into account in their water cycle strategies. The Marine Policy Statement (MPS) is the framework for preparing Marine Plans and taking decisions affecting the marine environment. It will contribute to the achievement of sustainable development in the United Kingdom marine area1. It has been prepared and adopted for the purposes of section 44 of the Marine and Coastal Access Act 2009.The MPS will facilitate and support the formulation of Marine Plans, ensuring that marine resources are used in a sustainable way in line with the high level marine objectives3 and thereby: Promote sustainable economic development;
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					Enable the UK's move towards a low-carbon economy, in order to mitigate the causes of climate change and ocean acidification and adapt to their effects; Ensure a sustainable marine environment which promotes healthy, functioning marine ecosystems and protects marine habitats, species and our heritage assets; and Contribute to the societal benefits of the marine area, including the sustainable use of marine resources to address local social and economic issues. Shoreline Management Plans should continue to inform the evidence base for planning in coastal areas (paragraph 168). The prediction of future impacts should include the longer term nature and inherent uncertainty of coastal processes (including coastal landslip), and take account of climate change. Local planning authorities should apply Integrated Coastal Zone Management across local authority and land/sea boundaries. They should reduce risk from coastal change by avoiding inappropriate development in vulnerable areas or adding to the impacts of physical changes to the coast. They should identify Coastal Change Management Areas where any area is likely to be affected by physical changes to the coast and be clear as to what development will be appropriate in such areas and in what circumstances. In addition, paragraph 114 of the NPPF states the need to maintain the character of the undeveloped coast, protecting and enhancing its distinctive landscapes, particularly in areas defined as Heritage Coast, and seeks improvement to public access to and enjoyment of the coast. Paragraph 156 requires local planning authorities to set out the strategic priorities for the area in the local plan, including strategic policies to deliver the provision of infrastructure for flood risk and coastal change management. Water Company Water Resource Management Plans (WRM09) 2010-2035 will set out how water companies aim to ensure there will be sufficient water to meet potable demand without environmental consequences during the RSS plan period. Water companies are therefore already considered future supply and demand in terms of planning water consumption for the region in their approved and emerging plans. This along with the duty to co-operate, NPPF policies relating to planning strategically across local boundaries (paragraphs 156 and 178-181) will mean that local authorities should continue to plan for and address water infrastructure implications of development through policies in their local plans, reflecting local circumstances and priorities and to actively engage with relevant bodies. Water

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					companies will have an opportunity to work with local authorities on water infrastructure implications as part of local plan preparation.
Policy 36: Trees Woodlands and Forests	Retention	++	++	++	The policy seeks to achieve an increase in woodland cover by protecting and achieving better management of existing woodland and promoting new planting where consistent with landscape character. This approach will have significant benefits on biodiversity. The NPPF makes clear that planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss. NPPF section 11 on conserving and enhancing the natural environment and the Government's White Paper, The Natural Choice, recognises and supports the protection and improvement of woodland and forests. Paragraph 114 of the NPPF states that local planning authorities should set out a strategic approach in their local plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure. The positive effects on biodiversity are therefore considered to be the same for both retention and revocation.
	Revocation	++	++	++	
Policy 39: Renewable Energy Generation	Retention	+	+	++	The policy seeks to achieve 10% of the region's energy consumption from renewable sources by 2010, rising to 20% by 2020. This would contribute to the national target in the Climate change programme, and to meeting European obligations by 2020. There would be strong benefits to climatic factors as well as biodiversity through mitigating of climate change. There is a legally-binding target to ensure 15% of energy comes from renewable sources by 2020. The UK Renewable Energy Roadmap 2011 sets out the path to meet it. This National Target is 5% lower that the 2020 target identified within the RSS. Given the NPPF's policy for LPA to support the move towards a low carbon economy (paragraph 94) and increase the supply of renewable energy (paragraphs 97-99), there is still national planning support for investment and supply if the policy is revoked. The ongoing commitment to supporting renewable energy schemes, along with legislation such as the Habitats Regulations will ensure the long term benefits (both direct and indirect) for biodiversity.
	Revocation	+	+	++	
Policy 45: Sustainable Waste	Retention	++	++	++	The policy reinforces aspects of national policy that will need to apply across the region if waste generation is to be successfully decoupled from economic growth. It respects the European and

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Management					national policy context and, in seeking to achieve the required shift towards more sustainable waste management, building on principles set out in the Waste Strategy for England and PPS10. Moving waste up the waste hierarchy, such as through promotion of waste minimisation and re-use activities will have significant benefits to biodiversity by avoiding the need to send waste to landfill. Revocation of this policy is not likely to have a significant environmental effect. The significant effects for biodiversity associated with the avoidance of sending waste to landfill are considered to be the same for both retention and revocation.
	Revocation	++	++	++	
Policy 46: Waste Management Provision	Retention	++	++	++	Continuing to drive waste up the waste hierarchy, and only landfilling waste as a last resort, would have positive effects on water, air, climatic factors and material assets for the reasons set out in relation to Policy 45. Waste Planning Authorities will still be required to comply with national policy in Planning Policy Statement 10 and the National Planning Policy Framework, as well as its legal obligations under the Waste (England and Wales) Regulations 2011. Waste planning authorities should plan for the waste management needs in their area, driving waste management up the hierarchy, helping to implement the international and national waste legislation and take more responsibility for their own waste. Each waste planning authority should set out its ambitions for additional waste management capacity required, based on an assessment of existing and forecast waste arisings, and should monitor to enable it to adapt if required. Furthermore, Waste planning authorities should assess the suitability of land against criteria set out in PPS10, including the physical and environmental constraints on development and the cumulative effect of previous waste disposal facilities on the well-being of the local community. There are 9 local waste plans in the region, of which only the two most recently adopted (Tees Valley and South Tyneside) based the forecasts set out in Table 3 and 3A which support policy 46. The other plans rely largely on generic policies to assess the need for and suitability of development, or rely on future work to be carried out in order to assess the need for additional capacity. As per Policy 45, it is considered that by reducing the need to send waste to landfill will have positive effects for biodiversity.
	Revocation	++	++	++	

1.8.1 Effects of Retention

The effects of retention of the Regional Strategy have been assessed on the assumption that, in the absence of the legislation and regional architecture enabling updating of the Regional Strategy, although the general principles of development will remain some policies will become increasing outdated and in some cases in conflict with the national policies in the Framework. By setting out the overarching direction within which local plans should be developed, retention of the Regional Strategy would have significant benefits in the short to long term, as the general development principles relating to protecting and enhancing biodiversity and geodiversity would lead to significant improvements in the functional ecological networks of the region's core biodiversity sites through a more integrated network of habitats.

However, as all the policies in the Plan identified to have significant effects on biodiversity are not-locationally specific, beneficial and seek to mitigate the adverse effects of development, and in most cases consistent with legal requirements, it can be assumed that the effects of retention will mirror the anticipated evolution of the baseline as set out in section 1.6.2 and are unlikely to be materially different from revocation.

1.8.2 Effects of Revocation

The Government's aim, as announced in the Natural Environment White Paper is that by 2020, there will be an overall improvement in the status of wildlife. The planning system can make an important contribution to achieving these goals, although it has to be recognised that the most influence will come from land uses outside the control of the planning system, and in particular, agriculture, and will depend on the uptake and success of agri-environment schemes.

Key indicators for biodiversity are the number and extent of protected areas and their condition. In particular, the Natural Environment White Paper states that 90% of priority wildlife habitats are should be in recovering or favourable condition by 2020. There will be more, bigger, better and less-fragmented areas for wildlife, including no net loss of priority habitat and an increase of at least 200,000 hectares in the overall extent of priority habitats. At least 50% of Sites of Special Scientific Interest will be in favourable condition, while maintaining at least 95% in favourable or recovering condition.

According to the baseline figures, the 2020 target is some way from being achieved in the North East of England (84.13% in favourable or recovering condition).

Revocation of the Regional Strategy could, in theory, remove or reduce any such remaining potential for biodiversity improvements set out in policies contained in the Plan. However, the NPPF together with legislation and wider national policies on

biodiversity provides a strong framework for protecting the existing biodiversity resource. For example, given the continued application of the legal and policy protection given to European and Ramsar sites and to SSSIs and further application of agri-environment schemes it is expected that revocation of the Plan would not change the direction of travel. Achievement of legally binding targets for water and air quality will also be significant contributory factors in improving the quality of areas important for wildlife, while enhanced provisions on aspects such as the delivery and protection of green infrastructure will play an important role in increasing the overall area with significant biodiversity value. Statutory and policy protection for AONBs and National Parks will continue to protect the biodiversity value with these areas, at least in so far as the planning system is concerned.

Despite these safeguards, it is far from certain that this would be the outcome and will depend on decisions taken by local authorities in consultation with their communities, and by businesses and other partners, on the future scale, nature and location of housing and other development in order to meet identified need. This is particularly the case with respect to non-designated sites and their associated biodiversity.

In respect of protecting and enhancing undesignated biodiversity and geodiversity assets in the region there are already many highly effective local partnerships with a focus on different aspects of the natural environment e.g. Durham Biodiversity Partnership and the Northumberland Lowlands and Coast Local Nature Partnership[14]. The Government is encouraging existing partnerships to join-up and integrate action to achieve multiple benefits – for example, on water and air quality, biodiversity, climate change adaptation and provision of green infrastructure. The White Paper sets out how the Government will help such groups to come together to become Local Nature Partnerships. Local Nature Partnerships will enable local authorities motivated by the "duty to co-operate" to work with a range of partners including land managers, businesses and conservation organisations to identify opportunities to protect and improving nature at local level. Local Nature Partnerships will link action to protect and improve the natural environment with wider national and local social and economic priorities. They are encouraged to make links with Local Enterprise Partnerships and Health and Wellbeing Boards and create new Nature Improvement Areas where there are significant opportunities to enhance and reconnect nature. It will also be necessary to achieve legally binding targets for air and water quality and these will remain significant contributory factors in improving the quality of areas important for wildlife. Therefore in the long term it is anticipated that the same significant positive effects in relation to the creation of functional ecological networks will result.

[14] Northumberland Lowlands and Coast Local Nature Partnership covers the administrative areas of Newcastle, North Tyneside and Northumberland (excluding the National Park and North Pennines AONB).

Removal of the target for the use of previously developed land (Plan Policy 29) could have benefits for biodiversity where it reduces the pressure on local planning authorities to develop areas of brownfield land which have biodiversity interest. In its place, paragraph 111 of the NPPF encourages the effective use of land by re-using land that has been previously developed (i.e. brownfield land), provided that it is not of high environmental value. However, moving some development away from brownfield land may increase the pressure to locate development on non-designated areas of the countryside. The effects of this are uncertain as they will depend on the quantum of development away from urban areas and on site specific circumstances, including the biodiversity value on and in the vicinity of the development. It should also be recognised that well planned development which optimises the opportunities for biodiversity - as envisaged in the NPPF - can result in net gains to biodiversity.

It is uncertain what the overall effect of revocation on biodiversity would be in the short to medium term as local plans may not provide a strong policy direction given that only three core strategies have been adopted following the publication of the RSS. It is also unclear whether existing and future land allocations will affect areas of biodiversity or geodiversity value particularly if increased housing delivery over and above the current allocation is required. However, the application of the NPPF's presumption in favour of sustainable development will help to avoid negative impacts where plans or policies are absent, silent or out of date.

1.8.3 Effects of Partial Revocation

The effects of partial revocation concern either:

- Revoking all the quantified and spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and retaining for a transitional period the non spatial policies, ambitions and priorities;
- Retaining for a transitional period all the spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and revoking the non spatial policies, ambitions and priorities; or
- Retaining for a transitional period policies, ambitions and/or priorities, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on biodiversity associated with the revocation of the quantitative policies are summarised in **Table 1.5** for policy 39 (Renewable Energy Generation). However the effects associated with the policy revocation considered to

be negative. The combination of legislative requirements for protecting biodiversity, the policy and guidance in the NPPF and the actions of other organisations (such as Natural England) as well the LPAs themselves creates a framework where the effects of revocation are considered to deliver similar positive benefits to biodiversity and nature conservation as retention.

The assessment has found that there are no policies in the North East of England Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

1.8.4 Mitigation Measures

Given that all likely significant effects identified would be positive no mitigation measures are proposed for this topic. However, it is recognised that local authorities will need to co-operate with their Local Nature Partnerships and neighbouring local authorities in line with the “duty of co-operate” to ensure benefits are delivered in the long term.

1.8.5 Proposals for Monitoring

Negative and uncertain effects in respect of biodiversity relate to:

- SSSI favourable condition status;
- Green infrastructure provision and accessibility.

2. Population

2.1 Introduction

In the absence of detailed SEA guidance on the content of the population topic, 'population' includes information on demographics and generic socio-economic issues. The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals on the plan to revoke on population and socio-economics. Information is presented for both national and regional levels.

There are links between the population topic and a number of other SEA topics, in particular the effects of population on human health, material assets, air quality and climate change.

2.2 Summary of Plans and Programmes

2.2.1 International

The United Nation's ***Aarhus Convention (2001)*** grants the public rights and imposes on Parties and public authority's obligations regarding access to information, public participation and access to justice. It contains three broad themes or 'pillars':

- Access to information;
- Public participation; and
- Access to justice.

The ***SEA Directive*** creates the following requirements for public consultation:

- Authorities which, because of their environmental responsibilities, are likely to be concerned by the effects of implementing the plan or programme, must be consulted on the scope and level of detail of the information to be included in the Environmental Report. These authorities are designated in the SEA Regulations as the Consultation Bodies (Consultation Authorities in Scotland);
- The public and the Consultation Bodies must be consulted on the draft plan or programme and the Environmental Report, and must be given an early

and effective opportunity within appropriate time frames to express their opinions;

- Other EU Member States must be consulted if the plan or programme is likely to have significant effects on the environment in their territories;
- The Consultation Bodies must also be consulted on screening determinations on whether SEA is needed for plans or programmes under Article 3(5), i.e. those which may be excluded if they are not likely to have significant environmental effects.

The ***European Employment Strategy*** seeks to engender full employment, quality of work and increased productivity as well as the promotion of inclusion by addressing disparities in access to labour markets. These overarching aims are further espoused in the ***Integrated Guideline for Growth and Jobs 2008-11*** and later documents relating policy objectives into broad actions for the member states (***A Shared Commitment for Employment***, 2009; and, ***Implementation of the Lisbon Strategy Structural Reforms in the context of the European Economic Recovery Plan***, 2009).

2.2.2 National

England

The ***Government's Housing White Paper "Laying the Foundations"*** sets out the Government's policies to support the housing market, especially house building. The Government believes that a well functioning housing market is vital to competitiveness and attractiveness to business. Housing is also seen as crucial to social mobility, health and well being – with quality and choice having an impact on social mobility and wellbeing from an early age. The Government is putting in place new incentives for housing growth through the New Homes Bonus, Community Infrastructure Levy and proposals for local retention of business rates.

The ***Local Growth White Paper (October 2010)*** sets out the Government overarching goal is to promote strong, sustainable and balanced growth. It restates the Government's role in providing the framework for conditions for sustainable growth by:

- Creating macroeconomic stability, so that interest rates stay low and businesses have the certainty they need to plan ahead;
- Helping markets work more effectively, to encourage innovation and the efficient allocation of resources;

- Ensuring that it is efficient and focused in its own activities, prioritising high-value spending and reducing tax and regulatory burdens; and
- Ensuring that everyone in the UK has access to opportunities that enable them to fulfil their potential.

The White Paper focuses on the approach to local growth proposing measures to shift power away from central government to local communities, citizens and independent providers. It introduced Local Enterprise Partnerships (LEPs) to provide a vision and leadership for sustainable local economic growth. The number of LEPs has increased to 39 from the 24 originally announced. Across England the LEP's are at different stages of establishment and are subject to further development and consultation. LEPs will be expected to fund their own day to day running costs but may wish to submit bids to the Regional Growth Fund (RGF). The RGF is a discretionary £1.4bn Fund operating for 3 years between 2011 and 2014 to stimulate enterprise by providing support for projects and programmes with significant potential for creating long term private sector led economic growth and employment and, in particular, help those areas and communities that are currently dependent on the public sector make the transition to sustainable private sector-led growth and prosperity.

There are a number of policies set out with the ***National Planning Policy Framework (NPPF) (2012)*** that set out how local planning authorities should plan for the supply of housing. The new policies explain that to boost significantly the supply of housing, local planning authorities should:

- Use their evidence base to ensure that their Local Plan meets the full, objectively assessed housing needs;
- Identify and update annually a supply of specific deliverable sites sufficient to provide five years worth of housing;
- Identify a supply of specific, developable sites or broad locations for growth, for years 6-10 and, where possible, for years 11-15;
- Provide a housing trajectory and set out a housing implementation strategy for the full range of housing; and
- Set out their own approach to housing density to reflect local circumstances.

The policy outlines measures that local planning authorities should take order to deliver a wide choice of high quality homes, widen opportunities for home ownership and create sustainable, inclusive and mixed communities. The policy states that local planning authorities should identify and bring back into residential use empty housing and buildings in line with local housing and empty homes strategies.

The Government's **planning policy for traveller sites (2012)** should be read in conjunction with the National Planning Policy Framework. The policy replaces Circular 01/2006: Planning for Gypsy and Traveller Caravan Sites and Circular 04/2007: Planning for Travelling Showpeople. The overarching aim of the new policy is to ensure fair and equal treatment for travellers, in a way that facilitates the traditional and nomadic way of life of travellers while respecting the interests of the settled community.

2.2.3 North East of England Regional Plans

The Regional Development Agency for the North East prepared "Leading the Way" A Regional Economic Strategy published in 2006. The Strategy focuses upon making progress on broad themes of leadership, business, people and place to achieve sustainable and inclusive economic growth in the region. It emphasises the need to increase GVA per capita, create new businesses and increase employment levels. To this will require encouraging enterprise, supporting business start ups, boosting productivity and enhancing skills and investment. The Strategy includes an emphasis on investment in the urban cores of the city-regions, together with a rural programme primarily focuses on market towns and rural service centres.

The North East England Housing Strategy: Quality Places for a Dynamic Region published in 2007 contains the aims and priorities for housing in the region. It provides a framework to encourage the development of housing solutions at regional, sub-regional and local levels. It seeks to influence private and public sector investment decisions and sets the strategic context within which housing providers can operate.

Local Enterprise Partnerships in the North East of England

There are two Local Enterprise Partnerships in the North East. They are:

- North East LEP (which covers: Durham CC, Gateshead Council, Newcastle City Council, North Tyneside Council, Northumberland CC, South Tyneside MBC and Sunderland City Council); and
- Tees Valley LEP (which covers Darlington, Hartlepool, Middlesbrough, Redcar & Cleveland and Stockton-on-Tees).

Each is discussed in more detail below:

North East LEP

The North Eastern LEP economy is home to approximately 2 million people, of whom over 1.2 million are of working age. Collectively, the LEP area has 43,000 businesses and 800,000 employees. The value of total output produced in the LEP economy is

£32 billion per annum. This makes the area one of the largest 'economic centres' in the north of England.

The LEP economy has a number of important economic assets, including:

- Sector strengths in automotive, low carbon technology, marine and offshore, pharmaceuticals, biotechnology, financial, business and professional services, cultural, creative and digital, engineering, tourism, construction and land-based industries;
- Globally competitive firms such as: Nissan Motor manufacturing UK Ltd; Deutsche Bahn (formerly Arriva plc); Go Ahead Group plc; GlaxoSmithKline; Sage Group plc; Caterpillar; BAE Systems; RioTinto Alcan; P&G; Thyseenkrupp Tallent Ltd; Eaga; Greggs plc; Aesica Pharmaceuticals; Rolls Royce; Komatsu; Smith Electric Vehicles; Bellway; Wellstream Holdings plc; Vertu Motors plc; Egger UK Ltd; SCA Hygiene; Siemens; Barbour; and Northumbrian Water;
- National and international centres of expertise in research and innovation (including Newcastle Science City, Sunderland Software City, Codeworks, Centre of Excellence for Life Sciences, NETPark, Centre for Process Industry, Printable Electronics Technology Centre (PETEC), National Renewable Energy Centre (narec), Design Centre for the North) and the forthcoming Low Carbon Vehicle Centre;
- Newcastle International Airport, which handles four and a half million passengers per year, and provides connectivity to major UK and international business centres;
- 5 sea ports (Port of Tyne, Port of Blyth, Port of Sunderland, Port of Berwick and Port of Seaham). The ports provide the UK's largest vehicle import and export operations. They also provide a base to manufacture technology products for the oil and gas industry and low carbon energy sector;
- Relatively well-connected rail network (including the East Coast Main Line);
- 4 Universities with internationally renowned, key teaching and research strengths in engineering, energy, design, applied sciences, pharmaceuticals, biotechnology, business and medicine;
- 10 Further Education Colleges, which together contributed towards the North East achieving in 2009 the best results of any English region for adult skills success rates;
- The Tyne and Wear Metro light rail system, which is having a £350 million investment programme;
- Proximity to offshore wind sites, significant quality water and timber resources in Northumberland, and a natural and cultural environment that,

as well as supporting tourism, provides a quality environment for those living and doing business in the LEP area;

- Europe's largest retail and leisure destination (MetroCentre), employing 8,000 staff and the UK's largest city centre shopping centre (Eldon Square) with 6,000 employees.[15]

Tees Valley

The Tees Valley comprises the local authorities of Darlington, Hartlepool, Middlesbrough, Redcar and Cleveland and Stockton on Tees. It covers an area of 300 square miles, with a population of 650,000 and the Teesport, the 4th largest port in the UK.

The Tees Valley is the largest petrochemicals/ energy/ biofuels/ advanced engineering complex in the United Kingdom with an eight billion pound pipeline of investment in these sectors.

The Tees Valley Unlimited local enterprise partnership manages the Tees Valley enterprise zone, covering 12 sites in Hartlepool, Middlesbrough, Stockton-on-Tees, Redcar and Darlington.

2.3 Overview of the Baseline

2.3.1 UK

National Demographics

In mid 2010 the resident population of the UK was 62,262,000 in mid-2010[16] and 64.8% of the population was working age (aged 16 to 64) (65.8% males and 63.8% females).The working age population in 2010 was broken down as follows: [17]

- 77.0% economically active;
- 70.5% in employment;
- 8.2% unemployed.

The breakdown of qualifications of the working age population in 2010 was as follows;

- 31.2% had NVQ4 and above;

[15] North Eastern LEP 2010 proposal.

[16] Office for National Statistics 2010 mid-year population estimates.

[17] NOMIS, Official Labour Market Statistics, Annual Population Survey, 2010, https://www.nomisweb.co.uk

- 50.9% had NVQ3 and above;
- 67.2% had NVQ2 and above;
- 80.1% had NVQ1 and above;
- 8.4% had other qualifications; and
- 11.6% have no qualifications.

In England and Wales, between 2008/09 and 2009/10 estimates from the British Crime Survey (BCS) indicate vehicle-related thefts fell by 17 per cent, burglary fell by 9% and violent crime fell by one per cent. All BCS crime fell by 9%.

Table 2.1 Number of Crimes Recorded by the Police in England and Wales[18]

	2008/09	2009/10	Change
	Number of offences (thousands)		%
Vandalism	2,700	2,408	-11
Burglary	725	659	-9
Vehicle-related theft	1,476	1,229	-17
Bicycle theft	527	480	-9
Other household theft	1,155	1,163	1
Household acquisitive crime	3,883	3,531	-9
All household crime	6,583	5,939	-10
Theft from the person	725	525	-28
Other theft of personal property	1,096	1,036	-5
All violence	2,114	2,087	-1
Personal acquisitive crime	2,094	1,895	-9
All personal crime	3,936	3,648	-7
All BCS Crime	10,518	9,587	-9

In 2010/11, the UK had a total of 32,750 schools which were broken down as follows:

- 3,130 nursery (138,300 students);
- 21.244 primary (4,922,000 students);

[18] Home Office, British Crime Survey in England and Wales 2009/10, http://rds.homeoffice.gov.uk/rds/pdfs10/hosb1210.pdf

- 4,121 secondary (3,888,700 students);
- 1,293 special (102,800 students); and
- 427 pupil referral units (12,500 students).[19]

There are a total of 9,064,300 pupils at maintained schools and a further 589,800 at non-maintained schools).[19]

National Socio-Economic

In 2010 UK per capita Gross Value Added (GVA) was £20,476.[20] The 2010 headline estimates show that both total GVA and GVA per head at current basic prices have increased in all UK regions. In 2010, London's gross value added (GVA) per head of population was 71.1 per cent above the average for the United Kingdom (UK), while that of Wales was 26.0 per cent below the average.

In 2009 the median full-time gross hourly pay in UK was £12.43 (males' median being £13.09 and the female median being £11.42). This compares to £11.98 in 2008.[21] In the three months to July 2010 pay growth (including bonuses) rose by 1.2% in the private sector over the previous year compared with 2.7% for the public sector. Excluding bonus payments, growth in the private sector over the year was 1.3% compared with 2.8% for the public sector.[22]

In the period February - April 2012 the UK had a total of 29,280,000[23] people in employment aged 16 and over, up 166,000 on the quarter. The number of people employed in the private sector increased by 205,000 to reach 23.38 million but the number of people employed in the public sector fell by 39,000 to reach 5.90 million.

[19] DCSF, Education and Training Statistics for the United Kingdom: 2011, http://www.education.gov.uk/rsgateway/DB/VOL/v001045/v02-2011c1v2.xls

[20] Regional, sub-regional and local gross value added 2010, http://www.statistics.gov.uk/pdfdir/gva1210.pdf

[21] NOMIS, Official Labour Market Statistics, Annual survey of hours and earnings - resident analysis https://www.nomisweb.co.uk/output/dn87000/{AFB7B1A5-142C-4D4F-BDE2-467C1389CB90}/nomis_2009_08_20_160703.xls

[22] ONS Labour Market Statistics, June 2012, http://www.ons.gov.uk/ons/rel/lms/labour-market-statistics/june-2012/index.html

[23] ONS Labour Market Statistics, June 2012, http://www.ons.gov.uk/ons/rel/lms/labour-market-statistics/june-2012/index.html

In February 2012 – April 2012, the UK had an unemployment rate of 8.2% (all people of working age). This is a reduction of 0.2% on the previous quarter and compares to the previous year when the UK had an unemployment rate of 5%.[24]

The recent UK recession has caused a downturn in many sectors and markets of the UK economy. UK gross domestic product (GDP) in volume terms decreased by 0.3 per cent in the first quarter of 2012, revised from a previously estimated decline of 0.2 per cent. Production industries fell by 0.4 per cent, within which manufacturing output was flat whilst the output the service industries rose slightly by 0.1 per cent.[25]

2.3.2 England

Demographic

In mid-2010 England had a resident population of 52,234,000 and 64.8% of the population is of working age (aged 16 to 64) split by gender, 65.8% males and 63.8% females.

In 2010 the working age population breakdown was as follows:

- 77.2% were economically active;
- 70.5% of working age population were in employment;
- 8.3% of working age population were unemployed.[26]

The working age population in 2010 had the following qualification breakdown:

- 31.1% have NVQ4 and above;
- 50.7% have NVQ3 and above;
- 67.0% have NVQ2 and above;
- 80.3% have NVQ1 and above;
- 8.6% have other qualifications; and
- 11.1% have no qualifications.[27]

[24] NOMIS, Official Labour Market Statistics, National Indicators, June-August 2009, https://www.nomisweb.co.uk/articles/news/files/LFS%20headline%20indicators.xls

[25] ONS, UK Snapshot, http://www.ons.gov.uk/ons/dcp171778_264972.pdf

[26] ONS Economic activity time series https://www.nomisweb.co.uk/reports/lmp/gor/2092957699/subreports/nrhi_time_series/report.aspx?

In 2008/09, England had 24,737 schools:

- 438 nursery (37,200 students);
- 17,064 primary (4,074,900 students);
- 3,361 secondary (3,271,100 students);
- 1,058 special (85,500 students); and
- 458 pupil referral units (15,200 students).[28]

Socio-Economic

In 2010 England's per capita Gross Value Added (GVA) was 20,974.[29]

In 2011 the median full-time gross hourly pay in England was £12.85 (males' median being £13.44 and the female median being £12.00). This compares to £12.75 in 2010 and represents growth of 0.78% in nominal hourly total full time pay over the previous year. [30]

In 2010, England had a total of 26,295,000 jobs.[31]

In Feb 2008 - Jan 2010, England had an unemployment rate of 7.8% (all people of working age). This compares to the previous year when it had an unemployment rate of 6%.[32]

2.3.3 North East of England

Population[33]

The North East covers 8,600 square kilometres (sq km) and is the second smallest region in England after London. Its population in 2010 the North East had a population of around 2.6 million, making it the least populous region in the country with 5% of the

[27] ONS https://www.nomisweb.co.uk/reports/lmp/gor/2092957699/report.aspx

[28] DCSF, Education and Training Statistics for the United Kingdom: 2009, http://www.dcsf.gov.uk/rsgateway/DB/VOL/v000891/Chapter1.xls

[29] Regional, sub-regional and local gross value added 2010, http://www.ons.gov.uk/ons/rel/regional-accounts/regional-gross-value-added--income-approach-/december-2011/stb-regional-gva-dec-2011.html

[30] ONS: Earning by workplace https://www.nomisweb.co.uk/reports/lmp/gor/2092957699/subreports/gor_ashew_time_series/report.aspx

[31] ONS https://www.nomisweb.co.uk/reports/lmp/gor/2013265930/report.aspx

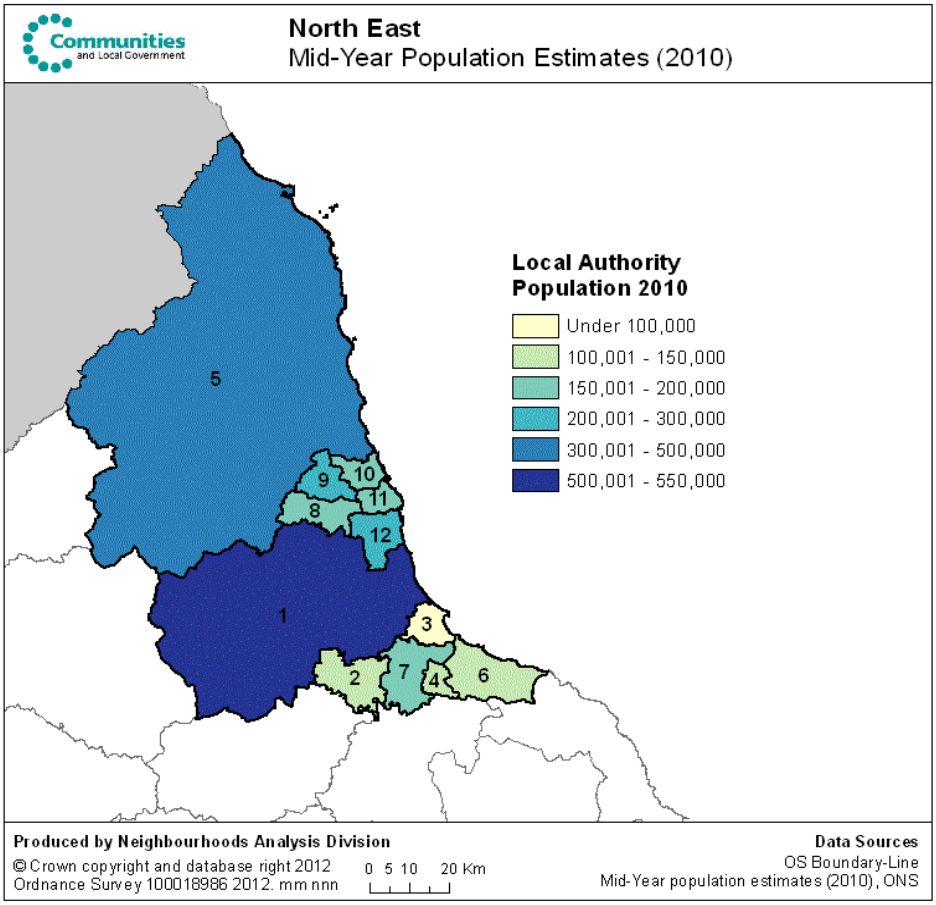
[32] ONS https://www.nomisweb.co.uk/reports/lmp/gor/2092957699/subreports/nrhi_time_series/report.aspx

[33] ONS (2010); Portrait of the North East; Regional Trends 42.

English total[34]. The local authority area with the largest populations was County Durham and fewest people lived in Hartlepool.

The map and table below show how the population is distributed across local authority areas within the region.

Figure 2.1 North East Mid-Year Population Estimates (2010)



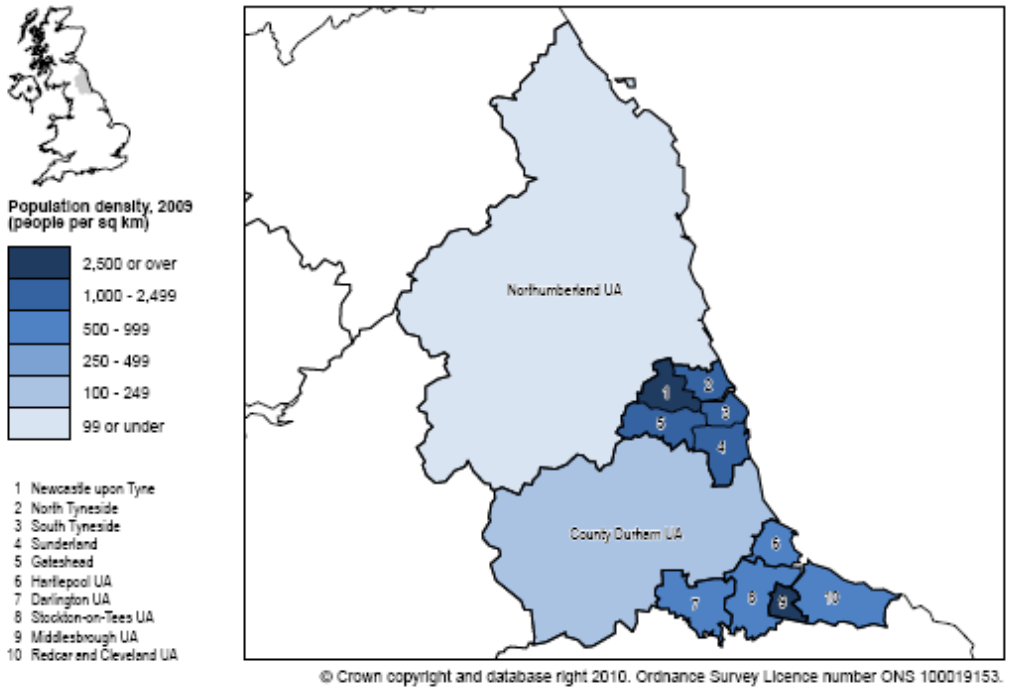
Key for map:

1.	County Durham	510,804	7.	Stockton-on-Tees	192,389
2.	Darlington	100,843	8.	Gateshead	191,690
3.	Hartlepool	91,304	9.	Newcastle upon Tyne	292,179
4.	Middlesbrough	142,370	10.	North Tyneside	198,478
5.	Northumberland	311,991	11.	South Tyneside	153,670
6.	Redcar and Cleveland	137,398	12.	Sunderland	283,509

[34] Office for National Statistics, *Population estimates, mid 2010*, http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-231847.

In 2009[35], population density in the region was 300 people per sq km, ranking it sixth of the nine English regions, below the England average of 395 but above the UK average of 253. Population density within the North East (see Figure 2.2) ranged from over 2,500 people per sq km in Middlesbrough and Newcastle upon Tyne to under 99 in Northumberland.

Figure 2.2 North East Population Density: by Unitary Authority (2009)



The population of the region grew by just over 2% between 2000 and 2010. This is considerably slower than the average pace of population growth across England (6%).

The share of the population of the North East aged 65 and over is slightly greater than across England as a whole (17.2% compared to 16.5%). The percentage of people in the North East aged under 16 is also lower than the national average (17.6% compared to 18.7%). A correspondingly higher proportion of the population is aged between 16 and 64 than across England as a whole (65.2% compared to 64.8%).

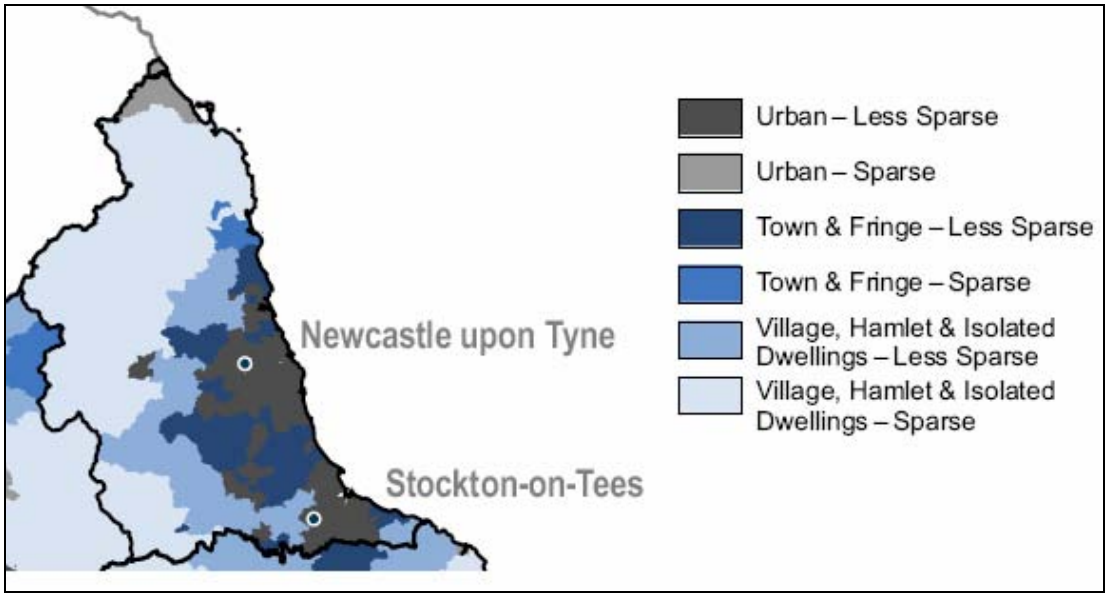
Two thirds of the region, primarily to the north and west, is rural in character with large swathes of upland. These rural areas are sparsely populated; just 17% of the population live in areas classified as rural[36], compared to 19% for England as a whole.

[35] ONS(2011) Regional Profiles – North East Summary.

[36] Office for National Statistics (June 2011), *Regional Trends No. 43*, http://www.ons.gov.uk/ons/rel/regional-trends/regional-trends/no--43--2011-edition/index.html Ibid

The majority of the population live in the main cities along the valleys of the Tyne, Tees and Wear, inhabiting a small proportion of the region's land area. This can be seen from the map below, which presents a breakdown of 'middle super output areas' in the region according to rural-urban classifications developed by the Office for National Statistics[37].

Figure 2.3 North East Rural-Urban Classification



Source: Office for National Statistics, Regional Trends 43

Over the 10 years to 2020 the North East is projected to be the slowest growing region in the country. Over this period the region's population is projected to expand by 3.5%, or 90,000 people, reaching a total of 2.67 million[38].

Population growth will be accompanied by rapid changes in the age-structure of inhabitants. The '65 and over' age group is projected to increase at the fastest rate, expanding by 21%, whilst the 'working age' population is projected to shrink by 2%. By 2020 people aged 65 and over will comprise 20% of the population of the North East compared to 62% aged 15-65.

There will be considerable local variation in the rate of population growth. The fastest growing local authorities between 2010 and 2020 are projected to be North Tyneside and Stockton-on-Tees. The population of each of these areas is projected to expand

[37] Ibid

[38] Office for National Statistics, *2010 based sub-national population projections for England*, http://www.ons.gov.uk/ons/dcp171778_259219.pdf

by 7%. On the other hand the population of Redcar and Cleveland is expected to *decline* by 1% and the number of people living in Sunderland is projected to rise by just 2% over the period.

Social Exclusion

Deprivation describes a broad range of economic and social issues: unmet needs caused by a lack of resources of all kinds. A measure of overall deprivation experienced by people living in an area is provided by the Index of Multiple Deprivation 2010, which is calculated for every Lower layer Super Output Area (LLSOA) in England[39]. This index assesses seven aspects of deprivation:

- Income deprivation;
- Employment deprivation;
- Health deprivation and disability;
- Education, skills and training deprivation;
- Barriers to housing services;
- Crime;
- Living environment deprivation.

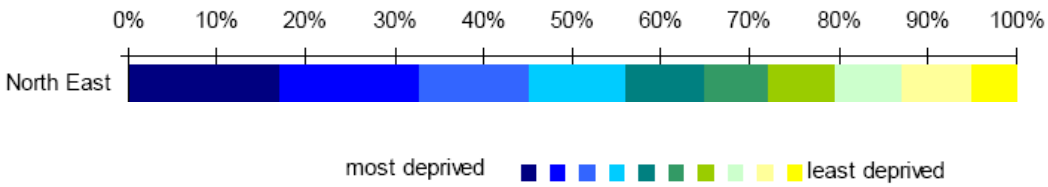
Patterns of deprivation are complex and highly localised. Every region contains some of the most deprived and least deprived LSOAs although the number and concentration of deprived areas differs.

Overall, 281 of the 10% most deprived LSOAs in England are located in this region. The North East has 1,656 LSOAs in total so 17% of all its LSOAs are amongst the 10% most deprived in England. The North East has a greater proportion of its LSOAs in the most deprived quintile (32.7%) of any region in England. In all, 32% of the North East's population live in these most deprived areas – the highest of any English region.

Conversely the North East region has only 35.0% of its LSOAs in the 50% least deprived LSOAs across England as a whole. This is illustrated by the chart below[40].

[39] These geographical areas have an average population of around 1,500

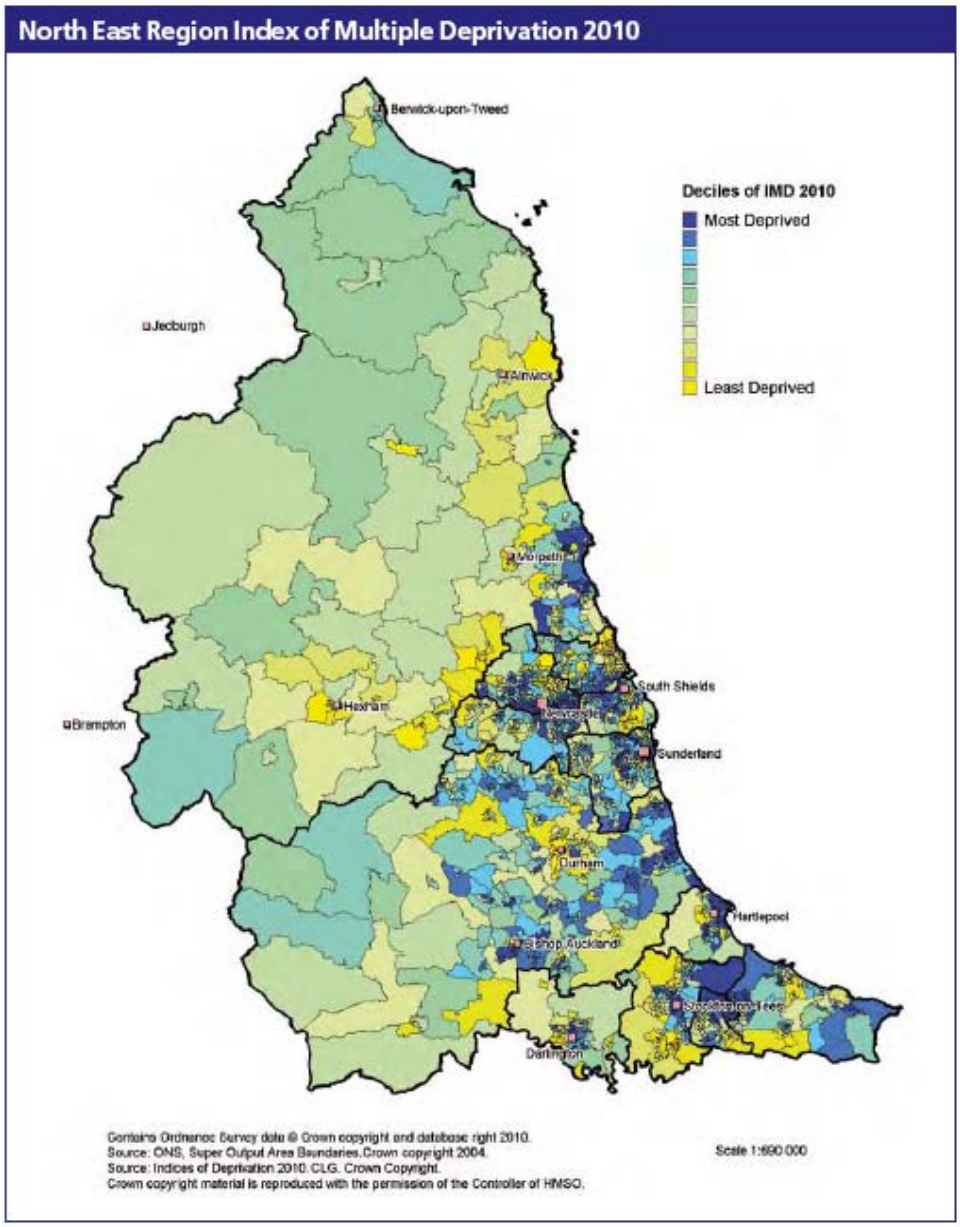
[40] Department for Communities and Local Government (March 2011), *The English Indices of Deprivation: statistical release*, http://www.communities.gov.uk/documents/statistics/pdf/1871208.pdf



Severe multiple deprivation is particularly prevalent in the former steel, shipbuilding and mining areas such as Easington, Middlesbrough, Hartlepool, Redcar and Cleveland, and Stockton-on-Tees. These places contain many of the most deprived LSOAs. There are also concentrations of very deprived LSOAs in Newcastle upon-Tyne, South Tyneside, Sunderland and Gateshead. The geographic spread of deprivation is shown by Figure 2.4.[41]

[41] Department for Communities and Local Government (March 2011), *The English Indices of Deprivation 2010: technical report*, http://www.communities.gov.uk/publications/corporate/statistics/indices2010technicalreport

Figure 2.4 North East Index of Multiple Deprivation (2010)



Source: Department for Communities and Local Government[42]

The North East fares badly on many dimensions of deprivation. It is the most employment deprived region in the country, containing two of the five local authorities with the highest proportion of working age people in employment deprivation: Easington and Hartlepool. The North East also shows much higher levels of health deprivation compared with other regions and is the most education deprived region in

[42] Ibid.

the country. One-quarter of children in the region live in income deprived households, the highest proportion of any English region. A comparatively large share of old people in the region also live in income deprived households (23%).

However, the North East is one of the least deprived regions of the country on the 'barriers to housing and services' domain. It is also considerably less deprived on the 'living environment' domain than any other region.

Access to Services

Everyone needs to be able to access key services which are important in going about their day to day lives. These typically include food shops, post offices, doctor's surgeries and schools. One way of measuring the accessibility of these services is the distance that people have to travel by road in order to reach them. There is significant variation between different parts of the North East. The average distance to these services ranges from under 300 metres in part of Easington to over 11 kilometres in one area of Tynedale[43]. The median for all LSOAs in the region is 1 kilometre.

Living Environment

An analysis of data on publicly accessible green spaces, including parks, nature reserves, millennium greens, sports pitches and allotments, carried out by the Commission for Architecture and the Build Environment analysis, finds that the North East has an estimated 1.77 hectares of urban green space per 1,000 population[44]. People in the region were found to frequent parks and green spaces less frequently than the average across England.

According to estimates by the Campaign for the Protection of Rural England, the North East had the lowest proportion of land disturbed by noise and/or visual intrusion of any English region: less than 35% in 2007[45]. This had risen from 30% in the early 1990s and compares to a national average of 50% disturbed land. Northumberland had by far the greatest proportion of tranquil places of any counties in the region: around 83% of land area. This was followed by Durham County where almost 60% of land was found to be undisturbed. As might be expected given their urban nature, zero percent of Middlesbrough, Sunderland and North and South Tyneside districts was classified as being undisturbed.

[43] Department for Communities and Local Government, *English Indices of Deprivation 2010: underlying indicators*, http://www.communities.gov.uk/publications/corporate/statistics/indices2010

[44] Commission for Architecture and the Built Environment (2010), *Urban green nation: building the evidence base*, http://webarchive.nationalarchives.gov.uk/20110118095356/http:/www.cabe.org.uk/files/urban-green-nation.pdf

[45] Campaign for the Protection of Rural England, *Tranquil Places*, http://www.cpre.org.uk/resources/countryside/tranquil-places

The number of incidents of waste dumped illegally, also known as fly-tipping, reported in the North East rose from 48,000 in 2008-09 to 65,000 in 2010-11[46]. Around half of these incidents occurred in Newcastle upon Tyne City Council.

Sense of Community

Satisfaction with local area in the North East is below the average for England and Wales. In particular just 29% of people in the region reported they were 'very satisfied' with their local area, the lowest any region in England[47].

The number of recorded crimes per 100,000 population in the North East was less than the England average (6,262 compared to 7,506) and the rate of crime committed against households also below the national average[48]. The North East has the lowest rate of violent crime and other personal offences, such as theft from a person, of any English region[49]. The percentage of the population that were the victim some kind of personal offence at least once during 2010-11 was 4.6% – the lowest of any region and considerably less than the national average (6%).

As in other areas of the country, public perception of crime is an ongoing issue in the North East. In the most recent Citizenship Survey, in 2009-10, 40% of respondents reported that they were worried about becoming a victim of crime. This is 2 percentage points more than the average across England and Wales[50].

Housing and Economy

Demographic pressures will give rise to considerable need for additional housing. In 2008, there were 1.11 million households in the region[51]. Between 2008 and 2023 the number of households in the North East is projected to grow by 12.1%. This is slower than nationwide growth of 16.5%. It is estimated that by 2023, when the population will have reached 2.7 million, the number of households living in the region will be 1.24 million.

[46] Department for Environment, Food and Rural Affairs, *Fly tipping in England – annual statistics*, http://www.defra.gov.uk/statistics/environment/waste/flytipping-in-england-annual-statistics/

[47] Department for Communities and Local Government, *2009-10 Citizenship Survey*, http://www.communities.gov.uk/publications/corporate/statistics/citizenshipsurvey200910spirit

[48] Office for National Statistics (February 2012), *Region and Country Profiles: key statistics*, http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-227575

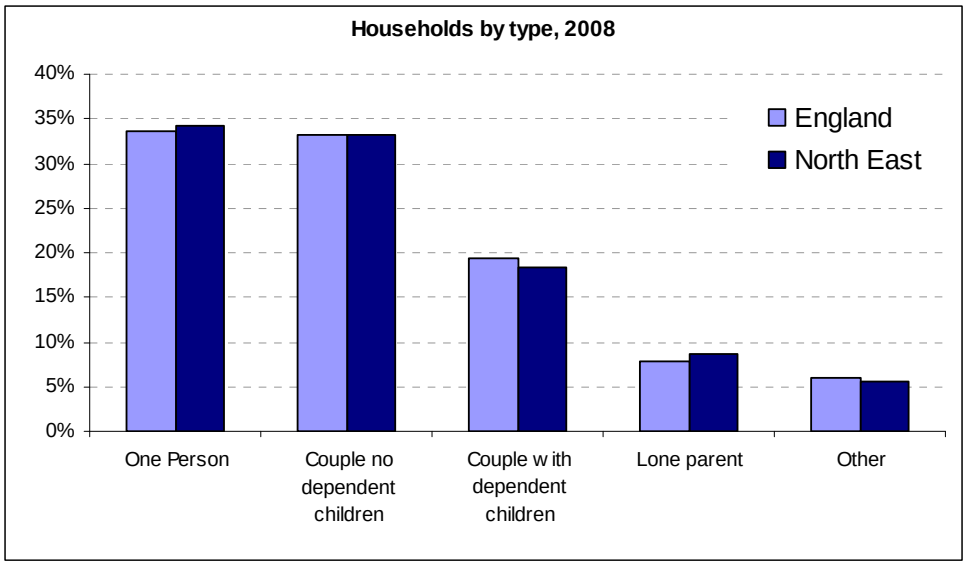
[49] Home Office, *Crime Survey for England and Wales*, http://www.homeoffice.gov.uk/science-research/research-statistics/crime/crime-statistics/british-crime-survey/

[50] Department for Communities and Local Government, *2009-10 Citizenship Survey*, http://www.communities.gov.uk/publications/corporate/statistics/citizenshipsurvey200910spirit

[51] Department for Communities and Local Government, *Table 403: household projections by region*, http://www.communities.gov.uk/documents/housing/xls/140945.xls

Figure 2.5 shows the percentage of households if different types in the North East in 2008, compared to the England average. It shows that the proportion of one-person households and couples without dependent children in the region is broadly the same as across England as a whole. There is a slightly lower proportion of couples with dependent children than is the case nationwide (18% compared to 19%) and a slightly higher proportion of lone parents (9% compared to 8%).

Figure 2.5 North East Households by Type



By 2023, one person households are projected to make up 38% of all households in the North East. The proportion of lone parent households is also expected to increase, to 11%, whilst the share of households comprised of couples with and without children is forecast to decline.

Housing delivery in the North East increased steadily between 2001-02 and 2007-08. The number of net additional dwellings per annum rose from 3,100 to 7,510 during this period[52]. However as the economy entered recession in 2008, the number of net additions in the region fell by half over a two year period. Net additions hit a low of 3,740 in 2009-10, before rising to 4,710 in 2010-11. Future housing supply is likely to continue to be dependent on wider economic conditions.

Housing associations and local authorities have played a significant role in housing supply in the region. In 2011-12 1,340 new dwellings were completed by these organisations. This

[52] Department for Communities and Local Government, *Table 118: Annual net additional dwellings*, http://www.communities.gov.uk/documents/housing/xls/118.xls

amounts to 25% of the total number of housing completions in the region[53]. The average energy efficiency rating new homes in the North East rose between the fourth quarter of 2008 and the first quarter of 2011[54]. Since then there has been a downward regional and national trend in average energy efficiency of new build dwellings. In the first quarter of 2012 new homes in the North East had, on average, a SAP rating of 77.3, compared to the England average of 79.4.

Home ownership is still the most common form of housing tenure in the region, although the percentage of owner occupied dwellings has fallen from 65% in 2005 to 62% in 2010, in line with broader national trends away from owner occupation. The proportion of social rented dwellings fell from 30% to 23% over the period, whilst the proportion of privately rented dwellings rose by 8 percentage points. The number of council houses in the region that failed to meet the Decent Homes was 20,296 or 17% of the stock at the end of March 2011[55].

House prices in the North East were 38% lower than the England average in 2011, at £132,000[56]. Prices in the region fell following the recession and remain around 11% below the peak of £148,000 seen in 2007.

Affordability pressures have eased as a result. The ratio of lower quartile house price to lower quartile earnings – a measure of peoples' ability to afford to buy a house – stood at 4.6 in 2011. This is the lowest of any English region and compares to a national average affordability ratio of 6.5[57].

Housing affordability varies significantly from place to place within the region. Housing is least affordable in Northumberland, Newcastle upon Tyne and North Tyneside where affordability ratios range from 5.1 to 5.4. Affordability pressures are less acute in areas like Middlesbrough, Durham and Hartlepool where affordability ratios are 4.0, 4.1 and 4.3 respectively.

[53] However in practice some new build dwellings built by housing associations are for market, not 'affordable', use and will not count towards this target. Department for Communities and Local Government, *Table 232: Housebuilding: permanent dwellings completed by tenure and region*, http://www.communities.gov.uk/documents/housing/xls/2145747.xls.

[54] Department for Communities and Local Government, *Code for sustainable homes and energy performance of buildings*, http://www.communities.gov.uk/publications/corporate/statistics/codesustainablesapq12012

[55] Department for Communities and Local Government, *2011 Business Plan Statistical Appendix*, http://www.communities.gov.uk/housing/housingresearch/housingstatistics/housingstatisticsby/localauthorityhousing/dataforms/hssabpsa1011/bpsadatareturns1011/

[56] Department for Communities and Local Government, *Table 507: Housing Market: mix adjusted house prices*, http://www.communities.gov.uk/documents/housing/xls/2105102.xls

[57] Department for Communities and Local Government, *Table 576: ratio of lower quartile house prices to lower quartile earnings*, http://www.communities.gov.uk/documents/housing/xls/152924.xls

Figure 2.6 North East Sub Regional Affordable dwelling delivery 2003/4 to 208/9

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Tees Valley	150	151	118	303	377	356
Co Durham	52	55	239	65	108	163
Northumberland	57	131	57	96	88	137
Tyne & Wear	316	288	302	369	310	522
North East	**575**	**625**	**716**	**833**	**883**	**1178**

Notes: excludes data for Berwick upon Tweed (2006-07 to 2008-09), Gateshead 2007/08.

Data in Figure 2.6 and reported in the RSS AMR shows that the numbers of affordable houses delivered is increasing each year in North East England as a whole, in 2008/09 1178 affordable dwellings were delivered, the highest amount since our monitoring began. This is particularly significant given the overall reduction in housing delivery. Affordable housing has accounted for 8-9% of additions since 2005/06, but this has increased significantly, 33%, in 2008/09. A combination of an increase in affordable housing delivery and a reduction in private sector building means that in 2008/09 affordable housing additions accounted for 17% of the gross additions. This increase is due to the high level of public funding for affordable house building, which includes the bringing forward of national affordable housing programme (NAHP) spending and additional initiatives developed to help ensure that affordable housing is delivered
The number of households accepted as homeless by local authorities in the North East was 1,820 in 2011[58]. This was 1% greater than the previous year, considerably lower than the average increase of 14% across England as a whole. The rate of statutory homelessness per 1,000 households in the region (1.6) is less than the national rate of 2.2 and homeless acceptances are around a fifth of their 2004 level. The rate of temporary accommodation is lower than in any other region of the country. At the end of 2011 there were 0.2 households in temporary accommodation for every 1,000 households living in the region[59].

The North East Gypsy and Traveller community is small compared with other regions and is made up mostly of Romany Gypsies. The number of people this comprises in the region varies and depends on the time of year. According to the latest bi-annual

[58] Department for Communities and Local Government, *Table 772: Statutory homelessness,* http://www.communities.gov.uk/documents/statistics/xls/2102069.xls

[59] Department for Communities and Local Government, *Table 776: Statutory homelessness: households in temporary accommodation*, http://www.communities.gov.uk/documents/statistics/xls/2102081.xls

caravan count[60] for the Government in January 2006 there were 530 caravans in the North East. Over 91 percent of these were on authorised sites. The vast majority of the North East Gypsy and Traveller community live on authorised sites owned by local authorities. There are a small number of authorised sites in private ownership. Unauthorised encampments do exist in some places but represent a very small proportion all sites. The Gypsy and Traveller population live throughout the North East but are particularly concentrated in the southern part of the region in County Durham and Tees Valley and have close links with Yorkshire and across the Pennines. At present there are over 350 pitches in the region. The 2008/2009 North East RSS AMR reports that no additional pitches were provided in the region in 2008/9.

Economy

Economically, the North East faces a number of challenges. The employment rate amongst people aged 16-64 in the region is 66.6%, compared to 70.5% across the UK[61]. In 2010, the North East had the lowest Gross Value Added (GVA) per head of any region: £15,700 compared to the England average of £21,000[62]. However, total GVA in the region rose slightly faster than the English average between 2009 and 2010 (3.8% compared to 3.2%) after falling 1.8% during the preceding year. In 2011, median gross weekly earnings for full-time employees in the region were £450. This is lower than all other regions and compares to a UK average of £500 per week.

In April-June 2011, the region had the highest proportion of workless households of any region (24.9% compared to England average of 18.6%)[63]. The proportion of households in the North East who had never worked was 2.2%, which is higher than the England average of 1.8%.

The North East has a higher proportion of children living in workless households than the national average: 20.4% in the second quarter of 2011 compared to an England average of 15.7%.

[60] Association of North East Councils (2010) Gypsy, Traveller and Travelling Showpeople Sites Regional Analysis.

[61] Office for National Statistics, *Official Labour Market Statistics*, http://www.nomisweb.co.uk/

[62] Office for National Statistics (December 2011), *Regional Gross Value Added (Income Approach)*, http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-250308

[63] Office for National Statistics (September 2011), *Working and workless households*, http://www.ons.gov.uk/ons/rel/lmac/working-and-workless-households/2011/index.html

The proportion of working households in the region has fallen from 52% in 2007 to 48% in 2011. This means the North East has the lowest percentage of working households of any region; the England average is 54%[64].

The proportion of the working age population in the region claiming a key out of work benefit was 18.8% in November 2011, which is significantly higher than the average across Great Britain (14.7%)[65]. The number of unemployed people in the North East was 148,000 and the unemployment rate was 11.5% compared to 8.2% across the UK as a whole.

The North East's recent history[66] shows that this area continues to perform at the lower end of the spectrum compared to elsewhere in the UK, however there was evidence of a prolonged improvement across various economic indicators until the onset of the recession and the post budget cut backs in public expenditure. During the last ten years the North East economy has made positive progress with some encouraging signs:

i. The economy has successfully diversified and now possesses key infrastructural and sector specific assets that can be harnessed in the knowledge intensive economy of the future;
ii. Growth in GVA between 2005 and 2007 was the highest of all UK regions. The North East was the only English region to see GVA per head grow faster in the 2000s than in the 1990s. The 2000s saw this rate increase to 1.7% - the fourth highest of the English regions ahead of the South East, the East and West Midlands, the North West and Yorkshire & the Humber;
iii. Significant regional employment growth has taken place over the past decade with the 'employment gap' (the number of extra jobs required to match the UK employment rate) falling by half since its peak of over 120,000 in 1999 to below 70,000 prior to the recession;
iv. Business stock has grown. For the six years to 2007, the stock of VAT registered businesses in the North East grew at a faster rate than the UK average; a 20.3% increase in the area; and
v. The North East has had considerable success in closing the gap in terms of the number of workers without formal qualifications. At the higher end of the spectrum (NVQ level 4 or above) the North East had closed the gap from 75% to 82% of the national rate by 2008.

[64] Office for National Statistics (September 2011), *Working and workless households*, http://www.ons.gov.uk/ons/rel/lmac/working-and-workless-households/2011/index.html

[65] Office for National Statistics, *Official Labour Market Statistics* https://www.nomisweb.co.uk/reports/lmp/gor/2013265926/report.aspx

[66] Association of North East Councils (2010) Taking Forward Economic Development: The North East Proposal.

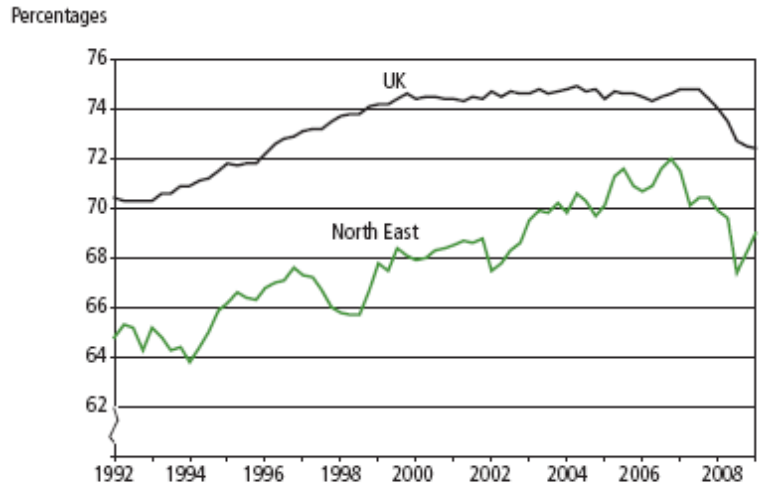
The North East's economy generated £40.9 billion gross value added (GVA) in 2008[67], 3.2 per cent of UK total GVA. GVA per hour worked is the Office for National Statistics' preferred measure of productivity and takes into account factors such as commuting patterns and variations in hours worked. GVA per hour worked in the North East was 90 per cent of the UK average in 2008, higher than Northern Ireland, Wales, North West, Yorkshire and The Humber and the West Midlands. GVA per head in the North East was £15,900 per resident, 77 per cent of the UK average, in 2008. This was the lowest of all the English regions, and in the UK only Wales had a lower GVA per head in 2008.

In 2007, 17 per cent of the region's GVA was from manufacturing, more than the UK average of 13 per cent. The chemicals, chemical products and man-made fibres industry produced 22 per cent of the region's manufacturing GVA. Only 19 per cent of GVA was from real estate, renting and business activities, less than the UK average of 24 per cent.

In the North East, 69.0 per cent of working-age people were employed in the fourth quarter of 2009. This was the lowest rate of all English regions except London's 68.7 per cent, lower than Scotland but higher than Wales and Northern Ireland. The UK average was 72.4 per cent in this quarter. Since the early 1990s, the UK average has been higher than the North East by a margin that ranged from 8 percentage points in 1999 to 4 percentage points in 2009 (Figure 2.7). Working-age employment rates within the region ranged from 62 per cent in Durham to 85 per cent in Chester-le-Street for the year ending June 2009. The regional average in this period was 70 per cent. The unemployment rate for residents aged 16 and over in the North East was 9.3 per cent in the fourth quarter of 2009, similar to the West Midlands with 9.4 per cent – one of the highest among the regions of England. The UK rate was 7.8 per cent.

[67] ONS (2010); Portrait of the North East; Regional Trends 42.

Figure 2.7 Employment Rate: North East, 1992 Q4 to 2009 Q4

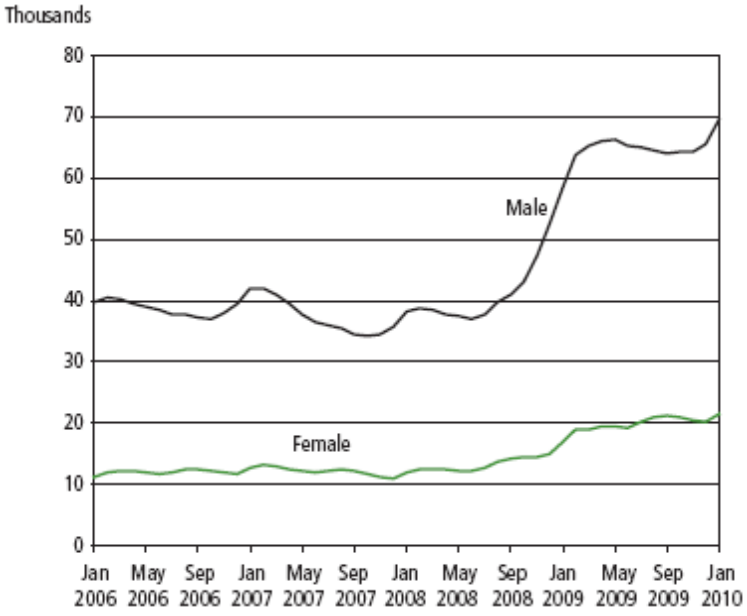


1 Working age.
2 Seasonally adjusted, three monthly data.

Source ONS

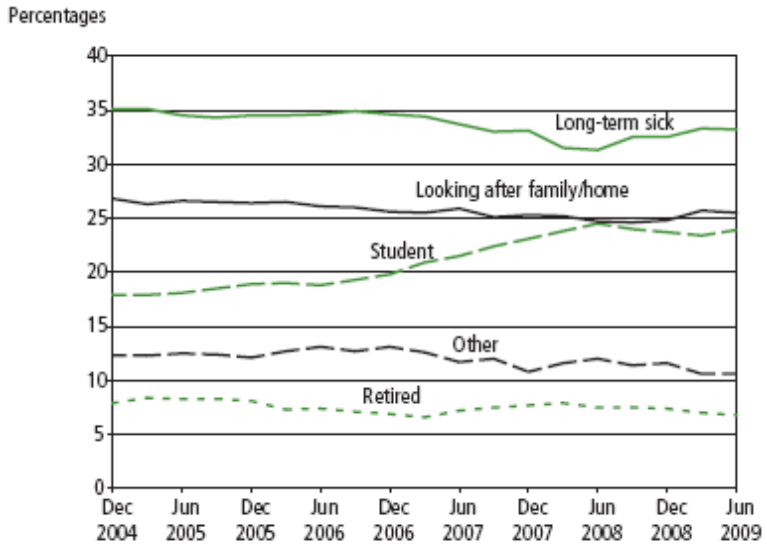
The Jobseeker's Allowance claimant count rate for residents aged 18 and over as a percentage of the estimated workforce in the region (seasonally adjusted) in April 2008 was 4.0 per cent, 1.5 percentage points higher than the UK average of 2.5 per cent.

Figure 2.8 Claimant Count: By Sex, North East, January 2006 to January 2010



The three main reasons for being economically inactive in the year ending June 2009 were long-term sick at 33 per cent, looking after their family or home at 26 per cent and students at 24 per cent. The proportion of working-age people who were economically inactive because of long-term sickness was higher than the UK average of 25 per cent and was the highest of all English regions. Inactivity rates by age in the North East were similar to that of the UK except for the 50 to 59/64 and 60/65 plus age groups, which were the highest of all English regions. Between 2004 and the fourth quarter of 2009, working-age economic inactivity rates in the North East dropped from 26 per cent to 24 per cent.

Figure 2.9 Reasons for Economic Inactivity: North East, 2004 to 2009



1 As a percentage of all working age economically inactive.

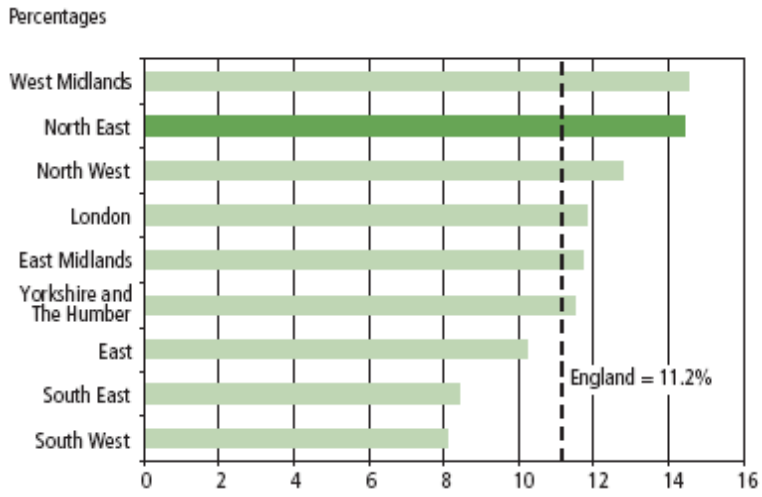
Source ONS

In the second quarter of 2009 the proportion of the North East working-age population with no qualifications was 14 per cent – above the England average of 11 per cent and slightly below the West Midlands with the highest proportion, 15 per cent (Figure 2.10). However, among economically active working-age residents the proportion with no qualifications was only 9 per cent, the same as the England average. In the second quarter of 2009 the proportion of the North East's working-age population qualified to National Qualifications Framework (NQF) level 4 and above (broadly degree level) was 24 per cent, the lowest proportion of any English region and below the UK average of 30 per cent. However, the proportion of economically active North East working-age residents with degree level qualifications in 2008 was 19 per cent, slightly closer to the UK average of 24 per cent, although still the lowest of the English regions and half that of the region with the largest proportion (38 per cent for London residents). For those economically active and aged 20 to 24, the proportion qualified to degree level or equivalent or above in the North East in 2008 was 15 per cent, 4 percentage points

below the England average of 19 per cent. There were similar gaps between the North East and England proportions at ages 25 to 29, 30 to 39, 40 to 49 and 50 to retirement age (currently 59 for women and 64 for men).

Skills in the North East are however improving; in 2007/08, 66.4 per cent of Key Stage 4 pupils achieved five or more grades A*–C at GCSE in maintained mainstream schools in the North East. This was the largest proportion of any English region. The proportion of 16-year-olds in post-compulsory education and government supported training in 2006/07 was 84 per cent, the third highest English region after London and the South East, and the same as the England average).

Figure 2.10 Proportion of Working Age Population With No Qualifications: By Region, 2009 Q2



2.4 Environmental Characteristics of Those Areas Most Likely to be Significantly Affected

2.4.1 National

The UK economy is currently showing fragile signs of recovery following a period of contraction after the economic and banking crisis of 2008/9; however unemployment rates have been on a rising trend although in May 2012, this trend was abated slightly. Disadvantage continues to exist in many communities, both in remote areas and inner cities.

2.4.2 North East of England

The key issues for the region are identified as:

- Over the last 10 years, there has been no significant convergence in employment rates between the North East and the rest of the UK. The worst unemployment deprivation in the region is located in Easington, Hartlepool, Middlesbrough, Newcastle, Redcar and Cleveland, and Stockton;

- 20% of the region's housing stock is, or at risk of, experiencing problems of low demand, in particular Newcastle, Gateshead, North and South Tyneside, Middlesbrough, Redcar and Cleveland, Stockton, Sunderland, Hartlepool, and scattered areas in South East Northumberland and the Durham coalfield;

- In comparison to the rest of England, the general standard of housing is relatively good, although 26.5% of houses do not meet the 'decent homes' standard;

- An optimum housing vacancy level is often considered to be about 3% of the stock. Vacancy increased in North East England as a whole for the second year running to 4.8% in 2008. Vacancy has exceeded 3% in all sub-regions but is proportionally highest in Co Durham;

- Gross disposable household income (GDHI) of residents in the North East, at £13,300 per head in 2010, was 15 per cent below the UK average and the lowest of the English regions. It ranged from £12,400 in Sunderland to £16,090 in Northumberland;

- The North East has the highest value of goods exports relative to the size of its economy, the highest percentage employed in the public sector and lowest gross household income per head of the English regions;

- The North East's exports of goods, expressed as a percentage of gross value added (GVA), were the highest of all the English regions at 29 per cent in 2010, compared with the UK average of 20 per cent. Over half the region's goods exports were to the EU (55 per cent);

- A quarter of employed people in the region worked in the public sector in Q4 2011 (24.6 per cent), the highest proportion among the English regions, down from 26.9 per cent in Q4 2009. In 2010, at local authority level the highest shares of public sector employee jobs were to be found in Newcastle upon Tyne and Middlesbrough (both over 33 per cent of all employee jobs);

- The North East region contributed 3 per cent of the UK's GVA. The region's headline GVA was £41.0 billion in 2010. The latest sub-regional data (2009) show that Tyneside generated 37 per cent of the region's GVA at £14.6 billion;

- In 2009 manufacturing industries generated 14 per cent of the region's total GVA, which is the largest industry contribution for the region. GVA by

industry in the UK interactive map allows users to see how other industries contribute to the GVA of the area;

- Productivity in 2010 (measured by GVA per hour worked) was 88 per cent of the UK rate – one of the lowest of the English regions. Within the region, Northumberland's productivity was the third lowest in England at 75 per cent of the UK rate in 2009;
- The region's employment rate was the lowest in England at 66.2 per cent for Q4 2011. The latest sub-regional data for the year ending September 2011 show that North Tyneside had the highest employment rate at 72.6 per cent;
- The North East had the highest rate of economic inactivity of the English regions, 25 per cent of the population aged 16 to 64 in Q4 2011. See how the percentage of economically active and inactive residents at local authority level has changed over time;
- The unemployment rate was 11.2 per cent, among the highest of the English regions. Investigate how unemployment rates have changed over time at regional level.

2.5 Likely Evolution of the Baseline

2.5.1 National

Demographic

The current UK population is generally increasing, and projected to reach 73.2 million by 2035. [68]

The age structure of the UK population is moving towards an ageing population: those of pensionable age are projected to increase by 28% from 2010 to 2035 (note that the pensionable age is to change over this period). Those aged between 15-64 years are projected to decrease from 62.1% to 60.5% of the population, whilst those under 16 are projected to decrease from 18.7% to 17.9% of the population by 2033. [68]

There are no formal targets for population growth in the UK (other than the recent intention to introduce non-EU immigration caps).

[68] ONS, National Population Projections 2008-based, http://www.ons.gov.uk/ons/rel/npp/national-population-projections/2010-based-projections/sum-2010-based-national-population-projections.html

Socio-Economic

There are current uncertainties over market conditions and the range of economic forecasts available indicate a number of future scenarios. The Bank of England recently concluded that "*underlying growth is likely to remain subdued in the near term before a gentle increase in households' real incomes and consumption helps the recovery to gain traction. … The possibility that the substantial challenges within the euro area will lead to significant economic and financial disruption continues to pose the greatest threat to the UK recovery*".[69]

2.5.2 England

Demographic

Between 2008 and 2033, the population of England is projected to increase from 51.46 million to 60.715 million, an increase of 17.9%. The number of children aged under 16 is projected to increase by 12.8% from 9.669 million in 2008 to 10.916 million by 2033; the number of people of working age is projected to increase by 7.7% from 33.503 million in 2008 to 36.101 million; the number of people of pensionable age is projected to rise by 65.2% from 8.289 million in 2008 to 13.697 million.[70]

Socio-Economic

No GDP values for England were available but trends will closely match that of the UK as a whole.

2.5.3 North East of England

Demographics

The population of the North East is the lowest of the English regions and one of the slowest growing. The percentage of the population aged 65 and over is projected to be one of the fastest growing among the regions.

From 2001 to 2010, the population of the North East grew by 2.6% compared with 5.6% for the whole of England, making it one of the slowest growing regions in

[69] Bank of England, Overview of the Inflation Report May 2012 http://www.bankofengland.co.uk/publications/Pages/inflationreport/infrep.aspx

[70] General Register Office for Scotland population projections, http://www.scotpho.org.uk/home/Populationdynamics/Population/DataPagesofPopulation/Population_scotprojections.asp

England. Within the same period, Newcastle upon Tyne showed the largest increase at 5.6%, while the population of Redcar and Cleveland decreased by over 1%.

Projections based on the mid-2008 population estimates show that by 2030 the population in the North East could reach 2.8 million. The projected increase between 2010 and 2030 is 8.2 per cent, just over half the projected increase for England of 14.4 per cent. The proportion of the population aged 65 and over is projected to increase to 23.6 per cent in 2030 compared with 21.7 per cent for England. This would be the highest after the South West, and the largest regional increase in the percentage of people aged 65 and over.

In 2009 there was net migration to the region of 42 people per 10,000 residents, compared with the England average of 33 per 10,000 residents.

Population density for the region was 300 residents per sq km in mid-2010. It was highest in Middlesbrough unitary authority at 2,600 people per sq km, and lowest at 27 per sq km in Berwick-upon-Tweed – on the border with Scotland – and Tynedale in south west Northumberland[71].

2.6 Assessing Significance

Table 2.2 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on the population objective. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

[71] Source: Office for National Statistics, 2012.

Table 2.2 Approach to Determining the Significance of Effects on Population

Effect	*Description*	*Illustrative Guidance*
++	Significant positive	• Alternative will provide a significant increase to housing supply above the current completion rate in the region, providing a wide choice of high quality homes for communities. • Alternative will provide a significant opportunity to create sustainable, inclusive and mixed communities. • Alternative will generate significant employment opportunities per annum, a large proportion of which will benefit local communities. • Alternative will facilitate significant long term investment in key regional sectors, specific localities or Nationally Significant Infrastructure Projects (NSIPs)
+	Positive	• Alternative will lead to an increase to housing supply above the current completion rate in the region, providing a wide choice of high quality homes for communities. • Alternative will provide opportunities to create sustainable, inclusive and mixed communities. • Alternative will generate employment opportunities, some of which will benefit communities within the region. • Alternative will facilitate long term investment in key regional sectors and specific localities.
0	No (neutral effects)	• Alternative will not affect the current rate of housing supply within the region. • Alternative will not affect the provision of opportunities to create sustainable, inclusive and mixed communities. • Alternative will not affect the creation of employment opportunities within the region. • Alternative will not affect long term investment in key regional sectors and specific localities.
-	Negative	• Alternative will lead to a decrease in housing supply below the current completion rate in the region, affecting the choice of homes for communities. • Alternative will reduce opportunities to create sustainable, inclusive and mixed communities. • Alternative will lead to a minor increase in unemployment. • Alternative will reduce the resilience and diversity of the regional and local economy. • Alternative will reduce the long term investment in key regional sectors and specific localities.
--	Significant negative	• Alternative will lead to a significant decrease in housing supply below the current completion rate in the region, affecting the choice of homes for communities. • Alternative will significantly reduce opportunities to create sustainable, inclusive and mixed communities. • Alternative will lead to a significant sustained increase in regional unemployment and worklessness. • Alternative will significantly reduce the resilience and diversity of the regional and local economy • Alternative will significantly reduce the long term investment in key regional sectors and specific localities.
?	Uncertain	• From the level of information available the impact that the alternative would have on this objective is uncertain.

2.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 2.3 summarises the significant effects identified in the detailed assessment of the East of England Plan policies against the biodiversity topic.

Table 2.3 Significant Effects against the Population Topic

Regional Plan Policy	Score				Commentary
		Short Term	Medium Term	Long Term	
Policy 1: North East Renaissance	Retention	++	++	++	Policy 1 – Urban Renaissance identifies four key themes which support the central theme through the RSS and RES of achieving and maintaining a high quality of life for all, both now and in the future. It forms one of the key policies which set the overarching framework for the remainder of the plan. The RES identifies that business is a key driver of economic growth, both through increasing productivity and by providing increased opportunities for employment and hence, economic participation. This policy, if properly implemented, should have positive impacts across the SEA themes. The focus on economic growth and sustainable communities should deliver considerable population and human health benefits by the provision of delivering housing and employment opportunities to all, including the most deprived communities, and encouraging the creation of a well-designed and pleasant living and working environment. The National Planning Policy Framework sets out a range of closely related principles, governing sustainable development, which will, when the Regional Strategy is abolished, stand in their stead. A core principle of the NPPF is for planning to drive and support sustainable economic development. The NPPF framework core principles (paragraph 17) expect that planning should proactively drive and support sustainable economic development and address environmental issues. All of the themes set out in the policy run throughout the NPPF so it should be read as a whole. These considerations will continue to inform the preparation of local plans and development management. In consequence retention and revocation have been assessed as scoring a significant positive against the population topic.
	Revocation	++	++	++	

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
Policy 6: Locational Strategy	Retention	++	++	++	Locational Strategy is a high level policy which identifies the approach to focusing development within the main city regions and conurbations, allowing development appropriate in scale within the Regeneration Towns and Rural Service Centres, maintaining vibrant rural areas, conserving areas of value and improving accessibility and linkages. The RES identifies the need for increased connectivity to support economic growth and facilitate improvement employment opportunities. The emphasis upon the city-regions as sustainable key hubs is identified as a key component of both the RSS and RES. This approach could have significant longer term benefits to the population, particularly when related to [policies on employment and housing]. The focus on development on the two main conurbations and main settlements should provide greater employment opportunities and allow the longer-term balancing of employment and housing. The revocation of this policy will not remove the need for more houses within the region. Indeed it is Government policy to boost significantly the supply of housing, for example through initiatives such as the Community Infrastructure Levy, New Homes Bonus and the local retention of business rates are intended to encourage a more positive attitude to growth and allow communities to share the benefits and mitigate the negative effects of growth. However, in the short term following revocation the impact will be uncertain in those local authorities that do not have a plan that was either in conformity with the Regional Strategy or which post-dates it.
	Revocation	?	+	+	
Policy 9: Tyne and Wear City Region	Retention	++	++	++	Policy 9 provides the framework for supporting the polycentric development and redevelopment of the Tyne and Wear City Region. The policy identifies priority areas for regeneration, protecting the setting of Durham Cathedral, key locations for focusing economic development, supporting regeneration/ housing market renewal initiatives, improving transport links within and to the region, protecting the Green Belt and supporting the protection and enhancement of the Green Belt. The policy is supported by the RES which recognises the economic roles the city-region plays, the need to promote, protect and enhance its key natural, historic and cultural assets. The RES also recognises the need to provide both greater employment opportunities and to support the diversification of the economy. The RES also identifies the need to enhance better links – transport and ICT across the region to improve access to employment. The retention of the policy has been appraised positively against the population topic in particular on the basis that the policy content, particularly
	Revocation	?	?	++	

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
					when related to [policies on employment and housing]. The focus on development on the two main conurbations and main settlements should provide greater employment opportunities and allow the longer-term balancing of employment and housing, so reducing the need to travel. The NPPF provides a strong policy for ensuring the vitality of town centres (paragraphs 23 - 27) and on supporting a prosperous rural economy (paragraph 28 It also seeks through the transport policies (paragraphs 29-41) to promote sustainable transport and support reductions in greenhouse gas emissions and congestion. The planning policy review has identified that many of the employment sites and areas which are to the focus for regeneration are identified within existing adopted development plans. However, within the City Region, only Northumberland National Park adopted their Core Strategy following the publication of the RSS in July 2008 (it is acknowledged that various DPD's have also been adopted e.g. South Tyneside Site Allocations DPD). Therefore, in the short term, following revocation of the Regional Strategy there may be some uncertainty over the implementation of the Tyne and Wear City-Region with the exception of the South Tyneside Site Allocations DPD which is in general conformity with the RSS. It is considered likely that emerging local plans may adopt a different focus following the revocation of the RSS. This is already evident within the emerging Newcastle Gateshead Joint Core Strategy and their identification of key employment sites. However the focus on promoting development in sustainable locations. It is therefore considered that whist there will be local variation, the short and medium term effects will be uncertain. The long term effects on population will remain the same as retention.
Policy 10 – Tees Valley City Region	Retention	++	++	++	The Tees Valley City-Region has a population of 875,000 people, almost half of whom live within the Teeside conurbation – Stockton, Middlesbrough and Redcar. In addition to the conurbation, the city region contains the main settlements of Darlington and Hartlepool, as well as East Cleveland, Durham Coalfield Communities Area and a rural hinterland. The policy is supported by the RES which recognises the economic roles the city-region plays, the need to promote, protect and enhance its key natural, historic and cultural assets. The RES also recognises the need to provide both greater employment opportunities and to support the diversification of the economy. The RES also identifies the need to enhance better links – transport and ICT across the region to improve
	Revocation	++	++	++	

Regional Plan Policy	Score				Commentary
		Short Term	Medium Term	Long Term	
					access to employment. The RES also acknowledges the key sectors of employment within the region, for example, the Chemicals and Pharmaceuticals industry in Tees Valley. The policy seeks to focus regeneration within Core Areas of Stockton, Middlesbrough and Redcar as well as local centres such as Newton Aycliffe. These areas were identified as being in the bottom 20% in terms of deprivation. The policy recognises the need for an up-skilling of the workforce and to support the expansion of the two universities in the City-Region. This approach could have significant longer term benefits to the population, particularly when related to [policies on employment and housing]. The focus on development on the two main conurbations and main settlements should provide greater employment opportunities and allow the longer-term balancing of employment and housing, so reducing the need to travel. The policy to better manage the existing infrastructure and a safe transport network is also likely to have significant health benefits through fewer accidents, less congestion and fewer emissions of pollutants. Seeking to reduce travel demand in the key transport corridors will also mitigate risks of congestion, and resulting economic and environmental costs. The aim of this policy is to seek to improve and enhance sustainable internal and external connectivity and accessibility of the North East. This policy sets aspirations out that fit well with the broad thrust of the NPPF. However, it is through Local Transport Plans that local authorities should seek to promote alternative forms of transport to that of the private car. The policy sets no local planning requirements or targets and identifies no specific schemes. Consequently it is uncertain what environmental effects would arise from revocation, but any differences in effects seem unlikely to be significant. Therefore revoking this policy will simplify the planning policy context for local authorities. The emphasis upon enhancing employment and housing provision and facilitating access by improved public transport is likely to have significant effects for population. Within the City Region the Core Strategies of Darlington, Middlesbrough, Redcar & Cleveland are all broadly in accordance with the RSS Policy. As such it is considered that the objectives of the City Region will continue to be implemented following revocation with the same positive effects on population anticipated.

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
Policy 13: Brownfield Mixed-Use Locations	Retention	++	++	++	This policy identifies a number of brownfield sites for mixed use development, a number of which were progressing at the time of adoption of the Plan. The policy leaves it for local planning authorities to develop policies which make provision for the regeneration of these brownfield sites. Identifying specific locations for major regeneration projects should yield significant population benefits by bringing employment opportunities as well as appropriate level housing to create sustainable communities with positive impacts likely for the population topic. In particular the reference to seeking to maximise the employment opportunities for residents of surrounding wards, particularly from deprived wards has been appraised as particularly significant. This focus is a key theme within the RES which seeks to reduce unemployment by identifying new employment opportunities. In the short-medium term the locations of proposed employment land may not be located in areas of need, therefore, given that only 4 local authorities have adopted a core strategy following the publication of the RSS there are likely to be some limitations on providing employment land in suitable locations or reallocating it for other purposes. However the application of the NPPF's presumption in favour of sustainable development will help where plans or policies are absent, silent or out of date. The revocation of the policy has still been appraised positively, an analysis of local plans identifies that many of the identified brownfield mixed-use locations have been identified therefore the spatial element of the policy is likely to be implemented. However the loss of the policy content which focuses on employment opportunities in deprived wards mean that the policy cannot be assessed as significant against population.
	Revocation	+	+	+ +	
Policy 18: Employment Land Portfolio	Retention	++	++	++	Policy 18 identifies the need for LDF to make appropriate provision of general employment land and key employment locations totalling 2,765 and 670 hectares respectively. One of the RES Headline Ambition Targets is to deliver a high quality portfolio of business accommodation and to ensure that businesses have access to well located business premises. This would have significant positive effects for population.
	Revocation	+	+	++	Paragraph 14 of the NPPF states the need for local planning authorities to seek opportunities to meet the development needs of their area. Paragraph 17 of the NPPF sets out the core planning principles which include the need to proactively drive and support sustainable economic development to deliver the homes, business and industrial units,

Regional Plan Policy	Score				Commentary
		Short Term	Medium Term	Long Term	
					infrastructure and thriving local places that the country needs. Paragraphs18-22 deal with building a strong, competitive economy in order to help meet the Government's commitment to securing economic growth in order to create jobs and prosperity, building on the country's inherent strengths, and meeting the twin challenges of global competition and of low carbon future. Paragraph 158 of the NPPF states that local planning authorities should ensure that their local plans are based on adequate, up-to-date and relevant evidence about the economic characteristics and prospects of the area. The local plan analysis shows that the indicative targets for net growth in jobs are explicitly referenced in 4 core strategies adopted after or just prior to the publication of the North East of England Plan, (South Tyneside has been excluded, noting that the Development Management DPD talks about safeguarding employment land in accordance with local / regional aspirations, whilst the Core Strategy provides for 40 ha against a target of 70 ha). These plans and core strategies also contain policies that allocate land for employment, and in some cases set out details of allocations of floor space for buildings required for different types of employment (e.g. office space). In the short term (i.e. including day one of revocation of the Regional Strategy) therefore there will be no impact of removing the North East of England policy in these authorities since the equivalent allocation is already set out within the relevant local plan. For the other local plans in the region the short term impact is more difficult to determine since allocations of land within these plans cannot be directly linked to the number of jobs these are intended to support. The long term effects of revoking the policy are likely to be the same as retention. However, there is likely to be a temporary (short/medium term) period when those local authorities without a plan that is in conformity with the Regional Strategy have to revert to the old local plan policies whilst it develops a replacement. Also it will take time for the duty to co-operate to become fully effective and for LEPs to be established. The amount of development anticipated in this period may be lower than if the RS were in place. This will mean that the negative effects associated with development (on biodiversity, water, air, material assets etc) will be lessened as would the beneficial effects (on population), although the overall effect is difficult to assess. However the application of the NPPFs requirement for planning to encourage the effective use of land by reusing land what has been previously developed, provided that it is not of high

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
					environmental value, will help where plans or policies are absent, silent or out of date.
Policy 20:Key Employment Locations	Retention	++	++	++	Policy 20 identifies key employment locations across the region which are identified as locations prestige employment development. One of the RES Headline Ambition Targets is to deliver a high quality portfolio of business accommodation and to ensure that businesses have access to well located business premises. The retention of the policy was appraised significantly positive against the population topic. Revocation of the policy has involved a local plan analysis. The current position of the key employment sites is summarised below:
	Revocation	++	++	++	• Newcastle Great Park - 80 hectares of land was allocated for the Northern Development Area (Policy ED1.1) in the adopted UDP (1998) comprising offices, high technology and R&D. Policy ED1.2 which identified the nature of development on the site was not subsequently saved. It is noted that SAGE has developed its headquarters at this site. Within the emerging Core Strategy, the site (Great Park) is identified as a employment location but is not one of the identified Key Employment Sites; • Newburn Riverside, Newcastle - This site (Newburn Haugh) is allocated for business and general industry uses in the adopted Newcastle UDP (1997). The site is identified as a Key Employment Site in the emerging Newcastle Gateshead Joint Core Strategy; • Baltic Business Quarter - Baltic Business Quarter are likely to come forward as Accelerated Development Zones under the City Deal award; • West Hatford, Cramlington – The 55ha identified in the RSS is replicated in Policy SS1 of the Blyth Valley Core Strategy; • North East Technology Park, Sedgefield - The site is allocated within the former district of Sedgefield Core Strategy which identifies the future potential for expansion and allocates 67 hectares; • Wynyard, Stockton/Hartlepool – The Stockton-on-Tees Core Strategy allocates 70ha at this site (policy CS4). The Hartlepool Core Strategy Policy EC1 identifies the site but makes no specific reference to the area to be developed; • Faverdale , Darlington and Heighington Lane, West Newton Aycliffe – The Darlington Core Strategy allocates 50ha at this site (Policy

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
					CS5) for business and logistics. The policy also identifies a further 125 ha at the key employment sites of Faverdale and Heighington Lane. It is considered that the sites identified in Policy 20 have / will come forward for development. The revocation of this policy will still have significant benefits on population through the creation of new employment sites. In addition, the implementation of Paragraph 161 of the NPPF will require local authorities to use their evidence base to assess locations of deprivation which may benefit from planned remedial action.
Policy 28: Gross and Net Dwelling Provision	Retention	++	++	++	Policy 28 identifies the distribution of gross and net housing provision across the region with a particular emphasis upon the City-Regions as per Policies 6, 9 and 10. One of the RES Issues is to "*providing better quality and an expanded choice of homes close to centres of economic growth, and affordable homes for local people in rural areas*". In seeking to meet the demand for housing, the increased provision of housing in this policy is likely to lead to positive effects on the population.
	Revocation	?	?	++	Revocation of the Regional Strategy will not remove the need for more houses within the region. Indeed it is Government policy to boost significantly the supply of housing, for example through initiatives such as the Community Infrastructure Levy, New Homes Bonus and the local retention of business rates are intended to encourage a more positive attitude to growth and allow communities to share the benefits and mitigate the negative effects of growth. Without the Regional Strategy, local authorities will rely on the NPPF and their respective local plan policies. Those LPAs that had adopted local plans in conformity with the Regional Strategy or which post dated it are as follows: • Darlington Core Strategy (May 2011), provides targets for average net additions to the dwelling stock from 2011 – 2026; • South Tyneside Site Allocations DPD (April 2012) – the DPD indicates that the allocations together with those within adopted AAPs are considered to be within the PPS3 +/- 10-20% range of reasonable deviation from the RSS and Core Strategy target trajectories; • Stockton-on-Tees Core Strategy (March 2010) - Core Strategy Policy CS7 aims to meet the Borough's housing needs consistent with the RSS requirement to 2024 of 11,140 new dwellings; • Northumberland National Park Authority Core

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
					Strategy (March 2009) – No specific targets for new housing development were included within the Core Strategy. In addition to the above Core Strategies, South Tyneside Site Allocations DPD (April 2012) indicates that the allocations together with those within adopted AAPs are considered to be within the PPS3 +/- 10-20% range of reasonable deviation from the RSS and Core Strategy target trajectories; For those eight authorities with a development plan which does not reflect RSS housing targets the RSS provided clarity on the quantum of development required; however, in the short term following its revocation, there is likely to be a temporary (short and medium term) period of uncertainty whilst some local authorities develop new Local Plan policies consistent with the NPPF and local needs. During this temporary period, it is likely that the level of development in these LPAs will be lower than if the RSS were in place resulting in uncertain impacts on population in the short to medium term. The application of the NPPFs presumption in favour of sustainable development and its policies to boost the supply of housing will help where plans or policies are absent, silent or out of date.
Policy 30: Improving Inclusivity and Affordability.	Retention	++	++	++	Policy 30 identifies the need for affordable housing and a range of dwelling types to meet the needs of the Region. The policy also identifies that Local Authorities should carry out an assessment of the housing needs of Gypsies and Travellers and Showpeople. No targets are identified within the policy, however in the case of Gypsies, Travellers and Showpeople reference is made in the supporting text to pitch requirements. A mix of housing type and tenure as well as an increased provision of affordable housing will have significant benefits to the population and human health. Making adequate provision of sites for gypsies, travellers and travelling showpeople will deliver positive effects to population and human health. It could also reduce or remove adverse effects arising from illegal sites. The NPPF makes it clear that its overarching aim is to ensure fair and equal treatment for travellers, in a way that facilitates the traditional and nomadic way of life of travellers while respecting the interests of the settled community. Local authorities when preparing their local plans should set pitch targets for gypsies and travellers and plot targets for travelling show people which address the likely permanent and transit site accommodation needs of travellers in their area, working collaboratively with neighbouring local planning authorities.
	Revocation	?	?	++	

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
					The NPPF requires local planning authorities to boost significantly the supply of housing. Local planning authorities should use their evidence base to ensure that their local plan meets the full objectively assessed needs for market and affordable housing. This is expected to have the same significant benefits to the population and human health as retention of the policy, although there could be fewer benefits to the population in the short to medium term in those local authorities without an up to date plan.
Policy 35: Flood Risk	Retention	++	++	++	Policy 35 identifies the need to manage the risk of flooding from tidal, fluvial and surface water run-off and also to apply the sequential risk-based approach to development and flooding, currently set out in the National Planning Policy Framework and the technical guidance. Prioritising development in the areas of lowest risk to flooding will have significant population benefits.
	Revocation	++	++	++	The policy on the location of new development is covered by paragraphs 100 to 104 of the NPPF states the requirement to ensure that inappropriate development is avoided in areas at risk of flooding, but where development is necessary, that it is safe without increasing flood risk elsewhere. The NPPF (particularly paragraphs 105 to 108) sets out how local planning authorities should reduce risk from coastal change and apply Integrated Coastal Zone Management across local authority and land/sea boundaries. Through their local plans, local planning authorities should identify Coastal Change Management Areas and be clear as to what development is appropriate in such areas, and in what circumstances; and make provision for development and infrastructure that needs to be relocated away from these areas. Coastal groups, comprising members from local coastal authorities, the Environment Agency and other relevant organisations, can form partnerships to look at the strategic management of the coast. These groups produce Shoreline Management Plans to assess risks from coastal flooding and erosion and set out how to manage these risks. Shoreline Management Plans can continue to provide evidence for local plan-making. The Flood and Water Management Act 2010 places a duty to co-operate on all relevant flood and coastal erosion risk management authorities. The national Flood and Coastal Erosion Risk Management Strategy for England sets out the considerations and the approach to be followed to risk management, including the functions of those involved and how they can work together better. The national strategy seeks to ensure that local risk management decisions are made in a consistent

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
					way, and that decisions made in one area take account of impacts on another. As a consequence the positive effects on population should be the same for revocation and retention.
Policy 42: Overall Minerals Provisions	Retention	++	++	++	The policy seeks to ensure the prudent use of the region's indigenous natural resources in line with sustainable development objectives. Retention of this policy will have significant population benefits through extraction of raw material to meet society's needs. No differences between retention and revocation are anticipated.
	Revocation	++	++	++	
Policy 43: Aggregate Minerals Provision	Retention	++	++	++	This policy should be read alongside Policy 42, and sets out sets out an apportionment for aggregate mineral over the plan period to ensure that the region contributes towards ensuring a steady and adequate supply of aggregates across the country. Retention of this policy will have significant population benefits through extraction of raw material to meet society's needs. No differences between retention and revocation are anticipated.
	Revocation	++	++	++	
Policy 49: Regional Transport Corridors	Retention	++	++	++	This policy seeks to develop and improve key transport corridors in the region to support projected growth, through a combination of road and rail expansion movement, and demand management measures. This policy will result in health benefits arising from less congestion and fewer emissions of pollutants. It may also make more areas suitable for development. Paragraph 30 of the NPPF states that encouragement should be given to solutions which support reductions in greenhouse gas emissions and reduce congestion. In preparing local plans, local planning authorities should therefore support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport. Policy 31 of the NPPF requires local authorities to work with neighbouring authorities and transport providers to develop strategies for the provision of viable infrastructure necessary to support sustainable development, including large scale facilities such as rail interchanges, roadside facilities for motorists or transport investment necessary to support strategies for growth of ports, airports or other major generators of travel demand in their areas. Local authorities should also work with neighbouring authorities and transport providers to develop strategies for the provision of viable infrastructure necessary to support sustainable development. . As it is uncertain what measures will derive from the review, the environmental effects are also uncertain.
	Revocation	++	++	++	

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
Policy 50: Regional Public Transport Provision	Retention	++	++	++	The RES addresses public transport in a number of key areas identifying the role improved public transport can play in enhancing employment opportunities in rural and deprived areas and providing a viable alternative to the level of commuting by private car, particularly into and out of the City-Regions. This policy seeks to rebalance the transport system in favour of more sustainable modes by setting the framework for improvements to public transport across the region, with particular emphasis on sustainable travel within the city-regions and to key Employment locations and other employment areas. Seeking to deliver a shift away from the car towards public transport should significantly improve human health, reduce inequality by increasing access to employment locations. The NPPF and other relevant government policies reflect the new administration's transport related policy context for local plans to take account of. It has been appraised that the effects of retention and revocation will remain the same.
	Revocation	++	++	++	
Policy 51: Strategic Public Transport Hubs	Retention	++	++	++	The policy provides generic principles for local plans and in taking forward the spatial strategy of regional, sub-regional and local transport interchanges, to support delivery of Policy 50. Retention of this policy would increase accessibility and reduce inequality by opening up areas across the region. These new opportunities for local authorities along with the duty to co-operate, NPPF policies relating to planning strategically across local boundaries (paragraphs 156 an 178-181) and Local Economic Partnerships will mean that local authorities should continue to ensure that land use and local transport policies are mutually consistent, and deliver the most sustainable and effective development for their area. Therefore, local authorities are likely to consider setting consistent standards across local planning authority (LPA) boundaries and in preparing the relevant local transport plans to ensure that land use and local transport policies are mutually consistent, and deliver the most sustainable and effective development for their area.
	Revocation	++	++	++	
Policy 56: Accessibility in Rural Areas	Retention	++	++	++	This policy seeks an increase in use of public transport outside the main areas of population, whilst recognising the critical role of the private car in transport around the local areas. Retention of this policy may result in increased public transport accessibility, which in turn will have population benefits by providing greater access to services and employment opportunities. This policy sets aspirations that fit well with the broad thrust of the NPPF including its policies for rural areas, set out in
	Revocation	++	++	++	

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
					Section 3. Local Transport Plans should seek to improve rural communities' access to facilities. However most of the actions are outside the scope of spatial planning. As a result it is uncertain what environmental effects would arise from revocation, but any differences in effects seem unlikely to be significant. Therefore revoking this policy will again simplify the planning policy context and have no different effect to that assessed for retention.
Policy 57: Sustainable Freight Distribution	Retention	++	++	++	This policy seeks to promote sustain freight movement through creating the framework for managing freight traffic in the region. Creating the right conditions to promote sustainable freight movement may reduce the amount of freight transported by road. However is recognised that there will remain an increase in vehicle movements. Impacts on population have been appraised significantly positive give the potential employment opportunities which may be sustained/ generated (particularly if Teesport can act as a greater focus for freight as per recommendations within the RES).
	Revocation	++	++	++	

2.7.1 Effects of Retention

The effects of retention of the Plan have been assessed on the assumption that, in the absence of the legislation and regional architecture enabling updating of the Plan, although the general principles of development will remain some policies will become increasing outdated and in some cases in conflict with the national policies in the Framework. The Plan will therefore play an increasingly smaller role in plan making and development control over time and this is of particular relevance to Policy 29 providing the quantum of housing provision in the region. The Plan sets out the need for an average annual net dwelling provision of 7,580 between 2004-2021. A key issue within the North East appears to be the reliance on commuting into the main centres e.g. Newcastle, Sunderland, Durham City, Middlesbrough and Darlington. In the case of Newcastle, the emerging Core Strategy has identified that there is a lack of affordable family housing resulting in accounting for approximately 2000 people relocating from the city and into neighbouring districts. In the case of Newcastle, an economic forecast has been completed by Cambridge Econometrics who has projected a net increase of 16,000 jobs in the Newcastle by 2030. Whilst this is lower that the RSS estimation, the level of growth remains higher than the project growth in the working age population (estimated as 8,000). The concern is that without intervention,

levels of commuting into the city will increase and further pressure will be placed upon the housing market, with the potential for family homes to become increasingly unaffordable.

As a single example within the region, this assessment may demonstrate that the assessments and predictions made within the RSS should be revised under the duty to co-operate.

It also identified that additional gypsy and traveller pitches were required with more certainty over where these would be located. The RSS estimates the need for an additional 166 pitches above the current (2008) provision by 2020. By setting out the overarching direction within which local plans should be developed retention of the Plan would have significant benefits in the short, medium and long term.

2.7.2 Effects of Revocation

The Government's aim for the economy (as announced in the Local Growth White Paper published in October 2010) sets out a vision for local growth, shifting power away from central government to local communities, citizens and independent providers. This means allowing market forces to determine where growth takes place and providing incentives that ensure local communities benefit. The Government's Housing Strategy for England (November 2011) also identified that local areas needed to be free to provide the homes needed for their communities and to be able to work with the grain of the market.

Following revocation national planning policy will still be applicable including paragraph 156 of the NPPF which identifies the strategic priorities that local authorities must consider when making local plans including delivery of the homes and jobs needed in the area. However, it will be for local authorities to establish the right level of employment land and housing provision (including affordable housing and provision for gypsies and travellers) for their area over a period of about 15 years taking into account longer term requirements.

Paragraph 47 of the NPPF states the need for local authorities to meet the housing needs of housing markets in their area and also to retain a 5 year supply of deliverable sites with an additional buffer of 5% of land for housing or 20% in areas where there has under-delivery has been persistent. The NPPF in paragraph 50 requires local authorities to plan for a mix of housing including the appropriate size and type of housing in a local area. Separate Government guidance on travellers' sites has been developed. The policy published in March 2012[72] makes it clear that its overarching aim is to ensure fair and equal treatment for travellers, in a way that facilitates the

[72] http://www.communities.gov.uk/documents/planningandbuilding/pdf/2113371.pdf

traditional and nomadic way of life of travellers while respecting the interests of the settled community. Local authorities when preparing their local plans should set pitch targets for gypsies and travellers and plot targets for travelling show people which address the likely permanent and transit site accommodation needs of travellers in their area, working collaboratively with neighbouring local planning authorities.

This includes:

(i) Identifying and updating annually, a supply of specific deliverable sites sufficient to provide five years' worth of sites against their locally set targets;

(ii) Identifying a supply of specific, developable sites or broad locations for growth, for years six to ten and, where possible, for years 11-15; and

(iii) Considering the production of joint development plans that set targets on a cross-authority basis, to provide more flexibility in identifying sites, particularly if a local planning authority has special or strict planning constraints across its area.

The "duty to co-operate" will play a key role in enabling local authorities to proactively and positively address economic issues in their local area. It is anticipated that local authorities will co-operate with their relevant Local Enterprise Partnership and neighbouring local authorities such that in the long-term significant benefits are still anticipated to occur given the overall direction of development proposed will need to have regard to the Framework, specifically the five 'guiding principles' of sustainable development.

In the short-medium term, revocation of the North East Plan could place some limitations on delivering economic growth and the required level of housing provision given the age of local plans in the region. In the long term impacts are slightly less certain as this will be dependent on the extent to which local authorities apply the requirements of the Framework to their local context and whether they continue to support the pattern of development set out in the Plan.

2.7.3 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and retaining for a transitional period the non spatial policies, ambitions and priorities;
- Retaining for a transitional period all the spatially specific policies (for instance where a quantum of development, land for development or

amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and revoking the non spatial policies, ambitions and priorities; or

- Retaining for a transitional period policies, ambitions and/or priorities, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on biodiversity associated with the revocation and retention of the quantitative policies are summarised in **Table 2.2** for the following policies:

- Policy 9: Tyne and Wear City-Region;
- Policy 10: Tees Valley City-Region;
- Policy 13: Brownfield Mixed-Use Locations;
- Policy 18: Employment Land Portfolio;
- Policy 20: Key Employment Locations;
- Policy 28: Gross and Net Dwelling Provision;
- Policy 30: Improving Gross and Net Dwelling Provision;
- Policy 43: Aggregates Minerals Provision; and
- Policy 49: Regional Transport Corridors.

For all of these policies the effects associated with the policy revocation were not considered to be negative when compared to retention. It is acknowledged that for Policies 28 and 30 for example, that in the short term following revocation of the RSS the impact will be uncertain in those local authorities that do not have a plan that was either in conformity with the Regional Strategy or which post-dates it. For those authorities without an adopted plan, the RSS provided clarity on the quantum of development required; however, in the short term following its revocation, there is likely to be a temporary (short term) period where some local authorities revert to the old local plan policies whilst it develops a replacement.

The amount of development anticipated in this short to medium period may be lower than if the Regional Strategy were in place. This will mean that the positive effects on population will be lower or more uncertain than they are for retention. The application of the NPPFs presumption in favour of sustainable development and its policies to boost the supply of housing will help where plans or policies are absent, silent or out of date.

The assessment has found that there are no policies in the North East of England Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

2.7.4 Mitigation Measures

Given that all likely significant effects identified would be positive no mitigation measures are proposed for this topic. However, it is recognised that local authorities will need to co-operate with their relevant Local Enterprise Partnership and neighbouring local authorities in line with the “duty of co-operate” to ensure benefits are delivered in the long term.

2.7.5 Proposals for Monitoring

Negative and uncertain effects in respect of population relate to:

- Economic activity;
- Employment provision;
- Population growth;
- Housing provision;
- Housing affordability;
- Gypsy and traveller pitch provision.

3. Human Health

3.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals to revoke the regional strategies on human health. Information is presented for both national and regional levels.

There are links between the human health and wellbeing topic and other topics in the SEA, specifically human health (noise), air, climate change and energy use, material assets (transport) and material assets (waste management).

3.2 Summary of Plans and Programmes

3.2.1 International

The World Health Organization (WHO)[73] states that *"health promotion goes beyond health care. It puts health on the agenda of policy makers in all sectors and at all levels*; consequently, healthy public policy has been a main goal of health development in many countries. The ***Canadian Lalonde Report (1974)*** identified four health fields independently responsible for individual health: environment, human biology, lifestyle and health care organisation.

The WHO ***Children's Environment and Health Action Plan for Europe (CEHAPE) (2004)*** was launched in June 2004 and signed by all 53 Member States of the WHO European Region, including the UK. The aim of the CEHAPE is to protect the health of children and young people from environmental hazards.

The European Union has a Programme for Community action in the field of Health (2008-2013) and, on the 23/4R[d] October 2007 the Commission adopted a new overarching Health Strategy ***'Together for Health – A Strategic Approach for the EU 2008-2013'***. Community Action focuses on tackling health determinants which are categorized as: personal behaviour and lifestyles; influences within communities which can sustain or damage health; living and working conditions and access to health services; and general socio-economic, cultural and environmental conditions.

The ***SEA Directive*** adopted in 2001 specifically requires the consideration of "*the likely significant effects on the environment, including on issues such as …, human health,*

[73] See the Ottawa Charter adopted at the First International Conference on Health Promotion in 1986.

…" (European Parliament and the Council of the European Union, 2001). The SEA Protocol (United Nations Economic Commission for Europe, 2003) implements the political commitments made at the Third European Conference on Environment and Health and uses the term 'environment and health' throughout. It indicates that health authorities should be consulted at the different stages of the process and so goes further than the SEA Directive. Once ratified, it will require changes to the SEA Directive to require that health authorities are statutory consultees.

The WHO publication ***Health Impact Assessment in Strategic Environmental Assessment (2001)*** provides a review of Health Impact Assessment concepts, methods and practice to support the development of a protocol on Strategic Environmental Assessment to the Espoo Convention, which adequately covers health impacts.

3.3 National

3.3.1 UK

Many of the national level policies and strategies regarding health are aimed at understanding the trends and nature of health issues within the country, understanding the links between health issues and other related factors (such as economic status, etc.), and, primarily, at reducing the inequalities in health outlooks that are evident between different parts of the country and different sections of the population. Whilst some applicable policies/strategies are contained within adopted strategies, many of the Government's objectives and intended actions are contained within White Papers and guidance papers.

The Health Protection Agency's ***Children's Environment and Health Action Plan, a summary of current activities which address children's environment and health issues in the UK (2007)*** applies the objectives of CEHAPE (2004) to the UK context and ***A Children's Environment and Health Strategy for the United Kingdom (2009)*** provides recommendations from the Health Protection Agency to the UK Government as to how it best can meet its commitment to the CEHAPE.

3.3.2 England

In England, the Department of Health is the government department responsible for public health issues. Its work includes setting national standards, shaping the direction of health and social care services and promoting healthier living.

The NHS White Paper, ***Equity and excellence: Liberating the NHS (2010)*** sets out the Government's long-term vision for the future of the NHS and consists of three mutually-reinforcing parts:

- putting patients at the heart of the NHS;
- focusing on improving outcomes; and
- empowering local organisations and professionals.

Liberating the NHS: Legislative framework and next steps (*2010)** is the Government's response to the consultation on the implementation of the White Paper and three further consultations: ***Commissioning for patients (2010)*, *Local democratic legitimacy in health (2010) **and** ***Regulating healthcare providers (2010)*.** In this document the Government's commitment to the White Paper reforms are reaffirmed and described in detail how developments in light of the consultation will be put into practice across the three parts identified in the white paper above.

The ***Health and Social Care Act (2012)*** enacts the proposals set out in the White paper and the subsequent rounds of consultation. The changes are designed to make the NHS more responsive, efficient and accountable, and capable of responding to future challenges. Key elements of the Act include: clinically led commissioning, service innovation, giving greater voice for patients, providing a new focus for public health, ensuring greater accountability and streamlining arms length bodies.

The Government's White Paper, ***Healthy Lives, Healthy People: Our strategy for public health in England (2010)*** recognises that the quality of the environment, including the availability of green space and the influence of poor air quality and noise, affects people's health and wellbeing. It details plans for a shift of power to local communities, including new duties and powers for local authorities to improve the health of local people. From April 2013, Directors of Public Health will be employed within upper tier and unitary local authorities. They will be able to influence local services, for example joining up activity on rights of way, countryside access and green space management to improve public health by connecting people with nature.

3.4 North East of England

No relevant regional plans or programmes were identified under this topic.

3.5 Overview of the Baseline

3.5.1 National

UK

In the UK, during 2006-2008, life expectancy at birth was 77.4 years for males and 81.6 years for females.[74]

In 2006-2008, 37% of males and 38% of females in the UK rated their health as good; 44% of males and 41% of females rated their health as very good. Consequently, around 19% to 21% of males and females in the UK felt that their health was less than good.[74]

In 2007 the main causes of death in the UK were diseases of the circulatory system, and neoplasms (cancers).[74] There are high levels of hypertension and overweight/obesity in the UK. Public health trends often correlate with deprivation and these figures for illness are invariably far less favourable in deprived areas. [75]

Deaths from respiratory diseases (including influenza, pneumonia, chronic lower respiratory disease, bronchitis, emphysema and other chronic obstructive pulmonary diseases and asthma) are higher in the UK than in any other EU Member State. In the UK there are 87.7 deaths per 100,000 males and 64.0 deaths per 100,000 females from respiratory diseases, compared to an EU average of 63.4 and 32.5.[76]

3.5.2 England

In England, during 2006-2008, life expectancy at birth was 77.93 years for males and 82.02 years for females.[77]

In 2006-2008, 38% of males and 39% of females in England rated their health as good; and 44% of males and 41% of females rated their health as very good.[77]

The Health Survey for England, published in 2010, includes the following key findings for 2009:[78]

[74] ONS, United Kingdom Health Statistics 2010, http://www.statistics.gov.uk/downloads/theme_health/ukhs4/ukhs4-2010.pdf

[75] Health Survey for England 2007 Healthy lifestyles: knowledge, attitudes and behaviour Summary of key findings, Office of National Statistics, http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=6637

[76] ONS, United Kingdom Health Statistics 2010, http://www.statistics.gov.uk/downloads/theme_health/ukhs4/ukhs4-2010.pdf

[77] ONS, United Kingdom Health Statistics 2010, http://www.statistics.gov.uk/downloads/theme_health/ukhs4/ukhs4-2010.pdf

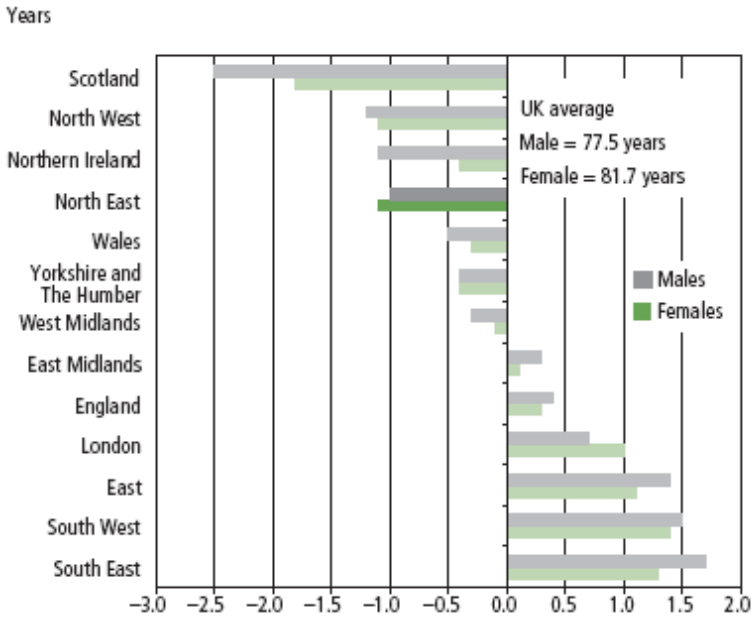
- In 2009 men and women reported a similar prevalence of longstanding illness according to the Health Survey for England; 41 per cent of men, 43 per cent of women, and almost a quarter reported an illness limited their activity in some way; 22 per cent of men and 23 per cent of women;
- For adults aged 16 and over, self-reported cigarette smoking prevalence was 24 per cent for men and 20 per cent for women. Cigarette smoking prevalence varied by age, being higher among younger adults (32 per cent for men and 26 per cent for women aged 25-34) and lower among older adults (11 per cent for men and 8 per cent for women aged 75 and over);
- High blood pressure was 32% in men and 27% in women. The prevalence significantly increased with age in both sexes; and
- The percentage of adults who were obese has gradually increased over the period examined by the HSE, from 13 per cent of men in 1993 to 22 per cent in 2009 and from 16 per cent of women in 1993 to 24 per cent in 2009.

North East of England

ONS data[79] shows that Male life expectancy at birth in the North East was among the lowest in England, similar to the North West and Northern Ireland but above Scotland. Male life expectancy at birth was 76.5 years in the North East compared with 77.5 years in the UK. However, in the period between 1991–1993 and 2006–2008, life expectancy in the North East increased by 4.5 years for males and 3.2 years for females, more than Wales, Scotland, Northern Ireland and any other English region except London. The gap between female and male life expectancy at birth in the North East narrowed from 5.4 years in 1991–1993 to 4.1 years in 2006–2008, in line with the UK average. Within the region, the highest life expectancy at birth for males was in Tynedale, with 79.6 years, while for females, it was in Berwick-upon-Tweed with 84.3, both in Northumberland. The lowest life expectancy at birth was in Hartlepool with 75.3 years for males and 79.0 years for females.

[78] Health Survey for England 2010, http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles-related-surveys/health-survey-for-england/health-survey-for-england--2009-health-and-lifestyles
[79] ONS (2010); Portrait of the North East; Regional Trends 42

Figure 3.1 Difference in life expectancy at birth between the regions and the UK average, 2006 to 2008



source ONS

Age standardised mortality rates for the region show 657 deaths per 100,000 residents in 2008, compared with 592 for the UK. The North East's mortality rate was the highest of the English regions. The North East in 2008 had the highest mortality rate for bronchitis and cancer of all English regions and countries of the UK. In the North East in 2008, death rates for ages up to 54 were similar to the UK average, but for both men and women aged 55 and over death rates exceeded the UK average. For males, the death rates for ages 65 and over were the highest of all English regions.

In 2007 the North East had the lowest proportions of men and women drinking alcohol on five or more days in the previous week of all English regions, at 18 and 9 per cent respectively, compared with the Great Britain averages of 22 and 12 per cent. Only Scotland had lower proportions. The proportion of men in the North East who drank more than four units on at least one day in the week was above the GB average but the proportion drinking more than eight units was below the average. The proportion of women in the North East drinking more than three units on at least one day in the week and the proportion of women drinking more than six units were both below the GB averages. Over one-fifth of North East men smoked cigarettes in 2007, just below the Great Britain average of 22 per cent. Among women, 22 per cent smoked cigarettes, just over the Great Britain average of 20 per cent. The North East had the highest proportion of any English region of men smoking 20 or more cigarettes per day, 9 per cent, and only Northern Ireland had a higher proportion, at 11 per cent. The proportion of women smoking 20 or more cigarettes per day was the highest of any English region or UK country. In common with the North West and Yorkshire and The Humber, in

2008/09 around 10 per cent of 16 to 24-year-olds had used Class A drugs, compared with the England average of 8 per cent and the Wales average of 9 per cent.

3.6 Environmental Characteristics of Those Areas Most Likely to be Significantly Affected

3.6.1 UK

Health inequalities exist in many communities, often exacerbated by poor access to or use of health services. Any future funding constraints on health services are likely to affect this situation.

At present, respiratory illness places a significant burden on the health service which is partly attributable to existing air pollution. According to Occupational Health and Safety Information Service (2006), death rates from respiratory disease are higher in the UK than both the European and EU average. The report also suggests that respiratory disease costs the NHS and society £6.6 billion.

North East of England

An overview of the profile for the North East in relation to health is outlined below and were appropriate specific areas which suffer from higher levels of deprivation/poorer health have been highlighted:

- The health of people in the North East is generally worse than England as a whole. Levels of deprivation are high and life expectancy for both men and women is lower than the England average;
- There are inequalities in health within the North East corresponding to differing levels of deprivation. For example, the health of people in Northumberland is generally better than the regional average, while the health of people in Middlesbrough is generally worse;
- Over recent years all-age all-cause mortality rates for males have fallen faster than the England average. However, previously falling early death rates from cancer have started to level off;
- North East children are among the most physically active in the country, but the region has the highest level of mothers smoking during pregnancy;
- The North East has one of the lowest levels of violent crime compared to other regions. The percentage of mothers initiating breast feeding is the lowest in the country, but it has risen consistently over the last few years, with the gap between the England average narrowing slightly.

3.7 Likely Evolution of the Baseline

3.7.1 National

UK

Life expectancy at birth in the UK has reached its highest level on record for both males and females. A newborn baby boy could expect to live 77.7 years and a newborn baby girl 81.9 years if mortality rates remain the same as they were in 2007 - 2009. Females continue to live longer than males, but the gap has been closing.

Although both sexes have shown annual improvements in life expectancy at birth, over the past 27 years the gap has narrowed from 6.0 years to 4.2 years. Based on mortality rates in 1980 - 82, 26% of newborn males would die before age 65, but this had reduced to 15% based on 2007 - 2009 rates. The equivalent figures for newborn females were 16% in 1980 - 82 and 10% in 2007 - 2009. Life expectancy at age 65, the number of further years someone reaching 65 in 2007 - 2009 could expect to live, is also higher for women than for men. Based on 2007 - 2009 mortality rates, a man aged 65 could expect to live another 17.6 years, and a woman aged 65 another 20.2 years.

Within the UK, life expectancy varies by country, with the highest life expectancy at birth and at age 65 is higher for England than for the other countries of the UK. [80]

England

The current general trend in human health is generally towards improved health, greater life expectancy and reduced mortality from treatable conditions.[81]

For example, life expectancy for males in England increased from 76.9 years in 2003-05 to 78.3 years in 2007–09, an increase of 1.4 years. For females, life expectancy increased by 1.2 years from 81.1 to 82.3 years over the same period.[82] Trends in respiratory illness are downwards and are expected to continue like this, although a significant factor to be considered is that measured pollution is also affected by the weather, and hot summers in 2003 and 2006 significantly increased these levels.[83]

[80] Office for National Statistics, http://www.statistics.gov.uk/cci/nugget.asp?id=168

[81] Health Survey for England 2007 Healthy lifestyles: knowledge, attitudes and behaviour Summary of key findings, Office of National Statistics, http://www.statistics.gov.uk/StatBase/Product.asp?vlnk=6637

[82] ONS (2009) http://www.statistics.gov.uk/pdfdir/liex0611.pdf

[83] Defra 2008.

3.8 North East of England

Health

Life expectancy rates in the North East have been increasing reflecting advances in medical technologies and treatments for previously life threatening illnesses, although regional life expectancy is slightly less than the national average. As with national health, the trend is towards improved health and greater life expectancy.

Deprivation

The North East has the highest levels of socio-economic deprivation of all the regions of England, with 56% of the population living in wards ranked among the most deprived 20% of wards in the country.

The English Indices of Deprivation 2010 the most deprived areas in North East England are in the Tyne and Wear and Tees Valley conurbations, Darlington, Hartlepool, Blyth Valley, Wansbeck, Easington, with distinct deprivation in and around the towns of, Bishop Auckland and Consett.

As a region they are the forth worst in England, however falling a considerable distance behind the North West in particular and Yorkshire and Humberside and the West Midlands.

Health and wellbeing

Recent survey data show that a lower proportion of people in the region participate regularly in moderate intensity sports activities than is common across England as a whole (15.3% compared to 16.3%)[84].

The North East strategic health authority had the highest prevalence of adult obesity of anywhere in England (13.1%). This is significantly higher than the national average of 10.5%[85].

Over the past five years there has been a steady upward trend in life expectancy across English regions[86]. The North East is no exception to this positive trend, although life expectancy at birth is below the national average for both men and women. Male life

[84] Sport England, *Active People Survey 2010-11*, http://www.sportengland.org/research/active_people_survey/aps5.aspx

[85] National Health Service, *Statistics on obesity, physical activity and diet; England 2012*, http://www.aso.org.uk/wp-content/uploads/downloads/2012/03/2012-Statistics-on-Obesity-Physical-Activity-and-Diet-England.pdf

[86] Office for National Statistics (October 2011), *Life expectancy at birth and at age 65 by local areas in the United Kingdom 2004-06 to 2008-10*, http://www.ons.gov.uk/ons/rel/subnational-health4/life-expec-at-birth-age-65/2004-06-to-2008-10/statistical-bulletin.html#tab-Regional-life-expectancy

expectancy at birth is 77.2 years and female life expectancy is 81.2 years compared to England averages of 78.6 and 82.6 years respectively[87].

The death rate in the North East was 10.1 per 1,000 population in 2009, compared to 8.9 across England as a whole[88]. This is the highest death rate of any English region. The age-standardised mortality rate, which takes into account the age structure of the population, was 6.2 per 1,000 people – higher than the England average of 5.5[89]. The infant mortality rate in the region is 17% lower than the national average at 3.8 per 1,000 live births.

The number of fatal casualties on the roads in the North East was 51 in 2010, just 3% of the national total. This represents a 30% reduction in road deaths on the previous year and a 63% reduction on the 1994-1998 average (the average reduction nationwide was 48%). The road casualty rate in the North East, measured according to distance driven is 675 per billion vehicle miles driven, compared to 694 across England as a whole.[90]

3.9 Assessing Significance

Table 3.1 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on health. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 3.1 Approach to Determining the Significance of Effects on Health

Effect	*Description*	*Illustrative Guidance*
++	Significant positive	• Alternative has a significant positive effect on the likely determinants of good health in the region (including housing provision, employment opportunity, level of deprivation, physical activity, access to open space and recreational activities, improvements to environmental quality and community safety) • Alternative has a strong and sustained positive effect on health and wellbeing and acknowledges the health needs of specific groups in society (children, mums to be and the elderly). • Alternative supports the provision of healthcare facilities (i.e. as a result of an increase in the local population linked with employment provision).

[87] Office for National Statistics (February 2012), *Region and Country Profiles: key statistics*, http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-227575

[88] Office for National Statistics (February 2012), *Region and Country Profiles: key statistics*, http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-227575

[89] Office for National Statistics (June 2011), *Regional Trends online tables; 06: health and social care*

[90] Department for Transport, *Reported road casualties in Great Britain: annual report 2010*, http://www.dft.gov.uk/statistics/releases/road-accidents-and-safety-annual-report-2010/

Table 3.1 (continued) Approach to Determining the Significance of Effects on Health

Effect	*Description*	*Illustrative Guidance*
+	Positive	• Alternative has a positive effect on the likely determinants of good health in the region (including housing provision, employment opportunity, level of deprivation, physical activity, access to open space and recreational activities, improvements to environmental quality and community safety). • Alternative has a positive effect on health and wellbeing and acknowledges the health needs of specific groups in society (children, mums to be and the elderly). • Alternative may support the provision of healthcare facilities (i.e. as a result of an increase in the local population linked with employment provision).
0	No (neutral effects)	• Alternative has no observable effects on health and wellbeing of regional communities.
-	Negative	• Alternative has a negative effect on the likely determinants of good health in the region (including housing provision, employment opportunity, level of deprivation, physical activity, access to open space and recreational activities, improvements to environmental quality and community safety). • Alternative has a negative effect on health and wellbeing and acknowledges the health needs of specific groups in society (children, mums to be and the elderly). • Alternative results in some nuisance and/or disruption to communities, such that some complaints could be expected.
- -	Significant negative	• Alternative has a significant negative effect on the likely determinants of good health in the region (including housing provision, employment opportunity, level of deprivation, physical activity, access to open space and recreational activities, improvements to environmental quality and community safety). • Alternative has a significantly negative effect on health and wellbeing and acknowledges the health needs of specific groups in society (children, mums to be and the elderly). • Alternative causes statutory nuisance or a sustained and significant nuisance and/or disruption to communities.
?	Uncertain	• From the level of information available the impact that the alternative would have on this objective is uncertain.

3.10 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 3.2 summarises the significant effects identified in the detailed assessment of the East of England Plan policies against the health topic.

Table 3.2 Significant Effects Against the Health Topic

Regional Plan Policy	Score				Commentary
		Short Term	Medium Term	Long Term	
Policy 1: North East Renaissance	Retention	++	++	++	Policy 1 – Urban Renaissance identifies four key themes which support the central theme through the RSS and RES of achieving and maintaining a high quality of life for all, both now and in the future. It forms one of the key policies which set the overarching framework for the remainder of the plan. This policy, if properly implemented, should have positive impacts across the SEA themes. The focus on economic growth and sustainable communities should deliver considerable population and human health benefits by the provision of delivering housing and employment opportunities to all, including the most deprived communities, and encouraging the creation of a well-designed and pleasant living and working environment. The National Planning Policy Framework sets out a range of closely related principles, governing sustainable development, which will, when the Regional Strategy is abolished, stand in their stead. A core principle of the NPPF is for planning to drive and support sustainable economic development. The NPPF framework core principles (paragraph 17) which should underpin both plan-making and decision taking. This includes the need for planning to proactively drive and support sustainable economic development to deliver the homes, businesses and industrial units, infrastructure and thriving local places that the country needs. The core principles also states the need for planning to take account of and support local strategies to improve health, social and cultural wellbeing for all, and deliver sufficient community and cultural facilities and services to meet local needs. It is anticipated that the revocation of this policy will have the same positive effects on human health.
	Revocation	++	++	++	
Policy 6: Locational Strategy	Retention	++	++	++	Locational Strategy is a high level policy which identifies the approach to focusing development within the main city regions and conurbations, allowing development appropriate in scale within the Regeneration Towns and Rural Service Centres, maintaining vibrant rural areas, conserving areas of value and improving accessibility and linkages This approach could have significant longer term benefits to the population, particularly when related to [policies on employment and housing]. The wider emphasis on seeking to support vibrant rural areas and sustainable market towns service centres providing access to a range of services is considered likely to have positive effects on wellbeing and mental health. Although the assessment of revocation in identifies the assessment as uncertain, this is more closely allied to population rather than health where the
	Revocation	?	+	+	

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
					impact of revocation is considered to be positive.
Policy 7: Connectivity and Accessibility	Retention	++	++	++	Policy 7 seeks to improve and enhance sustainable internal and external connectivity and accessibility of the North East. This proposal could have positive benefits for reducing the need to travel and promoting more sustainable transport options. Encouraging walking and cycling may also deliver health benefits and reduce income disparities whilst supporting and sustaining local services. However it should also be recognised that in maximising the capacity at airports (Policy 21) and Ports (Policy 22) there is the potential for negative effects on climate change and air quality. The policy to better manage the existing infrastructure and a safe transport network is also likely to have significant health benefits through fewer accidents, less congestion and fewer emissions of pollutants. This policy sets aspirations out that fit well with the broad thrust of the NPPF. However, it is through Local Transport Plans that local authorities should seek to promote alternative forms of transport to that of the private car. The policy sets no local planning requirements or targets and identifies no specific schemes. Consequently it is uncertain what environmental effects would arise from revocation, but any differences in effects seem unlikely to be significant. Therefore revoking this policy will simplify the planning policy context for local authorities. In consequence the assessment of revocation remains the same as it does for retention.
	Revocation	++	++	++	
Policy 8: Protecting and Enhancing the Environment	Retention	++	++	++	This policy sets high level objectives for protecting and enhancing the Environment, which are developed further in other RSS policies (including policies 31-34 and 37). Under the RES Issue **Promoting Enhancing and Protecting our natural, heritage and cultural assets** it is identified that in an era of global trade where cities and regions compete for scarce resources, unique competitive advantage can be gained from building on indigenous strengths which offer distinctive appeal to the individuals, businesses and investors who drive modern economies. North East England has many strengths to build on in terms of its distinctive cultural, natural and heritage assets. The creation of better recreational opportunities should have benefits to population human health. No differences between retention and revocation are anticipated.
	Revocation	++	++	++	

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
Policy 9: Tyne and Wear City Region	Retention	++	++	++	Policy 9 provides the framework for supporting the polycentric development and redevelopment of the Tyne and Wear City Region. The policy identifies priority areas for regeneration, protecting the setting of Durham Cathedral, key locations for focusing economic development, supporting regeneration/ housing market renewal initiatives, improving transport links within and to the region, protecting the Green Belt and supporting the protection and enhancement of the Green Belt. The policy is supported by the RES which recognises the economic roles the city-region plays, the need to promote, protect and enhance its key natural, historic and cultural assets. The RES also recognises the need to provide both greater employment opportunities and to support the diversification of the economy. The RES also identifies the need to enhance better links – transport and ICT across the region to improve access to employment. This proposal could have positive benefits for reducing the need to travel and promoting more sustainable transport options. Encouraging walking and cycling may also deliver health benefits and reduce income disparities whilst supporting and sustaining local services. The policy to better manage the existing infrastructure and a safe transport network is also likely to have significant health benefits through fewer accidents, less congestion and fewer emissions of pollutants. Seeking to reduce travel demand in the key transport corridors will also mitigate risks of congestion, and resulting economic and environmental costs. The aim of this policy is to seek to improve and enhance sustainable internal and external connectivity and accessibility of the North East. The emphasis upon supporting the development of green infrastructure to link existing and proposed greenspace has also been appraised positively against health. It is therefore expected that the significant benefits to human health through increased activity and improvements in air quality will continued if the policy is revoked.
	Revocation	?	?	++	
Policy 10 – Tees Valley City Region	Retention	++	++	++	The Tees Valley City-Region has a population of 875,000 people, almost half of whom live within the Teeside conurbation – Stockton, Middlesbrough and Redcar. In addition to the conurbation, the city region contains the main settlements of Darlington and Hartlepool, as well as East Cleveland, Durham Coalfield Communities Area and a rural hinterland.

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
	Revocation	++	++	++	The policy is supported by the RES which recognises the economic roles the city-region plays, the need to promote, protect and enhance its key natural, historic and cultural assets. The RES also recognises the need to provide both greater employment opportunities and to support the diversification of the economy. The RES also identifies the need to enhance better links – transport and ICT across the sub-region The policy seeks to focus regeneration within Core Areas of Stockton, Middlesbrough and Redcar as well as local centres such as Newton Aycliffe. These areas were identified as being in the bottom 20% in terms of deprivation. The focus on development on the two main conurbations and main settlements should provide greater employment opportunities and allow the longer-term balancing of employment and housing, so reducing the need to travel. The policy to better manage the existing infrastructure and a safe transport network is also likely to have significant health benefits through fewer accidents, less congestion and fewer emissions of pollutants. Seeking to reduce travel demand in the key transport corridors will also mitigate risks of congestion, and resulting economic and environmental costs. The aim of this policy is to seek to improve and enhance sustainable internal and external connectivity and accessibility of the North East. The NPPF includes a number of policies which require sustainable transport measures as well as minimising the need to travel It is therefore expected that the significant benefits to human health through increased activity and improvements in air quality will continued if the policy is revoked.
Policy 30: Improving Inclusivity and Affordability.	Retention	++	++	++	A mix of housing type and tenure as well as an increased provision of affordable housing will have significant benefits to the population and human health. Making adequate provision of sites for gypsies, travellers and travelling showpeople will deliver positive effects to population and human health. It could also reduce or remove adverse effects arising from illegal sites. Paragraph 47 of the NPPF states that to boost significantly the supply of housing, local planning authorities should use their evidence base to ensure that their local plan meets the full objectively assessed needs for affordable housing. This is expected to have the same significant benefits to the population and human health as retention of the policy, although there could be fewer benefits to the population in the short term in those local authorities without an up to date plan. The new national policy for gypsies and travellers,
	Revocation	?	?	++	

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
					and travelling showpeople should provide the required provision for these groups. It asks local authorities to use a "robust evidence base" to assess needs for the purposes of planning and managing development of traveller sites, and to set targets for traveller sites based on their needs assessment. The policy asks local authorities to bring forward a five-year supply of land for traveller sites in their plans to meet the targets they have set and to update it annually. The policy also asks local authorities to look into the longer term and also to identify a supply of specific developable sites or broad locations for years six to ten and, where possible, for years 11-15. The RSS did not identify pitch requirements within Policy 30 (details of provision were included within the supporting text). Therefore the assessment of revocation and retention on health remain the same. Although in the short to medium term following revocation it is anticipated that there will be uncertainty for those authorities without an up to date plan.
Policy 35: Flood Risk	Retention	++	++	++	This policy seeks to manage flood risk from those areas known to be at risk of flooding, but also to apply the sequential risk-based approach to development and flooding, currently set out in the National Planning Policy Framework and supported through the technical guidance. It is considered that directing development away from locations of potential flooding and ensuring the incorporation of mitigation measures will have direct benefits for human health. The revocation and retention of this policy have both be appraised positively.
	Revocation	++	++	++	
Policy 45: Sustainable Waste Management	Retention	++	++	++	Policy 45 identifies the need to encourage behavioural change which help to minimise waste and minimising the disposal of waste to landfill . Moving waste up the waste hierarchy, such as through promotion of waste minimisation and re-use activities will have significant benefits to material assets from example by replacing primary aggregate with recycled construction waste. It will also have climate change and air quality benefits from having to manage less waste. Furthermore the provision of suitable facilities will have benefits to human health. Revocation of this policy is not likely to have a significant environmental effect. Local planning authorities are expected to draw up local plans which comply with Planning Policy Statement 10. Therefore the effects of retention and revocation are considered to be the same.
	Revocation	++	++	++	
Policy 49: Regional	Retention	++	++	++	This policy seeks to develop and improve key transport corridors in the region to support projected

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
Transport Corridors	Revocation	++	++	++	growth, through a combination of road and rail expansion movement, and demand management measures. This policy will result in health benefits arising from less congestion and fewer emissions of pollutants. It may also make more areas suitable for development. The policy has been appraised positively against population / human health on the basis that it seeks to promote and improve access to services and facilities. Paragraph 30 of the NPPF states that encouragement should be given to solutions which support reductions in greenhouse gas emissions and reduce congestion. In preparing local plans, local planning authorities should therefore support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport. Policy 31 of the NPPF requires local authorities to work with neighbouring authorities and transport providers to develop strategies for the provision of viable infrastructure necessary to support sustainable development, including large scale facilities such as rail interchanges, roadside facilities for motorists or transport investment necessary to support strategies for growth of ports, airports or other major generators of travel demand in their areas.
Policy 50: Regional Public Transport Provision	Retention	++	++	++	This policy seeks to rebalance the transport system in favour of more sustainable modes by setting the framework for improvements to public transport across the region, with particular emphasis on sustainable travel within the city-regions and to key Employment locations and other employment areas. Seeking to deliver a shift away from the car towards public transport should significantly improve human health, reduce inequality by increasing access to employment locations. The NPPF states that transport policies have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives. It has been appraised that the effects of retention and revocation will remain the same for both retention and revocation.
	Revocation	++	++	++	
Policy 51: Strategic Public Transport Hubs	Retention	++	++	++	The policy provides generic principles for local plans and in taking forward the spatial strategy of regional, sub-regional and local transport interchanges, to support delivery of Policy 50. Retention of this policy would increase accessibility and reduce inequality by opening up areas across the region. These new opportunities for local authorities along with the duty to co-operate, NPPF policies relating to planning strategically across local boundaries (paragraphs 156 and 178-181) and Local Economic Partnerships will mean that local authorities should continue to ensure that land use and local transport policies are mutually consistent, and deliver the most
	Revocation	++	++	++	

Regional Plan Policy	Score	Short Term	Medium Term	Long Term	Commentary
					sustainable and effective development for their area. It is core planning principle of the NPPF which is expanded in section 4 to promote sustainable development; this includes making fullest use of public transport, walking and cycling, in paragraph 35 of the NPPF.
Policy 56: Accessibility in Rural Areas	Retention	++	++	++	This policy seeks an increase in use of public transport outside the main areas of population, whilst recognising the critical role of the private car in transport around the local areas. Retention of this policy may result in increased public transport accessibility, which in turn will have health benefits. Policy 29 of the NPPF states that the Government recognises that different policies and measures will be required in different communities and opportunities to maximise sustainable transport solutions will vary from urban to rural areas. Local Transport Plans should seek to improve rural communities' access to facilities. However most of the actions are outside the scope of spatial planning. As a result it is uncertain what environmental effects would arise from revocation, but any differences in effects seem unlikely to be significant. Therefore revoking this policy will again simplify the planning policy context and have no different effect to that assessed for retention.
	Revocation	++	++	++	

3.10.1 Effects of Retention

The effects of retention of the Plan have been assessed on the assumption that, in the absence of the legislation and regional architecture enabling updating of the Plan, although the general principles of development will remain some policies will become increasing outdated and in some cases in conflict with the national policies in the Framework. By setting out the overarching direction within which local plans should be developed retention of the Plan would have significant benefits in the short to long term as the general development principles relating to improving access to health facilities, improving environmental quality and access to green infrastructure, and supporting excluded communities will help to engender good health in a region which has some of the some of the poorest health in England. However, as discussed in the population chapter, shortfalls in housing delivery could potentially restrict access to quality and affordable housing in the long term. Lack of access to quality and affordable housing and an associated increase in commuting levels within the region resulting in adverse

impacts on air quality could affect well-being and thus retention could result in an uncertain effect on health.

3.10.2 Effects of Revocation

Following revocation national planning policy will still be applicable including paragraph 156 of the Framework which states the strategic priorities that local authorities must consider when making local plans including the provision of health, security, community and cultural infrastructure and other local facilities. However, it will be for local authorities to establish the right level of provision for their area over a period of about 15 years taking into account longer term requirements.

The “duty to co-operate” will play a key role in enabling local authorities to proactively and positively address health related issues in their local area. It is anticipated that local authorities will co-operate with the local National Health Service and neighbouring local authorities such that in the long-term significant benefits are still anticipated to occur given the overall direction of development proposed will need to have regard to the Framework, specifically the five ‘guiding principles’ of sustainable development one of which is ensuring a strong, healthy and just society.

In the short-medium term, revocation of the North East of England Plan could place some limitations on delivering improved access to health facilities, improvements in environmental quality and access to green infrastructure, and supporting excluded communities (in rural areas and older industrialised parts of the region) given the age of local plans in the region. In the long term impacts are slightly less certain as this will be dependent on the extent to which local authorities apply the requirements of the Framework to their local context and whether they continue to support the pattern of development set out in the Plan.

3.10.3 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and retaining for a transitional period the non spatial policies, ambitions and priorities; or
- Retaining for a transitional period all the spatially specific policies where a quantum of development or land for development is allocated to a particular location in the region and revoking the non spatial policies, ambitions and priorities; or

- Retaining for a transitional period policies, ambitions and/or priorities, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on human health associated with the revocation and retention of the quantitative and spatially specific policies are summarised in **Table 3.3** for the following policies:

- Policy 10: Tyne and Wear City-Region;
- Policy 11: Tees Valley City-Region;
- Policy 30: Improving Inclusivity and Affordability;
- Policy 49: Regional Transport Corridors.

However, in no instances are the health effects associated with either the revocation or retention of these policies considered to be negative. The combination of NPPF guidance contributes to sustainable, inclusive and mixed communities creates a framework where the effects of revocation are considered to deliver similar positive benefits to retention. However, the assessment did identify that revocation of some of the policies listed above would lead to less positive effects in the short term for Policy 30 compared with their retention (although the scores were still positive).

The assessment has found that there are no policies in the North East of England Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

In larger centres effects are likely to be positive but negative effects could arise in terms of addressing social inequalities and economic disparities within those inner urban areas within the City-Regions.

3.10.4 Mitigation Measures

Given that all likely significant effects identified would be positive no mitigation measures are proposed for this topic. However, it is recognised that local authorities will need to co-operate with their local National Health Service and neighbouring local authorities in line with the “duty of co-operate” to ensure benefits are delivered in the long term. Paragraph 218 of the NPPF states that that, where it would be appropriate, Regional Strategy policies can be reflected in local plans by undertaking a partial review focusing on the specific issues involved. LPAs can continue to draw on evidence which was used to inform the preparation of regional strategies. This evidence can be used to support local plan policies, supplemented as needed by up-to-date, robust local evidence.

3.10.5 Proposals for Monitoring

Negative and uncertain effects in respect of health relate to:

- Health statistics;
- Health facilities and accessibility;
- Deprivation statistics;
- Public transport accessibility;
- Cycling and walking statistics;
- Crime statistics;
- Green infrastructure provision and accessibility.

4. Soil and Geology

4.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of revoking the Regional Strategy on soil, geology and land use. Information is presented for both national and sub-regional levels.

Soil and geology within this context is concerned with important geological sites, and the contamination of soils. Land use in this context is concerned with the efficient use of land i.e. whether development on previously developed land is encouraged as well sustainable patterns of land use e.g. in relation to the protection of open spaces and green infrastructure.

There are links between the soil and geology topic and other topics in the SEA, including material assets.

4.2 Summary of Plans and Programmes

4.2.1 International

The ***European Thematic Strategy on Soil Protection (2006)*** sets out the European Commission's strategy on soils and includes a proposal for an EU wide ***Soils Directive***. The overall objective of the strategy is the protection and sustainable use of soil, based on the following guiding principles:

- preventing further soil degradation and preserving its functions;
- when soil is used and its functions are exploited, action has to be taken on soil use and management patterns;
- when soil acts as a sink/receptor of the effects of human activities or environmental phenomena, action has to be taken at source; and
- restoring degraded soils to a level of functionality consistent at least with current and intended use, thus also considering the cost implications of the restoration of soil.

The ***EU Waste Incineration Directive (2000/76/EC)*** aims to introduce measures to prevent or reduce as far as possible air, water and soil pollution caused by the

incineration of waste, as well as the resulting risk to human health. The measures set out under the Directive include a prior authorisation requirement for incineration and co-incineration plants, and emission limits for certain pollutants released to air or to water. The requirements of the Directive have been developed to reflect the ability of modern incineration plants to achieve high standards of emissions control.

The ***EU Integrated Pollution, Prevention and Control (IPPC) Directive (2008/1/EC)*** defines the obligations to which industrial (including waste management) and agricultural activities with a high pollution potential must comply, through a single permitting process. It sets minimum requirements to be included in all permits, particularly in terms of pollutants released. The aim of the Directive is to prevent or reduce pollution being released to the atmosphere, water and soil, as well as reducing the quantities of waste arising from industry and agriculture. In order to gain an IPPC permit, operators must demonstrate that they have systematically developed proposals to apply the 'Best Available Techniques' (BAT) to pollution prevention and control and that they address other requirements relevant to local factors.

A number of other European Directives contribute indirectly to soil protection including on ***Habitats (92/43/EEC)***, ***Air (2008/50/EC)***, ***Water (2000/60/EC)*** and ***Nitrates (91/676/EEC)***.

The ***World Summit on Sustainable Development (2002)*** in Johannesburg proposed broad-scale principles which should underlie sustainable development and growth including an objective on greater resource efficiency. Reusing previously developed land is a good example of resource efficiency of land.

The conservation of resources is one of the underlying objectives of the ***European Spatial Development Perspective (ESDP) (1999)*** the framework for policy guidance to improve cooperation among community sectoral policies. There also exists a range of legislation in relation to resources.

UK

The ***Environmental Protection Act (1990)*** defines within England, Scotland and Wales the legal framework for duty of care for waste, contaminated land and statutory nuisance.

The ***Environment Act 1995*** seeks to protect and preserve the environment and guard against pollution to air, land or water. The Act adopts an integrated approach to environmental protection and outlines where authorisation is required from relevant authorities to carry out certain procedures as well as outlining the responsibilities of the relevant authorities. The Act also amends the Environment Protection Act 1990 with regard compulsory remediation of contaminated land. Environmental Protection Act

was also modified in 2006 to cover radioactivity, and then a further modification made in 2007 to cover land contaminated with radioactivity originating from nuclear installations.

The ***Wildlife and Countryside Act 1981*** allows the designation of SSSIs for sites with geological importance.

England

The ***Contaminated Land (England) Regulations 2006*** sets out provisions relating to the identification and remediation of contaminated land. It identifies sites requiring regulation as 'special sites' and adds land contaminated by radioactive substances to this classification.

Safeguarding our Soils: A Strategy for England (2009) is the soil strategy for England. It includes objectives and actions for Defra to better protect agricultural soils, protect and enhance stores of soil carbon, build the resilience of soils to a changing climate, prevent soil pollution, protect soil during construction and development and to deal with contaminated land.

In June 2011, the Government outlined its vision for England's soils in the *Natural Environment White Paper (NEWP)*. This set a clear target that by 2030 all of England's soils will be managed sustainably and degradation threats tackled successfully, in order to improve the quality of soil and to safeguard its ability to provide essential ecosystem services and functions for future generations. As part of this vision, the Government committed to undertaking further research to explore how soil degradation can affect the soil's ability to support vital ecosystem services; and how best to manage lowland peatlands in a way that supports efforts to tackle climate change. This will inform our future policies and the direction of future action towards 2030.

The Government has recently reviewed the contaminated land regime in England for the first time since its introduction in 2000. Following the review of the contaminated land regime including public consultation, revised ***Statutory Guidance has now been issued under Part 2A of the Environmental Protection Act 1990***. This revised Statutory Guidance while still taking a precautionary approach, allows regulators to make quicker decisions about whether or not land is contaminated under Part 2A preventing costly remediation operations being undertaken unnecessarily. It also offers better protection against potential health impacts by concentrating on the sites where action is actually needed.

Defra has published a ***Construction Code of Practice for the Sustainable Use of Soils on Construction*** to assist anyone involved in the construction sector to better protect the soil resources with which they work.

The ***National Planning Policy Framework*** (NPPF) states that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, geological conservation interests and soils; preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil pollution or land instability; and remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate (paragraph 109). Local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality (paragraph 112). The NPPF also states that planning policies should also encourage the effective use of land by reusing land that has been previously developed, provided that it is not of high environmental value (paragraph 111). The NPPF also reaffirmed the Government's commitment to maintaining Green Belts. It states that local planning authorities with Green Belts in their area should establish Green Belt boundaries in their local plans which set out the framework for Green Belt and settlement policy. Once established, Green Belt boundaries should only be altered in exceptional circumstances.

4.2.2 North East of England

Policy 2 (Sustainable Development) in the North East Regional Plan states that: under its environmental objectives that new development should:

'protect and enhance the Region's biodiversity, geodiversity and soil quality'

Policy 4 (The Sequential Approach to Development) outlines that Local Authorities should indentify land for development to give priority to previously developed land and buildings in the most sustainable locations. This approach to development is echoed in Policy 5 (Phasing and Plan, Monitor and Manage) which states that '*previously developed land in accordance with the sequential approach' should be considered as one of the priorities of evolving Local Development Frameworks.*

4.3 Overview of the Baseline

4.3.1 National

UK – Soils and Geology

The geology of the UK is diverse and has resulted in over 800 soil types. As a broad overview the following rock types exist in a progression from North West to South East (predominant rock types): Tertiary Volcanic Rocks; Crystalline Rock of Pre-Cambrian

and later age; Lower Carboniferous to Cambrian; Triassic and Permian; Early Precambrian and Devonian; Jurassic; Cretaceous; Tertiary and Marine Pleistocene; and finally a return to Cretaceous.[91]

The quality of the land across the UK varies, with the best and most versatile agricultural land generally situated in the lowland and valley areas of England. Due to the topography and terrain, much of Scotland and Wales is classified as lower grade land. An estimated 21% of all farmland in England is Grade 1 and 2 land, with a similar percentage graded as subgrade 3a land. These grades are the best and most versatile land grades as classified under the Agricultural Land Classification System.[92]

The UK has a diversity of mountain ranges and flood plains. In England, the southern part of the country is predominantly lowland, with mountainous terrain north west of the Tees-Exe line (the Lowland-Upland divide across England), which includes the Cumbrian Mountains of the Lake District, the Pennines and limestone hills of the Peak District, Exmoor and Dartmoor. [93]

There are an estimated 2,050 geological SSSIs in UK.[94, 95, 96]

Across the UK there are also a number of non-statutory geological and geomorphological sites designated at a local level, i.e. often known as Local Geological Sites (formerly Regionally Important Geological and Geomorphological Sites (RIGS)). There are over 50 Local Sites groups in the UK.[97]

In 2005 there was estimated to be around 413,906 hectares of land affected by industrial activity in England and Wales which may be contaminated, (around 2% of the land area in England and Wales).[98]

[91] Agricultural Land Classification, protecting the best and most versatile agricultural land, Natural England, January 2009

[92] England's geology, Natural England, http://www.naturalengland.org.uk/ourwork/conservation/geodiversity/englands/default.aspx

[93] State of the Environment Report 2008, Natural England, 2008, http://naturalengland.etraderstores.com/NaturalEnglandShop/NE85

[94] Geoconservation Sites, http://www.geoconservation.com/sites/sssi.htm

[95] Natural England RIGS, http://www.naturalengland.org.uk/ourwork/conservation/designatedareas/lgs/default.aspx

[96] The Scottish Soil Framework, Scottish Government, May 2009, http://www.scotland.gov.uk/Publications/2009/05/20145602/13

[97] Geoconservation Sites, http://www.geoconservation.com/sites/sssi.htm

[98] Indicators for Land Contamination, Science Report SC030039/SR, Environment Agency, August 2005

UK – Land Use

The UK covers an area of 2,472,900 hectares (242,514km^2). England comprises the largest land area in the UK, covering an area of 13,028,100 hectares (130,281km^2). The smallest land area in the UK is Northern Ireland, which covers an area of 1,357,600 hectares (13,576km^2).

Average population density of UK is 247 people per km^2.

Table 4.1 shows land cover in the UK as it stood in 2007 and shows that arable and horticulture and improved grassland are the most common land cover types in the UK, constituting 20.4% and 19.9% of total land area in the UK respectively.

Table 4.1 Estimated Area of Broad Habitats in the UK in 2007[99]

Land Type	'000 Hectares	% Land Area
Broadleaved, mixed and yew woodland	1406	6.2
Coniferous woodland	1319	5.8
Linear features	496	2.2
Arable and horticulture	4608	20.4
Improved grassland	4494	19.9
Neutral grassland	2176	9.6
Calcareous grassland	57	0.3
Acid grassland	1589	7.0
Bracken	260	1.1
Dwarf shrub heath	1343	5.9
Fen, Marsh, Swamp	392	1.7
Bog	2232	9.9
Standing open waters[1]	204	0.9
Rivers and streams[1]	58	0.3
Montane	42	0,2
Inland rock	84	0.4
Built-up areas and gardens	1323	5.8
Other land	113	0.5
Unsurveyed land[2]	522	2.3
Total[3]	**22627**	

[99] ONS (2009) http://www.statistics.gov.uk/STATBASE/Expodata/Spreadsheets/D5325.xls (accessed 22.10.2009)

England – Soils and Geology

In England there was estimated to be around 307,672 hectares of land that may be contaminated. A total of 659 sites had been determined as 'contaminated land' in England by the end of March 2007. At the time of reporting, no site has been determined as contaminated land due to radioactivity. [100]

Natural England (2008) report that there are 1,214 SSSIs designated for their geodiversity features covering 1,704 Geological Conservation Review (GCR) sites (which identified nationally important features of geological interest). Many SSSIs have more than one GCR feature and some GCR features extend over more than one SSSI, giving a total of 1,735 SSSI-GCR combinations, or 'geo-features'. The proportion of GCRs in favourable/recovering status varied between 76-94% depending on its category of GCR (each category is reported separately).

Within England, 87.7% of the land area is classed as agricultural land. [101] Of the remainder, 5% is non agricultural and 7.3% is urban. Of the 87.7% of land classed as agricultural, 65.1% is classed as moderate or better.

There are no formal international designations for geodiversity sites equivalent to the SPA and SAC designations for biological features, although the geodiversity of the Dorset and East Devon Coast is recognised through World Heritage Status.

England contains two Geoparks: the English Riviera in Devon and the North Pennines AONB. These are areas considered by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) to be of international importance for geological heritage that should be safeguarded and sustainably managed and include strong local involvement. Two further sites in England (Abberley and Malvern Hills and the Cotswold Hills) identify themselves as Geoparks.

England – Land Use

The average population density of England is 385 people per km^2. [102]

Table 4.2 shows land cover in England as it stood in 2007 and highlights arable and horticulture and improved grassland as the most common land use covers (covering 30.4% and 21.7% of total land in England respectively).

[100] Dealing with contaminated land in England and Wales A review of progress from 2000-2007 with Part 2A of the Environmental Protection Act, Environment Agency, January 2009.

[101] Agricultural land classification (ALC) Statistics from the digital 1:250,000 scale Provisional ALC map (www.magic.gov.uk).

[102] Office of National Statistics, http://www.statistics.gov.uk/geography/uk_countries.asp

Table 4.2 Land Cover in England in 2007[103]

England Land Cover 2007	'000 ha	% Area
Broadleaved, Mixed and Yew Woodland	981	7.4
Coniferous Woodland	257	1.9
Boundary and Linear Features	353	2.7
Arable and Horticulture	4,002	30.4
Improved Grassland	2,856	21.7
Neutral Grassland	1,453	11.0
Calcareous Grassland	30	0.2
Acid Grassland	396	3.0
Bracken	91	0.7
Dwarf Shrub Heath	331	2.5
Fen, Marsh and Swamp	117	0.9
Bog	140	1.1
Standing Open Water and Canals	97	0.7
Rivers and Streams	29	0.2
Built-up Areas and Gardens	1,038	7.9
Other land	580	4.4
Unsurveyed Urban Land	428	3.5
TOTAL	13,180	100

The majority of land in England (around 72%) is in agricultural use. A further 8.6% is used for woodland and forestry. Whilst developed land accounts for around 10% of the total area, only a very small proportion of the land (1.14%) is occupied by domestic buildings (e.g. houses), with domestic gardens accounting for almost half of the 'developed area' (over 4% of the national land area). Roads account for around 2% and rail 0.14% of the total.

4.3.2 North East of England

Around eight per cent of the land in North East is urban development. In urban areas land is under pressure from development and pollution.

There is a legacy of contaminated land from past industrial activities. There were 522 land pollution incidents reported to the Environment Agency in 2009; 15 of these were classified

[103] ONS (2009) http://www.statistics.gov.uk/STATBASE/Expodata/Spreadsheets/D5325.xls (accessed 22.10.2009).

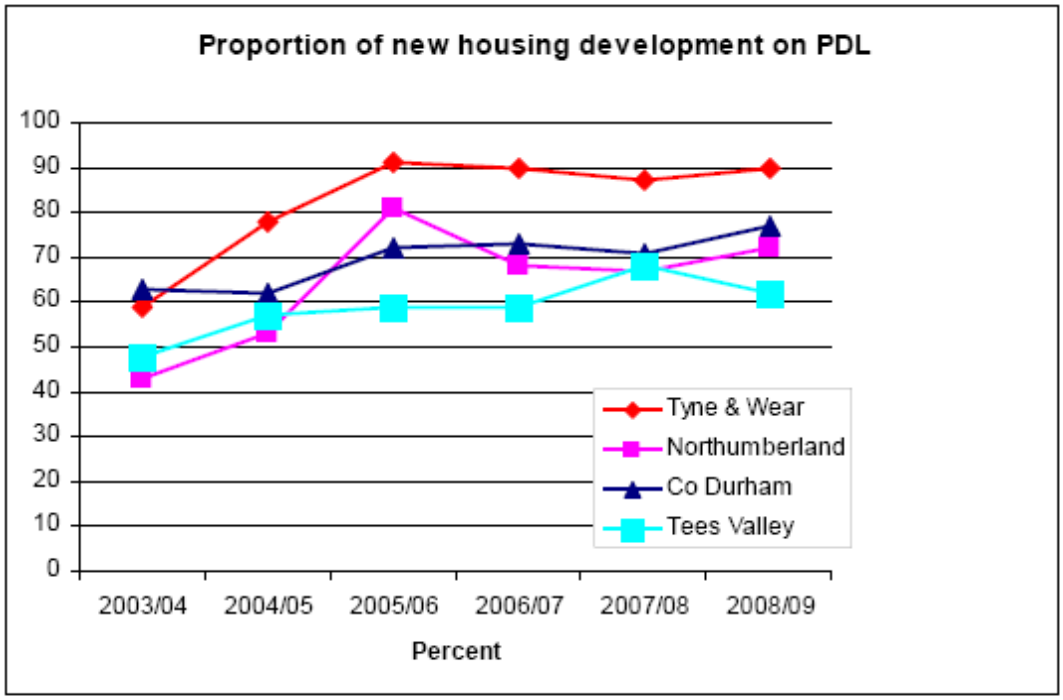
as serious. The region has 1,214 historic landfill sites some of which have caused land to be contaminated with hazardous materials and chemicals.

About three per cent of the North East region is covered by very good quality agricultural land and 39 per cent by good or moderate quality agricultural land. Nearly 80% of agricultural land in the North East is under some sort of agri-environment management which is an indicator of the extent to which land is being managed in a sustainable way.

The region has 1,214 historic landfill sites some of which have caused land to be contaminated with hazardous materials and chemicals.

The 2008/9 RSS Annual Monitoring Report states that the level of previously developed land being used for housing development has increased since 2003 (Figure 4.1.) in all sub-regions and accounted for 77% of all housing additions and conversions in 2008/9.

Figure 4.1 Proportion of New Housing Development on PDL, 2003-2009



Notes: no data 2008/09 for Durham city and Berwick upon Tweed.

Land Use

The amount of contaminated land in the region recorded in the 2004 sustainability report was estimated to be about 300,000 hectares. In contrast, the Environment Agency's state of

the environment report published in 2011 estimated that 5700 hectares of brownfield/contaminated land in the region is either derelict, vacant or is in use with the potential for development. Between 2006-2009, on average 62% of new properties were built on previously developed land, compared to the average for England over the same period of 76%. The 2004 sustainability appraisal recorded 51% of housing built on brownfield sites between 1989-1993, and 59% between 1999-2002.

4.4 Environmental Characteristics of Those Areas Most Likely to be significantly Affected

4.4.1 National

UK - Soil and Geology

Human activity has left a legacy of soil contamination and pollution that pose a risk to water quality, ecosystems and human health as well as to land and property value.

- Significant areas across the UK carry a burden of contamination from industrial activity, although this is progressively being cleaned up as sites are redeveloped. Whilst contamination is remediated during redevelopment, the process can be expensive;
- Disturbance of contaminated sites carries the risk of pollution pathways being created or re-opened for any existing ground contamination;
- There is currently increasing pressure on rural and agricultural land from developers as urban areas expand. Future population growth leading to an increase in the need for housing and related urban development infrastructure will put more pressure on protected land including important geological sites.

Soil degradation in England is accelerating. This is in part a natural phenomenon but some soil degradation processes are exacerbated by unsustainable human uses. Major threats include: erosion, organic matter decline, compaction, salinisation, landslides, contamination, sealing and biodiversity decline.[104]

[104] Dealing with contaminated land in England and Wales A review of progress from 2000-2007 with Part 2A of the Environmental Protection Act, Environment Agency, January 2009.

- According to the England Soil Strategy soils continue to face three main threats:
  - Soil erosion by wind and rain: erosion affects both the productivity of soils but also water quality and aquatic ecosystems;
  - Compaction of soil reduces agricultural productivity and water infiltration, and increases flood risk through higher levels of run off; and
  - Organic matter decline: The loss of soil organic matter reduces soil quality, affecting the supply of nutrients and making it more difficult for plants to grow, and increases emissions to the atmosphere.

Climate change and loss of organic matter are the most significant threats to Scottish soils.[105] The effect of industry, agricultural practices, forestry and climate change upon soils, particularly carbon rich peat soils, is also a key issue. Key pollutants include chemicals, oil or waste. Organic waste, including sewage sludge, is one of the main sources of heavy metal contamination of soils from human activities.[105]

In Wales the small proportion of land that is classified as 'best and most versatile' agricultural land needs to be conserved. There is also a need to protect soils in uplands and wetlands which contain high amounts of carbon and are vulnerable to acidification. [106]

The main pressures in Northern Ireland are development, infrastructure, mineral extraction industries, and tourism. A major problem in farmland is the over-accumulation of phosphorus in the soil, due to agricultural fertilisers. The intensification and expansion of agriculture is a key pressure on soil quality and erosion. [107]

UK – Land Use

5.6% of UK land is currently classed as 'built up.' Development pressure remains a constant factor in parts of the country, and it is not expected that previously-developed land will be able to fully deliver the UK's future needs. This will continue to place development pressures in rural areas and the urban fringe.

[105] State of the environment and trends – Scotland, http://www.seaguidance.org.uk/11/State-of-the-Environment.aspx

[106] Environment Strategy for Wales, Welsh Assembly Government, 2006, http://wales.gov.uk/topics/environmentcountryside/epq/envstratforwales/strategy/?lang=en

[107] Planning and Land Contamination, Northern Ireland Environment Agency, http://www.ni-environment.gov.uk/land-home/land-quality.htm

When greenfield land is used for development, it is likely to result in the permanent loss of that land from other uses such as agriculture. There are similar pressures to build across each of the UK administrations, however the details differ slightly between each.

The State of the Natural Environment report[108] notes that within rural England, the area of developed land has increased by about 4% since 1990, largely at the expense of agricultural land and that between 1998 and 2003 substantial greenfield development has occurred near many urban areas, notably at key growth points, but also in former coalfield belts. It continues that the pace of development within England is increasing, particularly for housing in response to demand and a historic shortfall in housing provision and that this is expected to have a dramatic effect on a large part of central and southern England though the series of Growth Areas and Growth Points.

4.4.2 North East of England

Figure 4.2 outlines the agricultural land classifications for the North East Region.

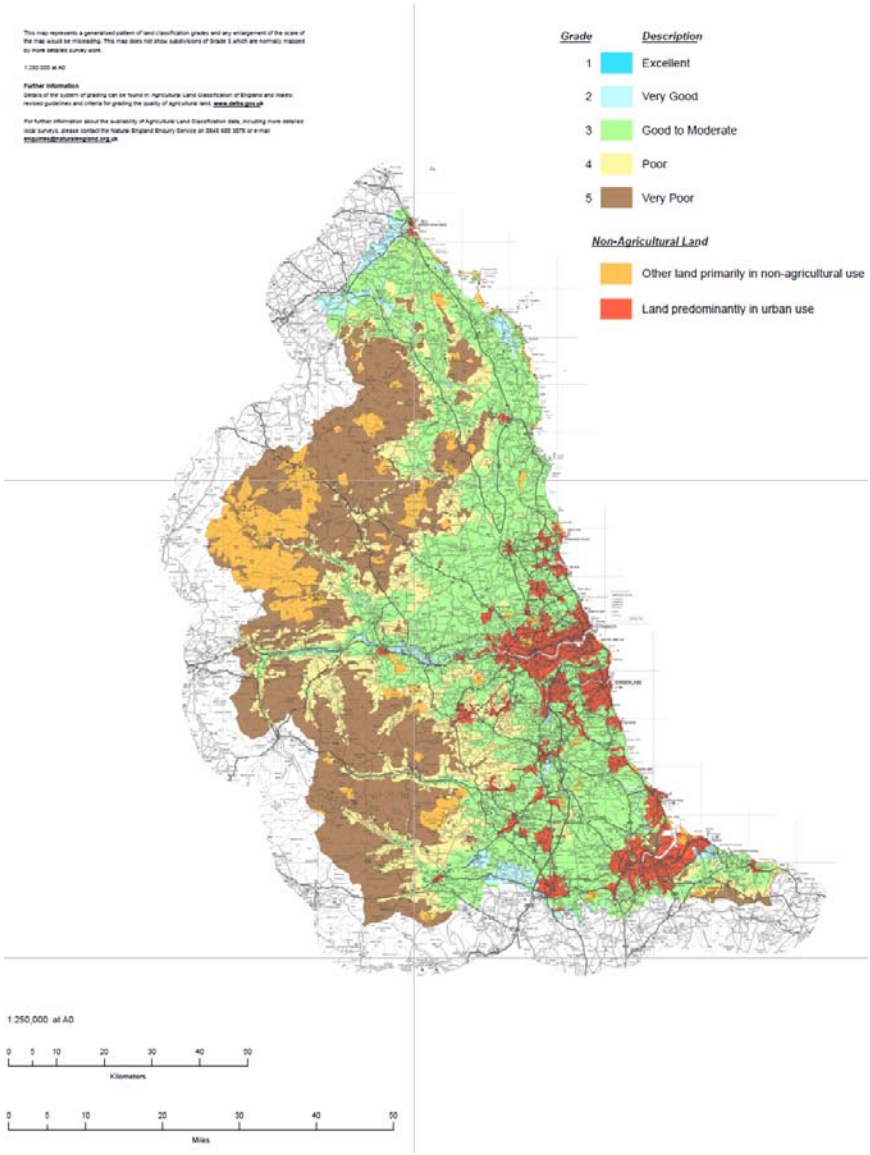
It shows that the western and more upland areas of the region associated with the Northumberland National Park and North Pennines AONB consist of largely poor quality agricultural land. The highest quality agricultural land tends to be located in close proximity to the existing river networks. This includes land at:

- River Tweed to north of region between Coldstream and Berwick-upon-Tweed.;
- Land around Newham Hall, Bamburgh and West Feltham located in close proximity to the coast and the River Aln;
- Sections along the floodplain of the River Tyne, between Haltwhistle and Ryton;
- Sections in close proximity to the River Wear, specifically land to the south of Chester-le-Street and Durham;
- Sections of the River Tees from the coastal areas of Marske-by-the-Sea and land between Barnard Castle and Darlington.

Large areas to the north east of the region ,central areas and land to the south east outside the main urban areas consist of good to moderate quality agricultural land.

[108] Natural England (2008) http://www.naturalengland.org.uk/publications/sone/default.aspx

Figure 4.2 Agricultural Land Classification in the North East



Source: Natural England 2011

4.5 Likely Evolution of the Baseline

4.5.1 National

UK – Soils and Geology

There is little data on the long term trends associated with soil; however, Defra have stated in the Soil Strategy (Defra 2009) that they have begun work to take a long-term view of all types of land use including the Land Use Futures Project to analyse future

land use challenges through looking at pressures and trends and developing scenarios and models, including the consideration of soil issues.

There is a steady loss of soils to development, contaminated sites, damage by muddy floods and water pollution by silt and fertilisers.[113] Continued pressure of development will result in the loss of productive soil, although it is also likely to lead to the remediation of contaminated soils. As more brownfield land is developed there may be more pressure for development on greenfield land which is likely to increase loss of soil resources. Climate change means that the UK is likely to see an increase in rainfall intensity which could lead to increased soil loss due to erosion.

However, the increase in public and policy awareness regarding geological SSSI sites and Geoparks may lead to an increase in the number of sites protected and managed. As quarries come to the end of their working lives there is potential for their identification and conservation as geologically important sites.

As there are now more stringent statutory controls on land contamination and remediation, increased areas of historic contamination are being remediated and fewer areas are being left in a contaminated state following decommissioning of commercial and industrial sites. Major remediation, regeneration and development projects, such as the Olympic Park and Thames Gateway developments in London are likely to further decrease the total area of contaminated land within the UK.

There are a number of European directives that are either currently being implemented or are under discussion that may influence the way in which land contamination is managed in the future (i.e. the Environmental Liabilities, Soil, Water, Groundwater and the Waste Framework Directives. The implementation of these regimes into UK legislation is likely to affect how contaminated land is dealt with[109]

UK – Land Use

The estimated broad habitat type in the UK and how it has changed from 1984 to 2007 was calculated by the Office of National Statistics[110] and is shown in Table 4.3. It shows that the area of land cover under arable and horticulture has decreased by 9.1% between 1998 and 2007. The area of grassland land cover has generally increased with improved grassland increasing by 5.7%. Built-up areas and gardens have increased by 3.4% between 1998 and 2007.

[109] Dealing with contaminated land in England and Wales A review of progress from 2000-2007 with Part 2A of the Environmental Protection Act, Environment Agency, January 2009.

[110] http://www.statistics.gov.uk/STATBASE/Expodata/Spreadsheets/D5325.xls (accessed 22.10.2009).

Table 4.3 Estimated Area of Broad Habitats in the UK in 1984, 1990, 1998 and 2007

Land Type	1984	1990	1998	2007	% Change Between 1998 and 2007
Broadleaved, mixed and yew woodland	1317	1343	1328	1406	5.9
Coniferous woodland	1243	1239	1386	1319	-4.8
Linear features	491	581	511	496	-2.9
Arable and horticulture	5283	5024	5067	4608	-9.1
Improved grassland	5903	4619	4251	4494	5.7
Neutral grassland	467	1669	2007	2176	8.4
Calcareous grassland	75	78	61	57	-6.6
Acid grassland	1476	1821	1503	1589	5.7
Bracken	439	272	315	260	-17.5
Dwarf shrub heath	1388	1436	1299	1343	3.4
Fen, Marsh, Swamp	428	427	426	392	-8.0
Bog	2303	2050	2222	2232	0.5
Standing open waters[1]	284	200	196	204	4.1
Rivers and streams[1]	70	70	65	58	-10.8
Montane	41	n/a	41	42	2.4
Inland rock	38	76	111	84	-24.3
Built-up areas and gardens	1268	1266	1279	1323	3.4
Other land	n/a	57	107	113	n/a
Unsurveyed land[2]	n/a	522	522	522	n/a
Total[3]	**22514**	**22632**	**22601**	**22627**	

It is not known whether the decrease in arable and increase in improved grassland is likely to continue at the same rate in the future although it does seem likely that the amount of developed land and garden will continue to increase as some development will inevitably take place on greenfield land.

The area land occupied by agricultural holdings and the area in actual use for agriculture has changed very little across the UK in the past 25 years. The total area of land in agricultural holdings in the UK fell on average by about 15,400 hectares per annum between 1983 and 2008. This was equivalent to a rate of 0.09% per annum, or

about 1% per decade, although over the latter 10 years of that period the reduction in land area was minimal.[111]

The clearest trend in land use change in the UK over the past quarter of a century has been the conversion of land from agriculture to forestry and woodland. Forestry Commission estimates of the area of forest and woodland cover in the UK imply an average annual net increase of 25,000 hectares since 1980, equivalent to 1.05% per year. There seems to have been some reduction in the rate of growth from 2000 to 2008 with the net increase in tree cover in this period being about 7,000 hectares per annum (or 0.24%). These recent patterns of woodland expansion continue a very clear upwards trend, which has led to a doubling of the area of UK woodland since World War II.

New planting has predominantly responded to subsidy and has involved the expansion of small broadleaved woodlands within agricultural holdings. The average annual increase in woodland on farms (14,500 hectares per annum) accounts for more than half of the net increase in the wooded area as a whole. The area of woodland within agricultural holdings has thus more than doubled since the early 1980s.

In 2008, there was an estimated 63,750 hectares of previously-developed land in England, up from 2.6% from 62,130 hectares in 2007. An estimated 32,400ha of previously-developed land was vacant or derelict, 51% of the total. The remaining 31,350ha was in use but with potential for redevelopment.[112] The conversion of previously undeveloped land accounted for about 5,000 hectares per annum between 2000 and 2006. This is equivalent to 0.04% of England's land area, and about one-third of the average annual flow of 15,700 hectares estimated for the period 1945–1975. Of all greenfield land developed between 2000 and 2006, roughly 57% was for residential uses, with 20% being for industrial, commercial and related activities, and the remaining 23% for other developed uses, predominantly transport.

England – Soils and Geology

An estimated 25,000 inspections of land took place in England between 2000 and 2007.[113]

Key objectives and targets within the Soil Strategy for England include:[114]

[111] Foresight Land Use Futures Project (2010). Final Report.

[112] Previously Developed Land that may be Available for Development: Results from the 2008 National Land Use Database of Previously-Developed Land in England, Homes and Communities Agency, February 2010, http://www.homesandcommunities.co.uk/nlud-pdl-results-and-analysis.htm

[113] Dealing with contaminated land in England and Wales A review of progress from 2000-2007 with Part 2A of the Environmental Protection Act, Environment Agency, January 2009.

- To develop plans for future soil monitoring by 2010;
- To undertake further research in areas including best practices to protect and enhance levels of soil organic matter, contribution of soil management to flood mitigation and best practices to prevent and remediate soil degradation;
- To significantly reduce the rate of loss of stored soil carbon by 2020;
- To halt the decline of soil organic matter caused by agricultural practices in vulnerable soils by 2025; and
- To introduce a reviewed Soil Protection Review to make it a more effective tool for soil management.

England – Land Use

Between 2002 and 2007, the total amount of previously-developed land in England has declined by 6%, vacant and derelict land has declined by 17.5% while land currently in use with potential for redevelopment has increased by 12%.[115]

There have also been changes in the changes to land use related to broad habitat types. Between 1998 and 2007 in England there was a significant increase in the area of Broadleaved Woodland (5.8%), Neutral Grassland (12.6%), Dwarf Shrub Heath (15.1%) and Standing Open Water and Canals (5.3%6). The increase in the area of Dwarf Shrub Heath between 1998 and 2007 followed a decrease in area between 1990 and 1998. The increase in the area of Standing Open Water and Canals recorded in England between 1998 and 2007 continued the increases recorded by Countryside Survey since 1990.[116]

On the other hand, there was a significant decrease in the area of Arable and Horticulture Broad Habitat (8.8%) in England across the same period. No statistical change in extent was detected in the Coniferous Woodland, Improved Grassland, Bracken, Bog, Fen, Marsh and Swamp and Calcareous Grassland Broad Habitats in England between 1998 and 2007.

[114] Safeguarding our Soils: A Strategy for England, Defra, 2009, http://www.defra.gov.uk/environment/quality/land/soil/documents/soil-strategy.pdf

[115] Communities and Local Government 2008.

[116] Countryside Survey for England (2007)h ttp://www.countrysidesurvey.org.uk/sites/default/files/pdfs/reports2007/england2007/CS-England-Results2007-Chapter02.pdf

4.5.2 North East of England

The importance of soils as a non-renewable multi-functional resource and the potential damage to their condition through inappropriate management has only recently been given attention and there is currently no direct legislation protecting our soil environments, although they are often protected indirectly through other legislation. This recent appreciation of soils is likely to lead to more stringent protection measures for the most valuable soil landscapes regionally.

Although development will be prioritised on previously developed land there will be a requirement to use Greenfield Land which will put pressure on existing brownfield land. Ultimately, using land for buildings and infrastructure can damage soils irreversibly (soil sealing). As outlined within Policy 6 (Locational Strategy) of the RSS the aim is to *focus development in the most sustainable locations, in particular into the Tyne and Wear and Tees Valley city regions' two main conurbations and settlements, while ensuring that regeneration towns and rural service centres are allowed to develop appropriately to meet their local needs.*

In 2008/09, Tyne and Wear city region saw approximately 3321 new housing completions. Of this 14% occurred on greenfield sites and 86% on previously developed land (PDL) sites. This means there has been an increase in the proportion of development on PDL, but a significant drop in housing completions over all. 714 affordable dwellings were delivered in the Tyne and Wear city region. 22% of the total housing completions occurred within Sunderland, 14% in Newcastle and 12% in Gateshead and Derwentside.

The region's Green Belt, along with other countryside and open space, plays a critical role in sustaining urban communities as well as checking the unrestricted sprawl and coalescence of settlements. The designated Green Belt forms a band of protected land around the Tyne and Wear conurbation, including adjacent areas of Northumberland and County Durham. The RSS seeks to maintain the broad extent of the Tyne and Wear Green Belt which will protect soil quality within this area.

4.6 Assessing Significance

Table 4.4 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on the soil and geology. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 4.4 Approach to Determining the Significance of Effects on Geology and Soils

Effect	*Description*	*Illustrative Guidance*
++	Significant positive	• Alternative would restore and significantly improve soil quality and land stability to conditions beyond current levels and remove all soil contamination so that soil functions and processes would be significantly improved in the long term. • Alternative would minimise, and protect from irreversible damage high quality agricultural land (i.e. best and most versatile, grades 1, 2, and 3a of the Agricultural Land Classification). • Alternative would have a significant and sustained positive impact on a national designated geological site. • Alternative would seek to minimise use of any undeveloped land, and look to preferentially reclaim and redevelop significant areas of previously-developed or derelict land.
+	Positive	• Alternative would cause minor improvements in soil quality and land stability so that soil functions and processes would be improved in the long term. • Alternative would reduce any potential damage to high quality agricultural land (i.e. best and most versatile, grades 1, 2, and 3a of the Agricultural Land Classification). • Alternative will reduce any potential hazard associated with existing soil contamination. • Alternative would have a minor and temporary positive impact on a national designated geological site. • Alternative would seek to preferentially make use of previously developed land; however, would allow for development of undeveloped.
0	No (neutral effects)	• Alternative would not cause damage or loss to soil such that soil function and processes will not be affected. • Alternative would not affect land stability. • Alternative would not involve significant loss of any undeveloped or developed land.
-	Negative	• Alternative would lead to an increase in pollutant discharges to soil, however these would be less than permitted limits, such that there will be minor short term increases in land contamination. • Alternative would cause minor increases in potential hazards associated with existing soil contamination. • Alternative would cause a temporary loss of soil so that soil function and processes would be negatively affected in the short/medium term. • Alternative would cause minor short term negative effects on geological conservation sites/important geological features or soils of high importance. • Alternative would lead to the majority of development using undeveloped land or land that has reverted to a 'wild' state.

Effect	Description	Illustrative Guidance
- -	Significant negative	• Alternative would lead to a statutory limit being reached or exceeded in relation to land contamination, such that there would be a major and sustained increase in land contamination. • Alternative would cause major and sustained increases in potential hazards associated with existing soil contamination. • Alternative would cause considerable loss of soil quality, such that soil function and processes will be irreversibly and significantly affected. • Alternative would cause a substantial and permanent loss of or damage to soil of high importance and/or designated geological conservation sites/important geological features. • Alternative would not develop derelict or previously-developed land, but would lead to development of significant areas of undeveloped land/ land that has reverted to a 'wild' state.
?	Uncertain	• From the level of information available the impact that the alternative would have on this objective is uncertain.

4.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 4.5 summarises the significant effects identified in the detailed assessment of the East of England Plan policies against the soil and geology topic.

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Policy 2: Sustainable Development	Retention	++	++	++	Policy 2 –Sustainable Development sets out a number of general principles around Sustainable Development, encompassing environmental, social and economic objectives. This policy seeks to embed sustainable development – applying the guiding principles behind the UK Sustainable Development Strategy 2005 and the Integrated Regional Framework - at the heart of plan polices and decision-making in the region, although it does not contain any spatially–specific policy. The concept of sustainable development is emphasised within the RES The policy does contain a series of key guiding principles including promoting the reclamation and reuse of derelict land and to make more productive use of land. The policy also identifies the need to protect and enhance the Region's biodiversity, geodiversity and soil quality. As a consequence, the policy has been appraised positively against soil quality. Paragraph 109 to 119 of the NPPF will apply concerning the protection and enhancement of the natural and local environment. This includes recognising the wider benefits of ecosystem
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					services. Paragraph 109 in the NPPF states that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, geological conservation interests and soils and preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil (and other types) of pollution. Paragraph 117 states that planning policies should aim to prevent harm to geological conservation interests. The plan policies are supported by the development management requirements set out in paragraph 118. In consequence, revocation has been assessed as having the same positive benefits as retention.
Policy 4: The Sequential Approach to Development	Retention	++	++	++	Policy 4 – Sequential Approach to Development requires LDF to adopt a sequential approach to the identification of land for development and to give priority to previously developed land and buildings in the most sustainable locations. The policy as written excludes renewable energy and mineral workings. The sequential approach provides the greatest scope to: re-use land and buildings; reduce pressure on greenfield land; best utilise existing infrastructure and investment; reduce the need to travel whilst maximising accessibility and use of public transport. Consequently the retention of the policy has been appraised positively for soil. The National Planning Policy Framework provides clear instruction on the need to encourage the use of previously developed land provided that it is not of high environmental quality. The NPPF also provides clear policies on the promotion of sustainable transport, requiring local plans to protect and exploit opportunities for the use of sustainable transport modes for the movement of people (or goods). Save for the exception of retail developments, the NPPF contains no guidance pertaining to adopting a sequential test for development. Therefore the revocation of this policy could has been appraised has having uncertain effects on soil.
	Revocation	?	?	?	
Policy 28: Gross and Net Dwelling Provision	Retention	=	=	=	This policy seeks to increase and improve the region's housing stock The policy sets out specific targets for the average annual net additions to the dwelling stock between 2004-2021. Whilst it does not specifically mention land use, the increase in housing stock will lead to an increased demand on land for construction. The additional housing growth option proposed will result in greenfield releases e.g. Great Park in Newcastle as not all will be able to be accommodated on Brownfield land. This policy therefore has significant negative impacts on the region's geology and soils. The impact of greenfield releases will be dependent on how in practice housing is implemented in terms of
	Revocation	?	?	=	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					its location, design and construction. The link to Policy 29 (Delivering and Managing Housing Supply) and their emphasis on previously developed land is good in terms of re-using land. For those eight authorities with a development plan which does not reflect RSS housing targets the RSS provided clarity on the quantum of development required; however, in the short term following its revocation, there is likely to be a temporary (short and medium term) period of uncertainty whilst some local authorities develop new local plan policies consistent with the NPPF and local needs. During this temporary period, it is likely that the level of development in these LPAs will be lower than if the RSS were in place. This will mean that the negative effects associated with development (on biodiversity, water, air, material assets etc) will be uncertain in the short-medium term.
Policy 29: Delivering and Managing Housing Supply	Retention	++	++	++	The policy identifies sub-regional targets for housing development on previously developed land which reflect that 75% of the regions previously used land is located within Tyne and Wear and Tees Valley. Increasing the amount of development on previously developed sites, re-use of existing buildings and increasing housing density should have a positive effect on all environmental resources. It is possible that removing the requirement to direct most strategically significant growth to the region's major urban areas and removing the target for the use of previously developed land could lead to less development within the major urban areas, and result in less development of brownfield land. This could lead to more development of unconstrained countryside. However, if it increased the amount of development on green field land away from existing settlements, this could have negative impacts on the countryside (i.e. soil and landscape); The removal of density targets could result in lower level density development necessitating more land to meet locally defined housing targets. This could have an adverse impact on, soil and landscape. The effect of revocation has therefore been assessed as uncertain.
	Revocation	?	?	?	
Policy 33: Biodiversity and Geodiversity	Retention	++	++	++	This policy contributes to the Plan's goal of integrating the delivery of biodiversity with social and economic objectives (including policy 8), and to ensure that planning contributes to improving biodiversity objectives set out in Biodiversity Action Plans. Protection and improvement of statutory sites and reversing habitat fragmentation/creating new sites will increase conditions for existing species and attract new species, leading to significant biodiversity and soil benefits. The National Planning Policy Framework makes clear that the planning system should contribute to and enhance the natural environment, including by
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					protecting and enhancing valued landscapes, minimising impacts on biodiversity and providing net gains in biodiversity where possible. The NPPF states that pursuing sustainable development means moving from a net loss of biodiversity to achieving net gains for nature. This means that local planning policies should promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations linked to national and local targets, and identify suitable indicators for monitoring biodiversity in the plan.

4.7.1 Effects of Retention

The Regional Strategy sets out the need for a net increase of 128,000 addition homes in the Region between 2004 and 2021. It is acknowledged that policies will become increasing outdated and in some cases in conflict with the national policies in the Framework. By setting out the overarching direction within which local plans should be developed, retention of the Regional Strategy would have significant benefits on geology and soils in the short to long term by protecting geodiversity and through directing development towards previously developed land.

4.7.2 Effects of Revocation

The main adverse impacts on soil are a result of development. Assuming the level of growth in the region is the same as if the Regional Strategy is revoked it is possible in some areas that there will be less development on brownfield land and more on greenfield sites.

The main adverse impacts on soil are a result of land use development, effects on land use will depend on the resulting scale, nature and location of housing development across the region over the plan period and beyond, linked to growth in local employment, transport and services. The short, medium and long term impacts of the revocation of Policy 28 Gross and Net Dwelling Provision and Policy 29 Delivering and Managing Housing Supply is unknown as regional housing targets will be lost. However, it is anticipated that the same if not greater level of housing will be provided resulting in the same significant negative effects in the long term. It is acknowledged that approximately 75% of the brownfield land resource in the North East is located within the areas identified as City-Regions in the RSS. Paragraph 111 of the NPPF

states that *Planning policies and decisions should encourage the effective use of land by re-using land that has been previously developed (brownfield land), provided that it is not of high environmental vale. Local planning authorities may continue to consider the case for setting a locally appropriate target for the use of brownfield land.* It has therefore been assumed that in the North East there will remain an emphasis upon development on brownfield sites within the urban core as a means of driving regeneration.

Policies in the NPPF seek to protect best and most versatile land (i.e. ALC Grades 1-3a) and states that planning policies and decisions should encourage the effective use of land by re-using land that has been previously developed.. However, it is probable in some areas that there will be less development on brownfield land and more on greenfield sites than would have occurred with the Regional Strategy in place.

4.7.3 Effects of Partial Revocation

The effects of partial revocation concern either:

- Revoking all the quantified and spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and retaining for a transitional period the non spatial policies, ambitions and priorities;
- Retaining for a transitional period all the spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and revoking the non spatial policies, ambitions and priorities; or
- Retaining for a transitional period policies, ambitions and/or priorities, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on soil, geology and land use associated with the revocation of the quantitative policies are summarised in **Table 4.5** for policies 28 and 29. The identified effects result from the potential loss of land, required to meet housing need. However, the effect is also identified for retention of the North East of England Plan,

The assessment has found that there are no policies in the East of England Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

4.8 Mitigation Measures

No mitigation measures are proposed however it is recognised that local authorities will need to co-operate with their Local Nature Partnerships and neighbouring local authorities in line with the “duty of co-operate” to ensure benefits are delivered in the long term.

In preparing their local plans local authorities must carry out a Sustainability Appraisal and Habitats Regulations Assessment which will be tested through Examination in Public thereby providing a safeguard to help ensure significant positive effects will result given the quantum and location of development.

4.8.1 Proposals for Monitoring

Significant and uncertain effects in respect of geology and soils relate to:

- SSSI favourable condition status (geological sites);
- Agricultural land classification;
- Green Belt releases;
- % of development on previously developed land;
- Green infrastructure provision and accessibility.

5. Water Quality and Resources

5.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals to revoke the Regional Strategy on water quality and resources. Information is presented for both national and regional levels.

Water quality and resources within this context are defined as inland surface freshwater and groundwater resources, and inland surface freshwater, groundwater, estuarine, coastal and marine water quality.

There are links between the water quality and resources topic and a number of other SEA topics, in particular the effects and interactions of water quality and resources on biodiversity, population and human health.

5.2 Summary of Plans and Programmes

5.2.1 International

The ***Water Framework Directive*** (WFD) is the most substantial piece of EC water legislation to date and replaces a number of existing Directives including the Surface Water Abstraction Directive. It establishes a framework for the protection of inland surface waters, transitional waters, coastal water and groundwater and is designed to improve and integrate the way water bodies are managed, including encouraging the sustainable use of water resources. The key objectives at European level are general protection of the aquatic ecology, specific protection of unique and valuable habitats, protection of drinking water resources, and protection of bathing water.

In accordance with Article 4(1), the Directive objectives for surface water, groundwater, transitional and coastal water bodies are to:

- Prevent deterioration;
- Reduce pollution;
- Protect, enhance and restore condition;
- Achieve ‘good status’ by 2015, or an alternative objective where allowed; and

- Comply with requirements for protected areas.

The WFD requires that all polluters of the water environment should pay, and that implementation of the Directive is achieved in a fair and proportionate way across all sectors.

The aim of the ***Marine Strategy Framework Directive (2008)*** is to protect more effectively the marine environment across Europe. It aims to achieve good environmental status of the EU's marine waters by 2021 and to protect the resource base upon which marine-related economic and social activities depend.

With specific regard to coastal water quality, the ***Bathing Waters Directive (2006/7/EC)*** sets standards for the quality of bathing waters in terms of:

- The physical, chemical and microbiological parameters;
- The mandatory limit values and indicative values for such parameters; and
- The minimum sampling frequency and method of analysis or inspection of such water.

The ***Floods Directive (2007/60/EC)*** aims to provide a consistent approach to managing flood risk across Europe. The approach is based on a 6 year cycle of planning which includes the publication of Preliminary Flood Risk Assessments, hazard and risk maps and flood risk management plans. The Directive is transposed into English law by the Flood Risk Regulations 2009.

The ***Urban Waste Water Treatment Directive (91/271/EEC)*** has the objective of protecting the environment from the adverse effects of untreated 'urban waste water' ('sewage'). The directive establishes minimum requirements for the treatment of significant sewage discharges. An important aspect of the directive is the protection of the water environment from nutrients, (specifically compounds of nitrogen and phosphorus), and/or nitrates present in waste water where these substances have adverse impacts on the ecology of the water environment or abstraction source waters. It was transposed into English law through the Urban Waste Water Treatment (England and Wales) Regulations 1994 (as amended).

In addition, the following European Directives have relevance to the protection of the water environment and resources:

- Dangerous Substances Directive (76/464/EEC);
- Quality of Shellfish Waters Directive (79/923/EEC);

- Directive on Priority Substances (2008/105/EC);
- Groundwater Directive (80 /68/EEC);
- Drinking Water Directive (98/83/EC).

5.2.2 National

UK

The ***Flood and Water Management Act (2010)*** makes provisions about water, including those related to water resources, including;

- To widen the list of uses of water that water companies can control during periods of water shortage, and enable Government to add to and remove uses from the list;
- To encourage the uptake of sustainable drainage systems by removing the automatic right to connect to sewers and providing for unitary and county councils to adopt SUDS for new developments and redevelopments;
- To reduce 'bad debt' in the water industry by amending the Water Industry Act 1991 to provide a named customer and clarify who is responsible for paying the water bill;
- To make it easier for water and sewerage companies to develop and implement social tariffs where companies consider there is a good cause to do so, and in light of guidance that will be issued by the Secretary of State following a full public consultation.

The ***Marine and Coastal Access Act (2009)*** sets out a number of measures including the establishment of Marine Conservation Zones (MCZs) and Marine Spatial Plans. The main objectives of the ***Marine Policy Statement (2011)*** are to enable an appropriate and consistent approach to marine planning across UK waters, and to ensure the sustainable use of marine resources and strategic management of marine activities from renewable energy to nature conservation, fishing, recreation and tourism.

The ***National Policy Statements (2011 and 2012)*** brings together national government policy for nationally significant infrastructure projects (NSIPs) for energy, wastewater and ports infrastructure.

England

In England, the implementation work related to the Water Framework Directive is undertaken by the Environment Agency, working in partnership with key stakeholders. For these reason the majority of data and programmes regarding Water Quality and Resources cover both administrations and therefore England and Wales are considered collectively in this chapter.

There are 11 River Basin Districts in England and Wales which each require (under the Water Framework Directive) a ***River Basin Management Plan (RBMP)*** including objectives for surface water, groundwater, transitional and coastal water bodies.

The Government's 2011 White Paper "***Water for Life***" sets out the Government's vision for future water management in which the water sector is resilient and which water is valued as a precious resource. The key reforms set out in the White Paper are:

- The introduction of a reformed water abstraction regime, as signaled in the Natural Environment White Paper changes to deal with the legacy of over-abstraction of our rivers;
- A new catchment approach to dealing with water quality and wider environmental issues;
- With the Environment Agency and Ofwat we will provide clearer guidance to water companies on planning for the long-term, and keeping demand down;
- Consultation on the introduction of national standards and a new planning approval system for sustainable drainage; and
- Collaboration with water companies, regulators and customers to raise awareness of the connection between how we use water and the quality of our rivers.

Water for people and the environment - Water resources strategy for England and Wales (2009) published by Environment Agency, includes the following objectives:

- Enable habitats and species to adapt better to climate change;
- Allow the way we protect the water environment to adjust flexibly to a changing climate;
- Reduce pressure on the environment caused by water taken for human use;

- Encourage options resilient to climate change to be chosen in the face of uncertainty;
- Better protect vital water supply infrastructure;
- Reduce greenhouse gas emissions from people using water, considering the whole life-cycle of use; and
- Improve understanding of the risks and uncertainties of climate change.

Other relevant strategies include the Environment Agency's ***Catchment Abstraction Management Strategies*** (CAMS) which have identified a number of catchments in England and Wales which are designated as Over-Licensed or Over-Abstracted. That is, the current level of licensed abstraction could result in an unacceptable stress on the catchment's ecology (designated over-licensed) or possibly is resulting in an unacceptable effect (designated over-abstracted).

- The ***National Planning Policy Framework (NPPF) (2012)*** covers the theme of water resources including reference to surface and ground waters as well as the related topic of flood risk;
- The NPPF specifically requires that local authorities in the their Plan making should set out what it terms as Strategic Priorities and that water supply, wastewater, flood risk and coastal change management are examples of such priorities. In this way the NPPF seeks to ensure that the importance of water resources is recognised in Plans and decisions. Furthermore, Local Authorities are expected to work with other authorities and providers developing where necessary, strategic cross-boundary priorities as well as their own local, development efficiency type policies. Also, within the NPPF paragraphs are objectives to ensure that the planning system affords protection to amongst other environmental elements, water resources, by preventing "new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability";
- For flood risk, the NPPF provides Government policy in several paragraphs and a further technical document, the Technical Guidance to the National Planning Policy Framework. It continues the use of sequential and exception tests in drawing up local plans and recommends that local policy should be upheld by strategic flood risk assessment and take "account of advice from the Environment Agency and other relevant flood risk

management bodies, such as lead local flood authorities and internal drainage boards";

- The NPPF text provides guidance on a preference to locate development elsewhere from flood risk areas in front of finding design solutions if development has to occur in them. For development in flood risk areas the NPPF upholds the requirement for Planning applications to be supported by a flood risk assessment which includes a preference for the use of SuDS in water management.

5.2.3 North East of England

Regional plans relating to Water which form the core documents in relation to base line gathering are:

North East Regional Flood risk Appraisal (RFRA) 2010: The primary objective of a RFRA is to provide an appraisal of strategically significant flood risk issues in a region (in this case the North East) in order to guide strategic planning decisions.

Yorkshire and North East Regional Drought Plan 2012: The Yorkshire and North East Regional drought teams cover the areas east of the Cheviot Hills and Pennines from the Scottish Border south to the Peak district, and includes the major cities of Newcastle upon Tyne, Leeds, Kingston upon Hull and Title Yorkshire and North East Region Drought Plan.

Northumbria River Basin District River Basin Management Plan (2009): Undertaken by the Environment Agency to ensure our combined efforts achieve the improvement needed in the Northumbria River Basin District.

Catchment Flood Management Plans (CFMPs) have been produced by the Environment Agency as a tool for helping to understand the factors that contribute to flood risk and to determine how best to manage future flood risk within a particular catchment. There are six CFMPs cover the north east regional Flood Risk Area relating to the main river catchments and profiles each are provided below. These include:

- Northumberland;
- Tyne;
- Wear;
- Tees;
- Till and Breamish;

- Wansbeck and Blyth.

Each CFMP has been profiled in more detail in Section 5.3.2.

Shoreline Management Plans (SMPs) have also been produced to provide a means for local authorities and other decision makers to identify the most sustainable approaches to managing the coastal (tidal and erosion) risks the short term (0-20 years), medium term (20-50 years) and long term (50-100 years). The North East region is covered by two adjoining SMPs and are profiled below:

- Scottish Border to River Tyne; and
- River Tyne to Flamborough Head.

Each SMP has been profiled in more detail in Section 5.3.2.

5.3 Overview of the Baseline

5.3.1 National

UK

The UK has a diversity of inland and coastal waters (such as reservoirs, lakes, rivers, canals, estuaries, transitional waters, and coastal waters). Protected water features include waters designated for human consumption (including those abstracted from groundwater); areas designated for the protection of economically significant aquatic species (e.g. shellfish or freshwater fish); bathing waters (under the Bathing Waters Directive); nutrient-sensitive areas; and areas with waters important to protected habitats or species under the Habitats Directive or the Birds Directive.

There are 182 protected areas in UK inshore waters with a marine element, which includes 81 Special Protection Areas (SPAs) with marine habitats for birds, 98 Special Areas of Conservation (SACs) with marine habitats or species and three Marine Nature Reserves. In total the area coverage of these sites exceeds 1.8 million hectares, or 2.2% of UK waters.[117]

The principal aquifers of the UK are located in the lowlands of England. The most important are the Chalk, Permo-Triassic sandstones, the Jurassic limestones and the Lower Greensand. Around 81% of groundwater bodies in England are at risk of failing Water Framework Directive objectives because of diffuse pollution.

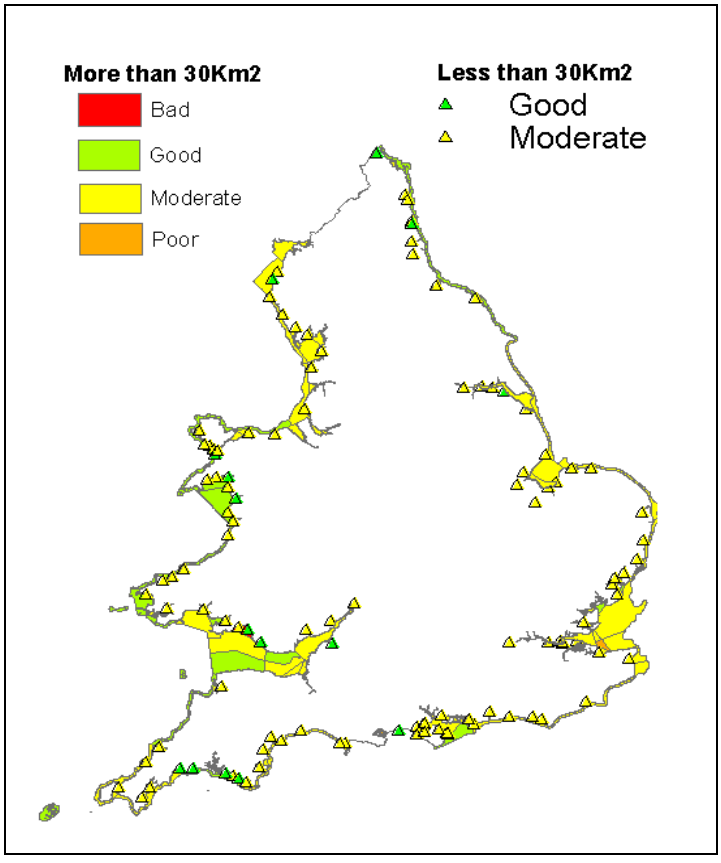
[117] http://www.defra.gov.uk/foodfarm/fisheries/documents/mpp2009-10info.pdf

As the majority of data regarding water resources and quality is collected by the Environment Agency (covering both England and Wales), Scottish Environment Protection Agency and Northern Ireland's Department of Ireland, there is little available data on a UK level and therefore for this chapter the remainder of the baseline is considered by these divisions of administrations.

England

Coastal water quality has improved over the last two decades, however current WFD draft classification results and maps produced by the Environment Agency indicate that there are still a large proportion of coastal waters in England (and Wales) that are classified as being of Moderate Ecological Status (see Figure 5.1) i.e. are failing to meet 'Good Ecological Status' (GES) on the basis of a number of physio-chemical and biological standards and are therefore in need of measures to achieve GES.

Figure 5.1 Ecological Status/Potential of Estuaries and Coasts in England and Wales



Source: *Framework Directive results and maps* available at http://www.environment-agency.gov.uk/research/library/data/97343.aspx (accessed 21/10/2009)

River water quality in England has been steadily increasing since 1990 and in 2009, 73% of rivers were of good biological quality. Between 2006 and 2007, the percentage of rivers of 'good' chemical quality rose from 74% to 76% (based on the General Quality Assessment system[118] which is based on 3 determinands – dissolved oxygen, biochemical oxygen demand and ammoniacal nitrogen). In 2009 this rose to 80 per cent. High levels of phosphorus can result in increased algal growth in freshwater and high levels of nitrate are of concern in relation to drinking water abstractions. Rivers with the highest concentrations of phosphate and nitrate are mainly in central and eastern England reflecting geology, agricultural inputs and higher population density.

The consumption of water abstracted from non-tidal surface and groundwater in England and Wales has fallen from an estimated 41.2 thousand megalitres/day in 2000 to 33.6 thousand megalitres/day in 2009.

5.3.2 North East of England

Water Supply

Northumbrian Water provides water and sewerage services from the Scottish border to North Yorkshire. It provides public water supply for major cities including Newcastle upon Tyne, Durham and Darlington. They also operate Kielder Water which is Northern Europe's largest manmade lake, located in the headwaters of the River North Tyne.

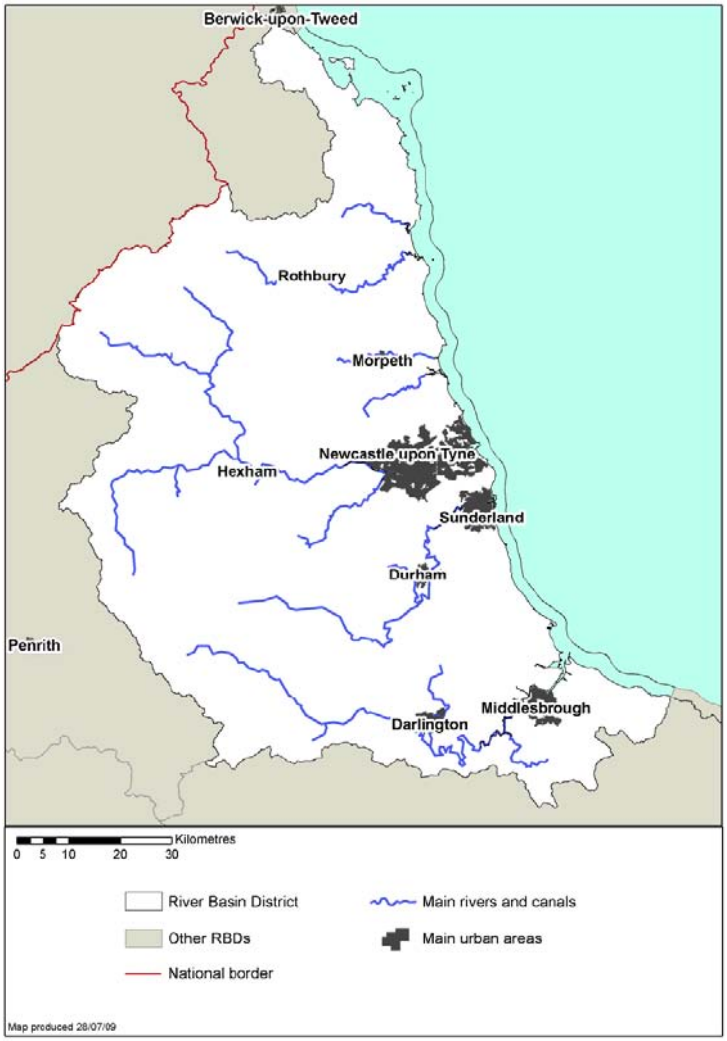
The Northumbria River Basin District

The Northumbria River Basin District covers an area of 9,029 km from the Scottish Border to just south of Guisborough, and from the Pennines east to the North Sea. It includes Northumberland and County Durham, with small areas of North Yorkshire and Cumbria. The Rivers Tweed and Till are not included in the Northumbria River Basin District as they are part of the Solway Tweed River Basin District.

Approximately 2.5 million people live in the region, primarily in two locations: Tyne and Wear, and the Tees Valley. The river basin district's principal urban centres are former industrial towns, associated with the coal, steel and shipbuilding industries. The most significant cities and towns include Sunderland, Newcastle, Durham, Stockton and Middlesbrough. Approximately 30% of the river basin district population lives within these cities. Figure 5.2 below outlines the extent of the river basin.

[118] The GQA system is being superseded by the Water Framework Directive regime, however the transition is on-going.

Figure 5.2 Map of Northumbria River Basin District



Following on from the above profile of the Northumbria River Basin District Table 5.1 outlines the water body numbers falling within the River Basin which are taken from figures provided within the Water Framework Directive.

Table 5.1 Water Bodies Within Northumbria River Basin District

	River and Canal *	Lake and reservoir	Estuary (transitional)	Coastal	Groundwater	Total
Natural Water bodies	265	14	1	5	9	294
Artificial Water bodies	18	33	0	1	n/a	52
Heavily modified water bodies	97	26	6	1	n/a	130
Total	380	73	7	7	9	476

Source: Water Framework Directive.
* The river and canal category also includes surface water transfers (SWTs). The total length of the river covered by the Directive in this river basin district is 3,494 kilometres.

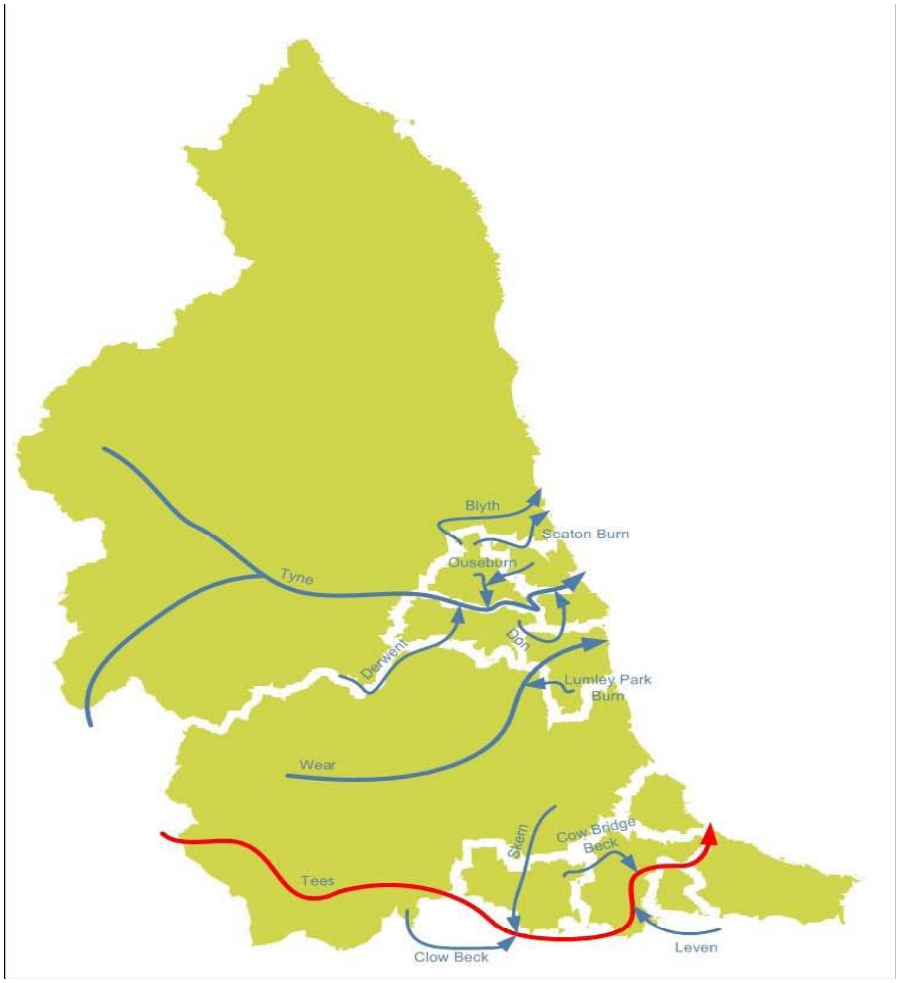
It was also confirmed within the Water Framework Development that 43% of surface waters are at good or better ecological status/potential and 37% of assessed surface waters are at good or better biological status now.

Hydrological Linkages Across the North East

The North East Area extends from the Scottish Borders to Teesside and includes the catchments of the Rivers Tweed, Till, Coquet, Tyne, Wear, Tees and numerous coastal rivers and streams.

The majority of rivers across the North East originate outside the administrative boundary in which they discharge either into a larger watercourse or the North Sea. Figure 5.3 identifies fluvial hydrological linkages within the North East. Only those key river systems which link different administrations have been identified. The Rivers Tyne, Wear and Tees have been highlighted as major rivers due to their size, flow and flood risk the pose, however small systems such as the Ouseburn, Lumley Park Burn and Cow Bridge Beck, whilst smaller, pose significant risk due to their location within urban areas. This figure highlights the important hydrological linkages and the potential for one council to impact on another during land use planning and catchment management. The River Tees has been illustrated in red to highlight its sensitivity to flow and additional inputs due to surface water runoff and reduction in floodplain storage could have significant impacts downstream. Alternatively, The River Tyne and Wear are illustrated in blue as their large capacity could potentially cope with small increases in flow due to upstream development. It is also noted that there is little large scale development planned upstream of Gateshead and Newcastle to impact on flow, with the majority of development concentrated around key settlements downstream.

Figure 5.3 Key Hydraulic Linkages between Districts[119]



Catchment Flood Management Plans

Northumberland

The Northumberland Rivers catchment extends southwards from Berwick-upon-Tweed down to the Blyth Valley, with the Cheviot Hills to the west and the North Sea to the east. Water abstracted in the catchment, mostly from surface waters, is predominately for public water supply with approximately 63% of the water licensed for abstraction taken in an average year.

The Northumberland Rivers catchment contains two groundwater bodies. The Northumberland Devonian and Lower Carboniferous groundwater body has been classified as being at good chemical and quantitative status. The Northumberland

[119] North East Regional Flood Risk Appraisal 2010.

Carboniferous Limestone and Coal Measures groundwater body has been classified as being at poor chemical status (due to impact on surface waters from discharges from abandoned mine workings e.g. at Chirm and Netherwitton) and good quantitative status.

There are 95 river water bodies and 7 lakes in the catchment. 22 are artificial or heavily modified. 42% of rivers (326 km or 36% of river length) currently achieve good or better ecological status/potential. 41% of rivers assessed for biology are at good or better biological status now, with 30 per cent at poor biological status, and three per cent at bad status.

Tyne

The rivers North and South Tyne rise in the rural Cheviot and North Pennine hills respectively, and converge at Warden. From Warden the Tyne flows through Hexham and Corbridge and on towards the large Tyneside conurbation. The Northern Tyne area is mostly covered by the Northumberland National Park.

Many of the rivers have a high conservation and ecological value, supporting salmon, sea and brown trout, as well as coarse fish. The Tyne is one of the best salmon rivers in England and populations of otters and pearl mussels are also recorded in the catchment.

The Tyne catchment contains two groundwater bodies. The Tyne Carboniferous Limestone groundwater body and the Tyne Carboniferous Limestone and Coal Measures groundwater body have both been classified as being at poor chemical but good quantitative status. The failure to meet good status is predominantly due to historic mining, both coal and metal.

Kielder Water, to the northwest of the area, is one of Northern Europe's largest man-made lakes and maintains flows and supports major water abstractions.

There are 116 river water bodies and 19 lakes in the catchment. 49 are artificial or heavily modified. 50% of rivers (456 km or 45% of river length) currently achieve good or better ecological status/potential. 51% of rivers assessed for biology are at good or better biological status now, with 12% at poor biological status, and there are no rivers assessed for biology at bad status.

Wear

This catchment covers the River Wear, which runs from the Pennines in the east then flows west to the estuary through Sunderland, and also includes southern coastal streams. The fish populations of the River Wear and its tributaries are generally of a high quality, with a good distribution of salmon and trout, and coarse fish in the lower and middle reaches.

The legacy of the mining industry is still impacting on the quality of the groundwater, which has high concentrations of sulphate, sodium and nitrate and saline intrusion as well as failing quantitative status in some areas.

Water abstracted is predominately for public water supply with approximately 59% of the water licensed for abstraction taken in an average year.

The Wear catchment contains two groundwater bodies. The Wear Magnesian Limestone groundwater body has been classified as being at poor chemical and quantitative status. The Wear Carboniferous limestone and Coal Measures groundwater body has been classified as being at poor chemical but good quantitative status. Pressures are having an impact on the quality of the principal aquifer in this catchment, namely the Magnesian Limestone. This aquifer is the sole supply of potable water for Hartlepool and it fails the specific test due to rising trends in sulphate.

There are 68 river water bodies and 16 lakes in the catchment. 32 are artificial or heavily modified. 15% of rivers (60 km or 10% of river length) currently achieve good or better ecological status/potential. 22% of rivers assessed for biology are at good or better biological status now, with 35% at poor biological status, and 10% at bad status.

Tees

The River Tees rises in the Pennines and flows eastwards to the North Sea. The river's initial journey starts from the high moors of the Pennines and continues over open and unpopulated moorland to Cow Green Reservoir. From the reservoir it flows through the farms and pastures of Teesdale towards Darlington. At this point the river widens and heads towards the heavily industrialised River Tees Estuary, with its large areas of land reclaimed from salt marshes and mudflats.

This catchment has a high conservation value, with 42 Sites of Special Scientific Interest and many other officially recognised areas, such as the North Pennine Moors. There are two major waterfalls on the River Tees, at High Force and Cauldron Snout. No migratory fish can pass High Force.

The River Tees is a high quality and nationally renowned coarse fishery with a wide diversity of fish species, including pike, bream, roach and chub, grayling and wild brown trout.

The Tees catchment contains three groundwater bodies. The Tees Carboniferous Limestone and Millstone Grit and the Tees Sherwood Sandstone groundwater bodies have been classified as being at good chemical and quantitative status. The Tees Mercia Mudstone and Redcar Mudstone groundwater body has been classified as being at poor chemical but good quantitative status. Discharges from old workings in the Saltburn Gill causes this groundwater body to fail to meet good status.

There are 83 river water bodies and 31 lakes in the catchment. 53 are artificial or heavily modified. 25% of rivers (222 km or 22 per cent of river length) currently

achieve good or better ecological status/potential. 14% of rivers assessed for biology are at good or better biological status now, with 41% at poor biological status, and nine% at bad status.

Till and Breamish

The catchment is predominantly rural and covers an area of approximately 800 square kilometres from the Cheviot Hills to the North Sea. The Till and Breamish catchment drains northwards into the River Tweed, the course of which marks the border between the administrative boundaries of Scotland and England in its lower reaches. The main English tributaries to the River Tweed are the rivers Till, Breamish and Glen. The catchment has distinct landscape characteristics ranging from steep, upland areas of The Cheviots in the west, to the large, flat flood plains to the east.

The main source of flooding within the Till and Breamish catchment is from the rivers. Within the lower sections of the River Tweed there is some tidal flooding.

The risk of flooding is low in the area due to the rural nature of the catchment. In total, there are 281 residential properties and 18 commercial properties at risk from a 1% probability flood.

Wansbeck and Blyth

The Rivers Wansbeck and Blyth drain a lowland area to the east of the South Tyne catchment. Both have mainly gentle gradients, with the Wansbeck also draining parts of the Cheviot Hills. Sweethope Loughs marks the start of the River Wansbeck, which is joined by Swilder Burn, Hart Burn and the Font before reaching Morpeth and flowing to the coast south of Newbiggin-by-the-sea. The River Blyth starts near Capheaton and joins with the River Pont before flowing on to the coast at Blyth.

The upper part of the CFMP is rural, mainly grassland and agricultural areas with open, active floodplains. Harwood Forest is in the upper part of the Wansbeck catchment. As the rivers flow eastwards, they pass through an open agricultural landscape. In this middle section, the River Font joins the Wansbeck and the Pont joins the Blyth.

Ponteland and Morpeth contain areas of high flood risk. Newcastle International Airport is in this section, on the border with the Tyne CFMP area. Further eastwards still, the lower reaches become more densely urbanised, but are deeper, narrow floodplains. Newbiggin-by-theSea, Ashington, Bedlington, Blyth, Cramlington and Seaton Delaval occupy the coastal plain.

The main sources of flooding are:

- River flooding in Morpeth and Ponteland;
- Tidal flood risk exists in the Blyth area;

- Surface water flooding in the urban areas such as Morpeth, Ponteland, Blyth and Newbigginby-the-Sea.

In total there are over 3,000 residential properties at risk of flooding. Additionally there are over 500 commercial properties. This means just over 3% of the catchment population is at risk from the 1% flood event. Flooding occurs to 0.7 kilometre square of SSSI across three sites.

Shoreline Management Plans

Scottish Border to River Tyne

The coastline between the Scottish Border and the River Tyne supports a number of coastal communities and an important industrial base. It broadly comprises a series of dune systems and wide, sandy bays separated by lengths of cliffs and small islands (such as Holy Island, the Farne Islands and Coquet Island). Only a relatively small proportion of the overall coast is protected by man-made defences, most notably in the more urban areas. Due to this much of the coastline is also important because of its natural landscape character, and because of the wildlife and habitats which are of great nature conservation value. The coast is also important for tourism and local industry.

River Tyne to Flamborough Head

The profiles along each section of the coastline are outlined below:

- **South Tyneside to Sunderland:** There is increasing pressure on defences, with the potential threat of the low water moving landward and causing steepening of beaches, increased pressure on defences and loss of amenity;
- **Seaham to Hartlepool:** Restoration of Heritage Coast along with regeneration of seafront along Seaham key important;
- **Hartlepool to Saltburn:** The overall shape of the coast within this area is held by the natural physical features to either end of the frontage and by the breakwaters at the mouth of the Tees.

5.4 Environmental Characteristics of Those Areas Most Likely to be Significantly Affected

5.4.1 National

In some urban areas in England there is relatively little water available per rata, and abstraction is above its sustainable level. The Environment Agency have derived assessments on availability of water resources for new abstraction based on

Catchment Abstraction Management Strategy (CAMS) assessments and large areas of England, most notably in the South East, have been identified as areas where water for new abstractions will be limited to winter months when flows are high.[120]

This issue is likely to continue in the future based on projections on the future rainfall and demand has lead to the classification of all south-eastern areas as seriously water stressed. The remainder of the UK is classified as either having low or moderate water stress.

Recently published River Basin Management Plans (which have been established in accordance with the Water Framework Directive) have designated a number of freshwater (surface and groundwater), transitional (estuaries) and coastal water bodies in England as failing to meet "Good Ecological Status" (GES) on the basis of a number of physio-chemical and biological standards. Flows in rivers and freshwater inputs to transitional waters are considered to be a 'supporting element' in the achievement of GES.

In Southern and Eastern regions of England, where rainfall is comparatively low, per capita water consumption tends to be higher than elsewhere. In some areas, abstraction is above its sustainable level and this combined with projections for rainfall and demand has lead to the classification of all south-eastern areas as seriously water stressed.

5.4.2 North East of England

- The region has a surplus of water resources, partly due to a decline in demand from industry, and is able to export water to other regions. (The North East region has the highest security of water supply in England and Wales);
- The region does not have the same water pressures as other regions in England with no areas considered to be over abstracted;
- The growth points of Tees Valley and North Tyneside are located within the Northumbria River Basin.

The region is susceptible to flood risk particularly in the following locations:

[120] http://sd.defra.gov.uk/2010/07/measuring-progress-sustainable-development-indicators-2010/

Northumberland

Rivers Till and Beamish

The main area of risk of flooding to properties lies in Wooler. There are a number of small villages with small numbers of properties of risk such as Norham, Powburn, Kirknewton and Akeld. The risk of flooding to agricultural land is more extensive with large areas at risk in the Kirknewton, Wooler and Fenton areas.

River Coquet

The main concentration of risk is in Rothbury with the smaller areas of risk along the whole length of the Coquet including Walkworth, Thropton and Felton areas. In the rest of the catchment Belford is a key community at risk from the Belford Burn. Smaller areas of flood risk are also located in Waren Mill and Haggerston in the north of the CFMP area.

Rivers Wansbeck and Blyth

The main sources of flooding are:

- River flooding in Morpeth and Ponteland
- Tidal flood risk exists in the Blyth area
- Surface water flooding in the urban areas such as Morpeth, Ponteland, Blyth and Newbiggin by-the-Sea

The majority of the population is located in the east portion of the catchment and therefore this is where the risk is greatest. The main areas of flood risk from rivers are in Morpeth and Ponteland. Surface water flooding from the surface water drainage system is possible in most of the urban areas such as Blyth and Ashington.

North Tyne

The North Tyne catchment is rural in nature mainly upland moors. There are many environmental designations and reservoirs throughout and the area is sparsely populated. Flooding happens when the rivers North Tyne and Rede overtop their banks, and affects the villages of Buttery Haugh, Bellingham, Otterburn, Falstone and Wark. Important issues are the isolated location and wide geographical distributions of some properties.

South Tyne

Within the South Tyne catchment river gradients are steep in the headwaters of the Rivers South Tyne, East and West Allen, flowing off the North Pennine Moors. Wet

soils and steep valleys cause flood waters to rise quickly and floodplain is limited. The small towns most at risk of flooding are Alston, Haltwhistle and Greenhead

Tyne and Wear

Derwent

Derwent Reservoir provides some reduction of flood peaks, but high flows can pass downstream and are increased by tributary inflows, causing risk at Shotley Bridge, Blackhall Mill and elsewhere. Some tributaries are small and partly urban, making them rise rapidly during heavy rainfall.

Again due to the tidal nature of the catchment, these watercourses are also at risk from high tides along the Tyne restricts the outfall of fluvial flows. This mechanism also has significant impacts on surface water flooding and the risk of flooding from the drainage network.

Lower Tyne

The lower Tyne is the most urban part of the catchment, including Newcastle, Gateshead and North and South Shields. Flooding comes from the Rivers Tyne and Ouseburn and tributaries. There is also the risk of tidal flooding from the Tyne Estuary, including tide-locked drains. Surface water flooding has also been reported.

Lower Wear

Whilst this stretch of the River Wear is heavily urbanised through central Sunderland it has a low risk of flooding. The floodplain acts as a natural store of flood waters upstream which results in a reduction in the flood levels through the city. Natural bank heights and steep topography and both banks of the Wear prevent flooding during both fluvial and tidal events.

The Lumley Park Burn flows through the urban area of Houghton-le-Spring. The river channel is heavily modified and has several obstructions that could restrict flow if blockages occur. Defences also produce a residual risk during significant fluvial flood events.

Coastal Streams

Several short watercourses pass through urban areas along the length of coastline from Seaburn to Crimdon Park which is completely separated from the Tyne and Wear Rivers as they flow directly into the North Sea. The risk of flooding is caused by channel obstructions, surface water flooding and high tides. However, the river channels are capable of carrying high flows.

County Durham

River Wear

The upper and mid Wear sub area includes the headwaters and also the mid reaches of the River Wear. In the uplands flooding can happen quickly but normally only for short periods of time. Runoff from these upland areas is rapid and the rivers react quickly to rainfall providing little attenuation downstream.

The mid section of the Wear provides a natural storage area for flood waters in the catchment. This floodplain area acts as a natural store of flood waters and currently has an effect on reducing the risk of flooding to downstream areas.

In the areas of Durham City and the Browney Catchment the risk of flooding comes from Smallhope Burn as it passes through Lanchester where frequent flooding can occur. In Durham there is the potential for a large number of people and businesses to be affected by flooding.

Flood risk through Chester-le-Street is associated with both the River Wear and Chester Burn. Chester Burn flows through a long length of culvert under Chester-le-Street before joining with the River Wear. High flood levels on the Wear can result in the Chester Burn backing up causing flooding to occur within the town.

River Tees

The River Tees drains the eastern slopes of Cross Fell in the Pennines and flows eastward to the North Sea. While largely rural through Durham there are a number of settlements at risk of flooding such as Barnard Castle, Staindrop, Newbiggen and Barton, although flooding may still occur regularly the consequences of the flooding is much lower. The steep catchment makes the area susceptible to intense rainfall, which can result in the very quick onset of flooding in the sub area.

Tees Valley

Middle Tees and the River Skerne

The middle reaches of the River Tees mainly pass through agricultural land. However, there are a number of small settlements close to the river that have a long history of flooding. These places include Croft, Hurworth, Neasham and most significantly, Yarm. Although the settlements are relatively small, the size of the river here means flood flows can be hazardous. Raised flood defences have been built to protect these settlements but there is still a risk of flooding from the more extreme flood events. This risk will increase in the future due to climate change.

The River Skerne converges with the Tees near Hurworth. This is a significant river in the Tees Valley due to its size and because it passes through the centre of Darlington placing the area at fluvial risk. There is a history of flooding but ad hoc mitigation measures over the years (e.g. channel widening) means that flooding events have become less frequent. However, the centre of a major administrative centre is still at risk of flooding and the flooding will be deep and fast flowing in some locations.

Lower Tees and the Tees Estuary

Upstream of Stockton the River Tees is wide and open with undeveloped floodplain. One the Tees enters Stockton the river becomes constrained by high modified banks as the urban centre encloses on its banks. This means, whilst surrounded by an urban floodplain, that only small areas of Stockton are at risk of fluvial flooding from the Tees. The Tees Barrage also restricts tidal flooding upstream of this point.

Downstream of the Tees Barrage, parts of Stockton and Middlesbrough are at risk of tidal flooding. In this area there is also a risk from tidally influenced watercourses including Lustrum Beck and the Old River Tees in Stockton and the Middlesbrough Becks.

As the Tees bends towards to North Sea, it becomes more estuarine in nature. The Tees Estuary provides a frontage for parts of Hartlepool, Stockton and Redcar and Cleveland and significant areas of mainly industrial land, at risk of tidal flooding

Coastline and Coastal Streams

Both Hartlepool and Redcar and Cleveland in the Tees Valley have an extensive coastline stretching from (but not including) Staithes in the South up to the north end of Hartlepool in the north. Due to the high sea cliffs in Redcar and Cleveland, the risk of flooding directly from the sea is low. Although Redcar is at risk of flooding, there is a flood defence scheme planned to improve current infrastructure and reduce the risk. Within Redcar and Cleveland there are a number of small watercourses that put some of the small towns and villages at risk of fluvial flooding, which can be hazardous in nature due to the small steep catchments.

Within Hartlepool, the coastline is not protected from flooding by high cliffs like in Redcar and Cleveland. This means that some parts of the borough are at risk of flooding from the sea, including Seaton Carew and Hartlepool. There is a flood defence scheme in place at Hartlepool that has reduced the risk of flooding here. There are some small watercourses that pass through Hartlepool and put some areas at risk of fluvial flooding before entering the North Sea. The catchments are small but not steep which means the flood risk is not particularly hazardous (compared to those in Redcar and Cleveland).

Within Hartlepool and Redcar and Cleveland surface water flooding is a significant issue. Several critical drainage areas have been identified within each of these local

authorities. The cause of surface water flooding is due to a number of different mechanisms, including surcharging of surface water sewers and ordinary watercourse culverts.

5.5 Likely Evolution of the Baseline

5.5.1 National

UK

The current trend in water condition is generally towards increased water quality across natural environments, drinking water and bathing waters[121]. Current climate change predictions indicate that rainfall patterns will become increasingly seasonal, with lower amounts of flow in the summer. This will lead to lower summer river flows, especially in those catchments with a low groundwater component. This could lead to increased abstraction pressure, increased stress on sensitive hydrological systems and a decrease in dilution potential leading to a failure against water quality targets. Increased flooding and storm events also have the potential to increase runoff of pollutants into controlled waters, thus reducing water quality. Population pressures are predicted to increase in certain parts of Great Britain, for example in the south east. Increased population density will result in an increased pressure on natural resources and could exacerbate current problems or cause new ones.

The Marine and Coastal Access Act (2009) allows for the creation of Marine Conservation Zones (MCZs) in Great Britain (Northern Ireland MCZs will be introduced through separate legislation). MCZs will protect nationally important marine wildlife, habitats, geology and geomorphology. Sites will be selected to protect the range of marine wildlife[122]. This should lead to greater protection and improvement of marine habitats in the future.

In 2011, all but 14 of the 597 coastal bathing waters in the UK met the mandatory (basic) standards of the European Bathing Water Directive[123]. Under the revised Bathing Water Directive all bathing waters will be required to achieve at least 'sufficient' quality by 2015, which is twice as stringent as the current mandatory standard. The

[121] Defra, Sustainable Development Indicators, 2009, http://www.defra.gov.uk/sustainable/government/progress/documents/SDIYP2009_a9.pdf

[122] Natural England. http://www.naturalengland.org.uk/ourwork/marine/protectandmanage/mpa/mcz/default.aspx

[123] Defra, Environmental Statistics – Key Facts Dec 2011

overall quality of bathing waters is therefore likely to increase as water quality is improved to meet the increased standards.[124]

England

The Environment Agency's Catchment Abstraction Management Strategies (CAMS) have identified a number of catchments in England which are designated as Over-Licensed or Over-Abstracted. Climate change is likely to result in lower summer rainfalls and more frequent/sever winter flood events. Such changes are likely to increase pressure on summer freshwater water availability and increase pollutant runoff into controlled waters during flood events. Unsustainable groundwater and surface water abstraction may contribute to environmental damage of rivers and wetlands at 500 sites in England and Wales, important conservation sites, including sites of national and international conservation importance.

The Environment Agency aims that by 2030 water use per person in England should fall by 130 litres/day.[125]

The Water Framework Directive (Directive 2000/60/EEC) requires that river basin management plans are prepared by December 2009. The objectives of the river basin management plans are required to be achieved by 2015.[125] Those objectives are to:

- Prevent deterioration, enhance and restore bodies of surface water, achieve good chemical and ecological status of such water and reduce pollution from discharges and emissions of hazardous substances;
- Protect, enhance and restore all bodies of groundwater, prevent the pollution and deterioration of groundwater, and ensure a balance between groundwater abstraction and replenishment; and
- Preserve protected areas.

Defra aims that by 2030 at the latest, England has improved the quality of our water environment and the ecology which it supports, and continued to provide high levels of drinking water quality from its taps; sustainably manage risks from flooding and coastal erosion, with greater understanding and more effective management of surface water; ensure a sustainable use of water resources, and implement fair, affordable and cost reflective water charges; cut greenhouse gas emissions; and embed continuous adaptation to climate change and other pressures across the water industry and water users.[126]

[124] Environment Agency http://www.environment-agency.gov.uk/research/library/data/112170.aspx

[125] EU http://europa.eu/legislation_summaries/agriculture/environment/l28002b_en.htm

[126] Future Water, the Government's Water Strategy for England.

Environment Agency aims to enhance water supply by up to 1100 Ml/d above present levels by the improvement of existing schemes and the development of some new resources. [127]

There is a trend of improving quality of rivers within England; between 1990 and 2008 the percentage of rivers of good biological quality in England rose from 63 to 72 per cent. Over the same time period the percentage of rivers of good chemical quality rose from 55 to 79 per cent.[128]

5.5.2 North East of England

Climate change will affect the amount and distribution of rainfall impacting on flows and water levels. The Environment Agency has assessed how changes in rainfall could affect average river flows in the region by 2050 and found that on average river flows will be higher in the winter before flows become lower that at present during the spring and summer.

Regional groundwater resources used for domestic, industrial and agricultural supply could be susceptible to long term reduction with a lowering of groundwater levels induced by lower recharge rates. Further, the greater concentration of rainfall intense events is likely to result in an increase ratio of run-off to recharge, leading to further reductions in recharge rates. Increasing demand for water abstraction due to hotter summers may also lead to further pressures on already strained groundwater resources.

The increased winter rainfall is likely to cause increased run off due to soil saturation, it may also cause contaminated industrial material leaching from the ground into adjacent rivers causing water pollution. Increased rainfall may also impact on the number of mine water landscapes.

5.6 Assessing significance

Table 5.2 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on the water quality and resources. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

[127] EA, Water Resources for the Future: A Strategy for England and Wales.

[128] Defra, Sustainable Development Indicators (2010) http://sd.defra.gov.uk/2010/07/measuring-progress-sustainable-development-indicators-2010/

Table 5.2 Approach to Determining the Significance of Effects on Water Quality and Resources

Effect	*Description*	*Illustrative Guidance*
++	Significant positive	• Alternative would lead to a major reduction in water use such that the risk of water shortages in the region are significantly decreased and abstraction is at least at a sustainable level in the long term. • Alternative would significantly decrease the amount of waste water, surface runoff and pollutant discharges so that the quality of that water receptors (including groundwater, surface water, sea water or drinking receptors) will be significantly improved and sustained and that all water targets (including those relevant to chemical and ecological condition) are reached and exceeded.
+	Positive	• Alternative would lead to a minor reduction in water use such that the risk of water shortages in the area is decreased in the short term and abstraction is closer to sustainable levels than prior to development. • Alternative would lead to minor decreases in the amount of waste water, surface runoff and/or pollutant discharges so that the quality of water receptors (including groundwater, surface water, sea water or drinking receptors) may be improved to some level temporarily and that some water targets (including those relevant to chemical and ecological condition) will be reached/exceeded.
0	No (neutral effects)	• Alternative would not significantly affect water demand and abstraction levels will not be altered. • Alternative would not change amount of waste water, surface runoff and/or pollutant discharges so that the quality of water receptors will not be affected.
-	Negative	• Alternative would lead to a minor increase in water use such that the risk of water shortages in the area is increased to some level in the short term and abstraction is further removed from sustainable levels. • Alternative would lead to minor increases in the amount of waste water, surface runoff and/or pollutant discharges so that the quality of water receptors (including groundwater, surface water, sea water or drinking receptors) may be decreased to some level temporarily and it may prevent some water targets (including those relevant to chemical and ecological condition) from being achieved.
- -	Significant negative	• Alternative would lead to major increases in water use such that the risk of water shortages in the area is significantly increased and abstraction is beyond sustainable levels. • Alternative would lead to an exceedence of an abstraction license limit. • Alternative would lead to major increases in the amount of waste water, surface runoff and/or pollutant discharges so that the quality of water receptors (including groundwater, surface water, sea water or drinking receptors) will be considerably increased and will prevent some or all water targets (including those relevant to chemical and ecological condition) from being achieved.
?	Uncertain	• From the level of information available the impact that the alternative would have on this objective is uncertain.

5.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 5.3 summarises the significant effects identified in the detailed assessment of the North East of England Plan policies against the water topic.

Table 5.3 Significant Effects against the Water Topic

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Policy 3: Climate Change	Retention	++	++	++	Policy 3 – Climate Change identifies the need for all strategies, plans and programmes in the Region to contribute to mitigating climate change and assisting adaptation to the impacts of a changing climate. The policy identifies the need integrate climate change considerations into all spatial planning concerns including water supply and sustainable drainage. The policy also identifies the need to take into account adaptation to the impact of climate change on the natural environment including water resources. The Government's 2011 White Paper "Water for Life" maintains the commitment for Government to work with the Environment Agency and Ofwat to provide clearer guidance to water companies on planning for the long-term and keeping demand down. Paragraph 94 of the NPPF states that local planning authorities should adopt proactive strategies to mitigate and adapt to climate change, taking full account of flood risk, coastal change and water supply and demand considerations. In consequence, the effects of retention and revocation are considered to be the same.
	Revocation	++	++	++	
Policy 8: Protecting and Enhancing the Environment	Retention	++	++	++	This policy sets high level objectives for protecting and enhancing the Environment, which are developed further in other policies (including RSS policies 31-34 and 37). Protection and enhancement of the local landscape, particularly designated areas, will have significant benefits for biodiversity and landscape, and through better recreational opportunities should have benefits to human health. It is likely to have cultural benefits as well. Provision of green infrastructure should have biodiversity benefits through the creation and enhancement of new habitats, as well as provide flood attenuation and provide recreational space, so improving air quality, reduce carbon emission and protect soils. The legal requirement for local planning authorities to ensure that internationally and nationally designated sites are given the strongest level of protection and that development does not have adverse effects on the integrity of sites of European or International Importance for nature conservation would not be unchanged by the revocation of Policy 8. The NPPF makes clear that the planning system should contribute to and enhance the natural environment, including by protecting and enhancing valued landscapes, minimising impacts on biodiversity and providing net gains in biodiversity where possible. The Framework underlines that pursuing sustainable development means moving from a net loss of bio The NPPF (particularly
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					paragraphs 105 to 108) sets out how local planning authorities should reduce risk from coastal change and apply Integrated Coastal Zone Management across local authority and land/sea boundaries. Through their local plans, local planning authorities should identify Coastal Change Management Areas and be clear as to what development is appropriate in such areas, and in what circumstances; and make provision for development and infrastructure that needs to be relocated away from these areas. Coastal groups, comprising members from local coastal authorities, the Environment Agency and other relevant organisations, can form partnerships to look at the strategic management of the coast. These groups produce Shoreline Management Plans to assess risks from coastal flooding and erosion and set out how to manage these risks. Shoreline Management Plans can continue to provide evidence for local plan-making.
Policy 33: Biodiversity and Geodiversity	Retention	++	++	++	This policy contributes to the Plan's goal of integrating the delivery of biodiversity with social and economic objectives (including RSS policy 8), and to ensure that planning contributes to improving biodiversity objectives set out in Biodiversity Action Plans. Protection and improvement of statutory sites and reversing habitat fragmentation/creating new sites will increase conditions for existing species and attract new species, leading to significant biodiversity, water and soil benefits. On revocation of the policy it is considered that there will still be significant positive effects on water. NPPF section 11 on conserving and enhancing the natural environment, and paragraph 109 state the need for the planning system should contribute to and enhance the natural and local environment by: protecting and enhancing valued landscapes, geological conservation interests and soils; recognising the wider benefits of ecosystem services; minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability; and remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Policy 34: The Aquatic and Marine Environment	Retention	++	++	++	Although the region has an abundance of water supply, the purpose of this policy is to ensure the sustainable provision and use of water (including through water efficiency and sustainable urban drainage systems) in a manner which protects and enhances the river and marine environment. This approach should protect the habitats for many species whilst steering development to appropriate locations away from the risk of coastal change. This policy will therefore have significant benefit for water as well as other environmental topics. The European Water Framework Directive introduces a more integrated system of water management based on river basin districts, with a view to reducing water pollution, reducing the effects of floods and droughts, and ensuring that most inland and coastal waters attain 'good ecological status' by 2015. River Basin Management Plans will identify the standards in the North East. The Water Framework Directive requires 'no deterioration' from current water status and local authorities will need to take this into account in their water cycle strategies. Water Company Water Resource Management Plans (WRM09) 2010-2035 will set out how water companies aim to ensure there will be sufficient water to meet potable demand without environmental consequences during the RSS plan period. Water companies are therefore already considered future supply and demand in terms of planning water consumption for the region in their approved and emerging plans. This along with the duty to co-operate, NPPF policies relating to planning strategically across local boundaries (paragraphs 156 and 178-181) will mean that local authorities should continue to plan for and address water infrastructure implications of development through policies in their local plans, reflecting local circumstances and priorities and to actively engage with relevant bodies. Water companies will have an opportunity to work with local authorities on water infrastructure implications as part of local plan preparation. The location of development will be a critical component of this. River Basin Management Plans for the region identify the pressures that the water environment faces and include action plans requiring cross boundary and input from a range of organisations. Local authorities can be expected to continue to work together on cross boundary strategic issues where they need to do so.
	Revocation	++	++	++	
Policy 35: Flood	Retention	++	++	++	This policy seeks to manage flood risk from those areas known to be at risk of flooding, but also to

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Risk	Revocation	++	++	++	apply the sequential risk-based approach to development and flooding, currently set out in the National Planning Policy Framework and the technical guidance. Prioritising development in the areas of lowest risk to flooding will have significant population and human health benefits. They could also have biodiversity, water and soil benefits in those areas. The policy on the location of new development is covered by paragraphs 100 to 104 of the NPPF. In particular, the NPPF states the need to ensure that inappropriate development is avoided in areas at risk of flooding, but where development is necessary, that it is safe without increasing flood risk elsewhere. To this end, local plans should apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property. Aside from water compatible development and, exceptionally, essential infrastructure, development should not permitted in the functional floodplain. The NPPF (particularly paragraphs 105 to 108) sets out how local planning authorities should reduce risk from coastal change and apply Integrated Coastal Zone Management across local authority and land/sea boundaries. Through their local plans, local planning authorities should identify Coastal Change Management Areas and be clear as to what development is appropriate in such areas, and in what circumstances; and make provision for development and infrastructure that needs to be relocated away from these areas. Coastal groups, comprising members from local coastal authorities, the Environment Agency and other relevant organisations, can form partnerships to look at the strategic management of the coast. These groups produce Shoreline Management Plans to assess risks from coastal flooding and erosion and set out how to manage these risks. Shoreline Management Plans can continue to provide evidence for local plan-making. The Flood and Water Management Act 2010 places a duty to co-operate on all relevant flood and coastal erosion risk management authorities. The national Flood and Coastal Erosion Risk Management Strategy for England sets out the considerations and the approach to be followed to risk management, including the functions of those involved and how they can work together better. The national strategy seeks to ensure that local risk management decisions are made in a consistent way, and that decisions made in one area take account of impacts on another. NPPF section 10 on meeting the challenge of climate change, flooding and coastal change sets out the detail of national planning policy in relation to flood risk management. In line with the NPPF and its technical flood risk

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					guidance planning policy, local authorities should continue to take advice from the Environment Agency and other relevant bodies (including adjacent local authorities) when preparing policies in their planning documents on flood risk management and in relation to areas potentially identified as at risk of flooding. In consequence the positive effects of this policy on water are anticipated to be the same for revocation as they are for retention.

5.7.1 Effects of Retention

The effects of retention of the Plan have been assessed on the assumption that, in the absence of the legislation and regional architecture enabling updating of the Plan, although the general principles of development will remain some policies will become increasing outdated and in some cases in conflict with the national policies in the Framework.

Retaining the Regional Strategy is likely to result in the environmental baseline continuing to evolve as identified in section 5.5.2 above. Retention of Policy 34 (The Aquatic and Marine Environment) will encourage sustainable management of water resources (through safeguarding water resources and promoting water efficiency (e.g. Sustainable Drainage Systems) to meet the region's needs and allow the region to adapt to climate change. It will enable surface and ground water resources to maintain the integrity of the region's internationally important biodiversity sites. Retention of this policy will help to set a positive framework for the delivery of Integrated Coastal Zone Management, River Basin Management, Shoreline Management and Catchment Flood Management.

Flooding will continue to be a potential problem for properties located in flood risk areas. The relevant policies in the NPPF maintain the earlier approach set out in PPS25 which should limit the amount of new development at risk.

5.7.2 Effects of Revocation

The EU Water Framework Directive introduced a more integrated system of water management based on river basin districts, with a view to reducing water pollution, reducing the effects of floods and droughts, preventing the deterioration of wetlands, improving aquatic habitats for wildlife and ensuring that most inland and coastal waters

attain at least “good” ecological status by 2015. It also requires no deterioration from current water status. Statutory requirements under the EU Water Framework Directive will be implemented in accordance with river basin management plans which provide the main machinery for protecting and enhancing water quality in the future. In addition the Flood and Water Management Act 2010 contains provisions that cover water resources e.g. the list of uses of water that water companies can control during periods of water shortage. In addition, Paragraph 156 of the NPPF requires local planning authorities to work with other authorities and providers to assess the quality and capacity of infrastructure of water supply. Public bodies have a duty to co-operate on planning issues that cross administrative boundaries particularly those which relate to strategic priorities.

Following revocation is assumed that the Environment Agency will continue to work with OFWAT, the water companies and other partners through River Basin Management Planning and CAMS to ensure the timely provision of the appropriate additional infrastructure for water supply to cater for the levels of development in the area in line with their water resource plans required under the Water Resources Management Plan Regulations.

It is also assumed that local planning authorities will operate in accordance with their statutory duties on environmental protection in terms of meeting water quality standards under the Water Framework Directive and affording the appropriate level of protection to designated habitats, protected species and climate change including managing flood risk in plan-making and that they have due regard to the policies in the NPPF in plan making and development management decisions.

The NPPF (paragraph 100) requires inappropriate development in areas at risk of flooding to be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere. Technical guidance on flood risk published alongside the NPPF sets out how this policy should be implemented. Local plans should be supported by Strategic Flood Risk Assessment and develop policies to manage flood risk from all sources, taking account of advice from the Environment Agency and other relevant flood risk management bodies, such as lead local flood authorities and internal drainage boards. Local plans should apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impacts of climate change. This includes applying a sequential test to steer new development to areas with the lowest probability of flooding.

When determining planning applications, local planning authorities should ensure flood risk is not increased elsewhere and only consider development appropriate in areas at risk of flooding where, informed by a site-specific flood risk assessment (NPPF

paragraph 103). A site-specific flood risk assessment is required for proposals of 1 hectare or greater in Flood Zone 1; all proposals for new development (including minor development and change of use) in Flood Zones 2 and 3, or in an area within Flood Zone 1 which has critical drainage problems (as notified to the local planning authority by the Environment Agency); and where proposed development or a change of use to a more vulnerable class may be subject to other sources of flooding.

5.7.3 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and retaining for a transitional period the non spatial policies, ambitions and priorities;
- Retaining for a transitional period all the spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and revoking the non spatial policies, ambitions and priorities; or
- Retaining for a transitional period policies, ambitions and/or priorities, the revocation of which may lead to likely significant negative environmental effects.

The assessment found that none of the policies which may lead to likely significant effects have a spatial element or specify a quantified level of development.

The assessment has found that there are no policies in the North East of England Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

5.7.4 Mitigation Measures

Water quality improvements will be driven by the Water Framework Directive through the EA with help of local authorities and Northumbrian Water.

The main mitigation measures to address water resource will be through adequate assessment and management using the EA CAMS and River Basin Management Plans in conjunction with Northumbrian Water's Water Management Plan. Over abstraction can be avoided through these plans and the EA control over abstraction licenses with local authority and water companies working in partnership to plan for adequate supply and treatment of water for planned developments.

5.7.5 Proposals for Monitoring

Significant and uncertain effects in respect of water quality relate to:

- Good ecological status of water bodies;
- Bathing water quality;
- Over-abstraction status;
- Properties at risk of flooding.

6. Air Quality

6.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals to revoke the regional strategies on air quality. Information is presented for both national and regional levels.

Air quality within this context concerns the levels of pollutants emitted into the air and their significance, in terms of the risk of adverse effects on the environment and/or human health. Carbon dioxide and other greenhouse gas emissions are excluded from the air quality topic and are reported under the climate change and adaptation topic.

There are links between the air quality topic and other topics in the SEA, specifically population, human health, climate change and material assets.

6.2 Summary of Plans and Programmes

6.2.1 International

The ***Air Quality Framework Directive*** (96/62/EC) and its Daughter Directives set a framework for monitoring and reporting levels of air pollutants across EU member states, setting limits or reductions for certain air pollutants.

The ***Ambient Air Quality and Cleaner Air for Europe Directive*** (2008/50/EC) defines and establishes objectives and targets for ambient air quality to avoid, prevent or reduce harmful effects on human health and the environment as a whole. It sets legally binding limits for concentrations in outdoor air of major air pollutants that impact on public health such as particulate matter (PM10 and PM2.5) and nitrogen dioxide (NO2). The 2008 directive replaced nearly all the previous EU air quality legislation and was made law in England through the ***Air Quality Standards Regulations 2010***, which also incorporates the 4th air quality daughter directive (2004/107/EC) that sets targets for levels in outdoor air of certain toxic heavy metals and polycyclic aromatic hydrocarbons. Equivalent regulations exist in Scotland, Wales and Northern Ireland.

The UK monitors and models air quality to assess compliance with the air quality limit and target values set out in the EU legislation above. The results of the assessment are reported to the commission on an annual basis. Air quality monitoring is also carried out by local authorities to meet local air quality management objectives.

In early 2011, the European Commission began a review of EU air quality policy which will culminate with the publication of new proposals on ambient air quality and emissions ceilings in 2013. On 30 June 2011, the Commission launched a public consultation inviting views on the best way to improve the EU's air quality legislation. The consultation closed in October 2011.

The ***EU Thematic Strategy on Air Quality (2005)*** identifies that despite significant improvements in air quality across the EU, a number of serious air quality issues still persist. The strategy promotes an approach, which focuses upon the most serious pollutants, and that more is done to integrate environmental concerns into other policies and programmes. The objective of the strategy is to attain levels of air quality that do not give rise to significant negative impacts on and risks to human health and the environment. The strategy emphasises the need for a shift towards less polluting modes of transport and the better use of natural resources to help reduce harmful emissions.

The ***Industrial Emissions Directive (IED) (2010/75/EU)*** combines seven existing air pollution directives, including the Large Combustion Plant Directive and the Integrated Pollution Prevention and Control (IPPC) Directive. As with previous directives aimed at minimising emission release, part of the benefit of the Industrial Emissions Directive is that it includes several new industrial processes, sets new minimum emission limit values (ELVs) for large combustion plant and addresses some of the implementation issues of the IPPC.

The ***National Emissions Ceilings Directive (2001/81/EC)*** came into force in 2001, and Member States were required to transpose it into their national legislation by November 2002. This Directive sets "ceilings" (maximum values to be achieved by 2010) for total national emissions of four pollutants: sulphur dioxide; oxides of nitrogen; volatile organic compounds; and ammonia. These four pollutants contribute to acidification, eutrophication, and formation of ground level ozone.

6.2.2 National

UK

The ***Air Quality Standards Regulations (2010)*** transpose into UK law Directive 2008/50/EC on ambient air quality and cleaner air for Europe and Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclicaromatic hydrocarbons in ambient air. The objective of the Regulations is to improve air quality by reducing the impact of air pollution on human health and ecosystems. The standards set out air quality objectives, limit values and target values for pollutants, namely benzene, 1,3 butadiene, carbon monoxide, lead, nitrogen dioxide, PM_{10}, sulphur dioxide and PM_{25}.

The ***Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)*** sets out a way forward for work and planning on air quality issues.

The ***Environment Act (1995)*** was enacted to protect and preserve the environment and guard against pollution to air, land or water. It requires local authorities to undertake local air quality management (LAQM) assessments against the standards and objectives prescribed in regulations. Where any of these objectives are not being achieved, local authorities must designate air quality management areas and prepare and implement remedial action plans to tackle the problem.

The ***Ozone-Depleting Substances (Qualifications) Regulations (2009)*** introduces controls on the production, use and emissions from equipment of a large number of "controlled substances" that deplete the ozone layer.

England

The ***National Planning Policy Framework (NPPF) (2012)*** ensures that the Planning system affords protection to amongst other environmental elements, air quality, by preventing “new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability”.

The NPPF expects that policies and decisions should ensure that development is appropriate for its location to prevent unacceptable risk of pollution: “The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account” (para 109).

The NPPF notes that there are also other regimes in place that should uphold these aims but should not be duplicated within Planning for example the NPPF states that “Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas” (para 124). The participation of other consenting bodies in pre-application discussions and parallel processing of other consents is therefore also encouraged to enable issues in regard to for example, pollution to be resolved.

6.2.3 North East of England

No relevant regional plans or programmes were identified under this topic.

6.3 Overview of the Baseline

6.3.1 National

UK

Air quality in the UK is generally good. In 2008 urban background particulate levels averaged 20 micrograms per cubic metre (µg m-3) (Air Quality Strategy Objective and EU Limit Value is 40µg m-3); roadside particulate levels averaged 28 µg m-3; urban background ozone levels averaged 59 µg m-3; and rural ozone levels averaged 71 µg m-3.[129] The long-term decrease in urban background particulate concentrations has levelled off in the last two years, remaining at 19 micrograms per cubic metre (µg m-3) since 2008. Roadside levels increased slightly in 2010 to 23 µg m-3, although this followed a relatively large decrease in 2009, and there is an overall decreasing trend.

In 2010, 234 Local Authorities in the UK (58% of all UK authorities) had declared Air Quality Management Areas (AQMAs), a designation made by a Local Authority where an assessment of air quality results in the need to devise an action plan to improve the quality of air.[130] AQMAs are predominantly in urban areas along busy and congested road networks and are generally related to nitrogen dioxide (NO_2) (in 93% of cases) and particulates (PM_{10}) (in 33% of cases). Transport is identified as the main source of pollution in 92% of all AQMAs.[130]

In the UK 26 days of moderate or high air pollution were recorded in urban areas, and 45 days of moderate or high air pollution were recorded in rural areas respectively in 2008.

England

Within England, in December 2009, there were 203 local authorities with AQMAs, 33 of which were within London. In 83.7% of cases the AQMA is required for NO_2 pollution and 31.5% they were required for PM_{10} pollution. In 94% of cases the source of pollution was from transport and 4.4% the source was from industry.[130]

Overall, trends in PM_{10} concentrations for all metrics in all parts of England appear to have levelled out in recent years. However, four sites in England (London Marylebone Road, London Camden roadside, Brighton roadside and Bradford Centre) were over

[129] Defra, Environment in your Pocket Statistics, 2009, http://www.defra.gov.uk/evidence/statistics/environment/eiyp/

[130] Defra, Review of local air quality management, 2009, http://archive.defra.gov.uk/environment/quality/air/airquality/local/documents/laqm-report.pdf

the 24 hour objective for PM_{10} meaning that more than the 35 days were recorded as being in exceedence of a 24-hour average value of 50 $\mu g.m^{-3}$.[131]

In 2003 it was estimated that 2161.7 km of road exceeded an annual mean value of 31.5 $\mu g.m^{-3}$ (closely equivalent to the objective value), 935.9 km of which was within London making up 43.2% of the total length of road exceedance.[131]

In 2003 the population mean weighted $PM_{2.5}$ concentration for England (excluding London) was 14.4µg.m-^{3}, 17.4$\mu g.m^{-3}$ in Inner London and 16.9 $\mu g.m^{-3}$ in Outer London.[131]

Four sites in England (London Marylebone Road; London A3 roadside; Camden roadside and Bristol Old Market roadside) exceeded the AQS 1-hour objective for NO_2 meaning there were more than 18 exceedences of the 200 µg/m3 target in 2005.[131]

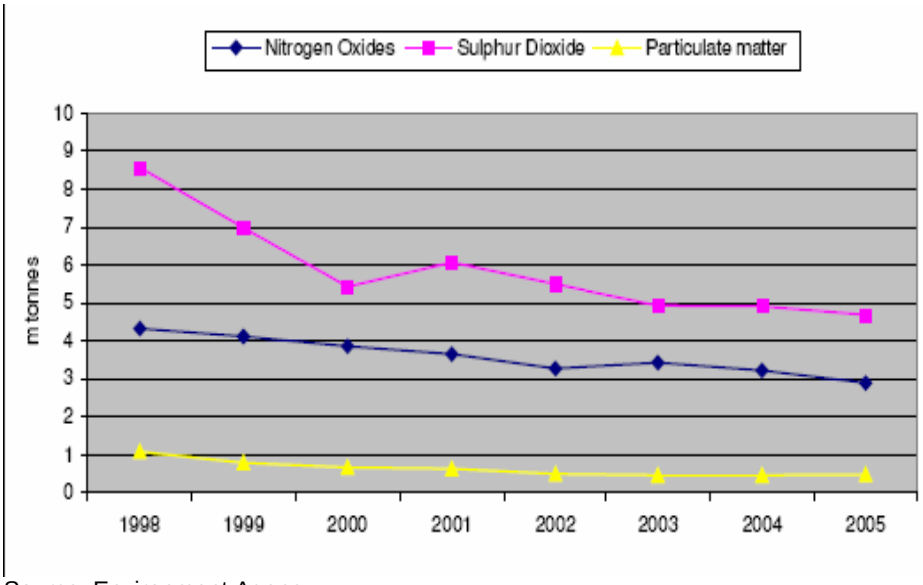
6.3.2 North East of England

Emissions from Industrial Processes

Historically, air quality has been comparatively poor in the North East compared to other regions, due to industrial emissions of smoke and acid gases such as NOx and SO_2. However, there has been a dramatic fall in emissions due to tighter regulation and significant investment in cleaner technologies by industry (See Figure 6.1 below).

[131] Air Quality Strategy for England, Scotland, Wales and Northern Ireland, Vol 2 (2007) http://archive.defra.gov.uk/environment/quality/air/airquality/strategy/documents/air-qualitystrategy-vol2.pdf

Figure 6.1 Emissions from Industrial Processes



Source: Environment Agency

Air Quality Management Areas

Four local authorities in the region, Gateshead, Blyth Valley (now part of Northumberland Council), Newcastle and South Tyneside have declared Air Quality Management Areas (AQMAs) indicating that they were unlikely to meet the target for levels of nitrogen oxide/dioxide/particulate pollutants in their city/town centres. A summary of the AQMA are provided below.

Table 6.1 AQMA in the North East

Local Authority	AQMA Reference	Pollutant
Gateshead	Town Centre	Nitrogen Dioxide
	Birtley	Nitrogen Dioxide
Blyth Valley	Blyth Town Centre	Particulate Matter <10µm
Newcastle	City Centre	Nitrogen Dioxide
	Gosforth	Nitrogen Dioxide
South Tyneside	Boldon Lane	Nitrogen Dioxide
	Lindisfarne Roundabout/ Leam Lane	Nitrogen Dioxide

Ambient Air Quality

Table 6.2 indicates that ambient SO_2 is relatively low across most parts of the region, though is discernibly higher to the east and particularly the south of the region, around areas such as Middlesbrough in particular. This data suggests that the UK Standard of 20 µg/m³ (annual mean) may be exceeded in these areas during the course of the year.

In relation to nitrogen dioxide (NO_2) the primary issue for the region is in urban districts which appears to be related to pollution from traffic. This reflects the fact that urban commuter traffic is an area of national, regional and local concentrations of NO_2 again rise in the east and south of the region, in line with key population densities of the major cities and towns in the region. This suggests that the UK Standard of 40 µg/m³ (annual mean) may be exceeded in these areas during the course of the year.

The levels of PM2.5 and PM10 and are also low and although having higher levels in the concentrated population centres they generally stay within the UK annual mean criteria.

Table 6.2 Latest Pollution Summary North East

Monitoring Site	Running 8 Hour Mean Ozone (ugm-3)	Hourly Mean Nitrogen Dioxide (ugm-3)	Max 15 Min Sulphur Dioxide (ugm-3)	Running 24 hour Mean PM2.5 Particles (ugm-3)	Running 24 hour Mean PM10 Particles (ugm-3)	Recorded
Billingham	n/m	10(low)	n/m	n/m	n/m	20/6/2012
Middlesbrough	48 (2 low)	29 (1 low)	13 (1 low)	8 (1 low)	15 (low)	20/6/2012
Newcastle Centre	55 (2 low)	15 (1 low)	8 (1 low)	6 (1 low)	9 (1 low)	20/6/2012
Newcastle Cradlewell Roadside	n/m	n/a	n/m	n/m	n/ma	20/6/2012
Stockton-on-Tees Eaglescliff	n/m	27 (1 Low)	n/m	6 (1 Low)	13 (1 Low)	20/06/2012
Sunderland Silksworth	62 (2 Low)	13 (1 Low)	5 (1 Low)	13 (2 Low)	n/m	20/6/2012

Key: n/m pollutant not measured at site
n/a means that no data source was recorded for the period.

Source: http://uk-air.defra.gov.uk/latest/currentlevels?period=current&region=14#levels

Although the information is dated (2001) Figures 6.2 and 6.3 reflect the same trends in relation to SO2 and NO2 as the latest data produced by Defra.

Figure 6.2 Ambient SO_2

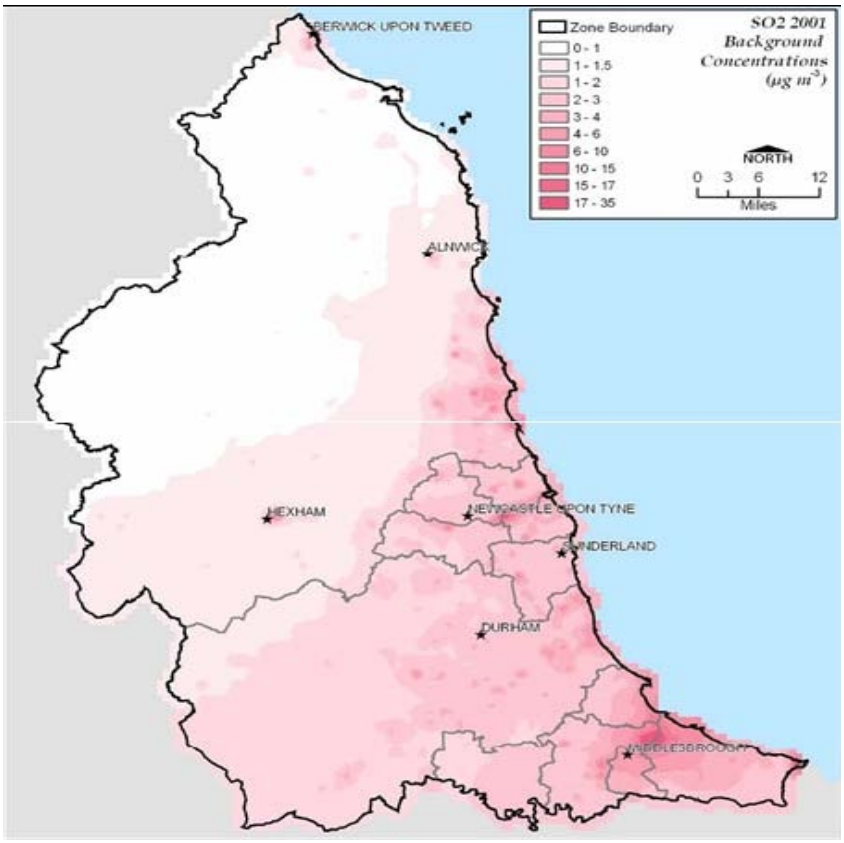
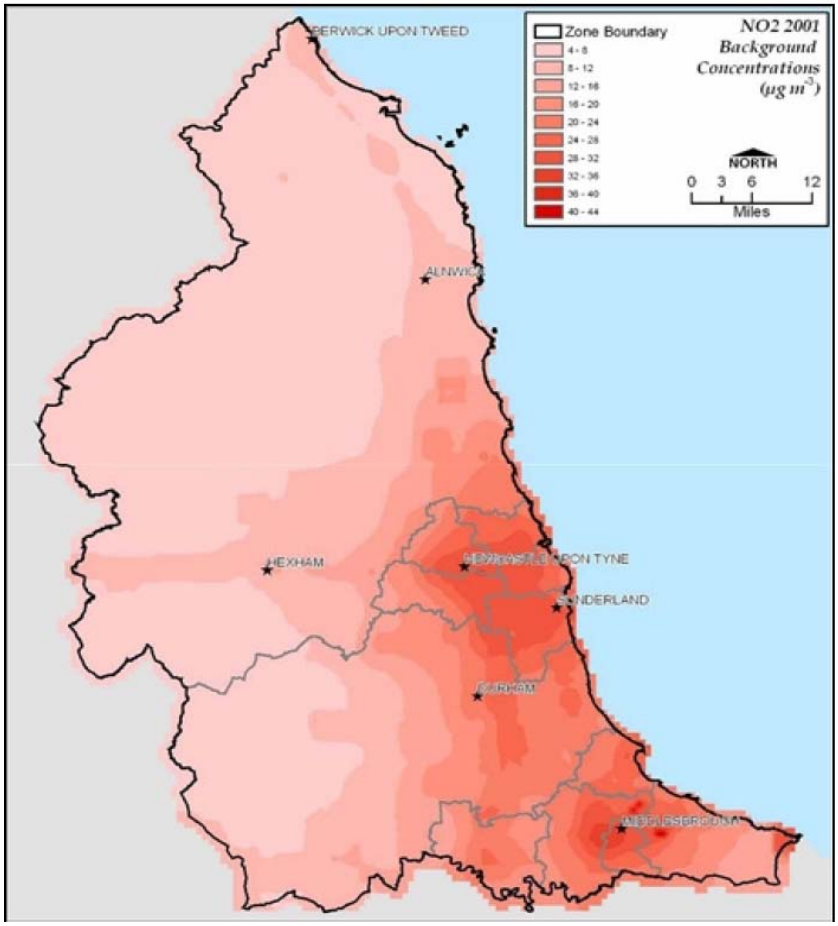


Figure 6.3 Ambient NO_2



6.4 Environmental Characteristics of Those Areas Most Likely to be Significantly Affected

6.4.1 National

UK

Air quality has improved in the UK over the last sixty years as a result of the switch from coal to gas and electricity for heating of domestic and industrial premises, stricter controls on industrial emissions, higher standards for the composition of fuel and tighter regulations on emissions from motor vehicles. However, poor air quality - particularly

from vehicles - remains a significant issue for community health and for biodiversity, especially in/downwind of urban areas and major transport networks.

In 2005, 29% of monitoring sites within the UK exceeded the annual mean NO_2 objective of 40 $\mu g.m^{-3}$ and 4% of monitoring sites exceeded the 1 hour objective of 200 $\mu g.m^{-3}$ more than 18 times a year.[132]

In 2005, roughly 40% of the 85 monitoring network sites exceeded the Air Quality's Strategy objective for O_3.[132]

Air pollution is a significant cause of decline in the condition of 55 of UK SSSIs.[133] However, it is often very difficult to determine the effects of air pollution on SSSIs, given the complex interactions between pollution impacts, management and abiotic influences. As a result, the impacts of air pollution, and the identification of air pollution as an adverse activity affecting condition, are considered to be substantially under-reported.[133]

Research by the Government has found that in a number of urban areas, the least affluent members of society tend to be exposed to the highest levels of air pollution.[134] This is particularly the case in England, where AQMAs declared for NO_2 are often in the most socially deprived areas people in deprived communities exposed to 41% higher concentrations of NO_2 than those people living in average communities[135], although this is less marked in Wales and Scotland. The report concluded that measures to improve air quality can have a more pronounced effect in deprived areas and could help to reduce this social inequality.[136]

6.4.2 North East of England

Ambient SO_2 is relatively is higher to the east and particularly the south of the region, around areas such as Middlesbrough where population densities are higher. The Regional Spatial Strategy directs a large proportion of regional economic and industrial growth to existing urban areas which is likely to exacerbate this problem. Similarly, Nitrogen Dioxide (NO_2) emissions are high in the North East's urban district which appears to be related to pollution from traffic. These urban districts are the focus for

[132] UK Air Quality Archive, www.airquality.co.uk/archive

[133] Joint Nature Conservation Committee (2006) Common Standards Monitoring for Designated Sites: First Six Year Report, http://www.jncc.gov.uk/pdf/CSM_06summary.pdf

[134] Dept. for Communities and Local Government (2006) Air Quality and Social Deprivation in the UK: an environmental inequalities analysis, www.airquality.co.uk/reports/cat09/0701110944_AQinequalitiesFNL_AEAT_0506.pdf

[135] UK Air Quality Archive, www.airquality.co.uk/archive.

[136] Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007) http://www.official-documents.gov.uk/document/cm71/7169/7169_i.asp

regional growth and traffic is likely to increase in these regions causing higher emissions.

6.5 Likely Evolution of the Baseline

6.5.1 National

The current trend in air condition is generally towards improved air quality, both in rural and urban settings.[137]

Between 1990 and 2008 there was no clear long-term trend in ozone levels with increases in urban background ozone levels of 40.5%, however between 1980 and 2007 nitrogen oxides (NOx) fell by 42%, particulates (PM_{10}) fell by 59% and sulphur dioxide (SO2) by 84% (between 1990 and 2007).[138]

Reductions are a product of: improved technology; changes in energy generation; targeted air quality management policies; and reductions in specific greenhouse gases, CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6).

Projections of UK total emissions:[139]

Best case scenario (full air quality target compliance):

- NOx: 2010 = 1136.4 ktonnes/yr; 2015 = 963.1 ktonnes/yr; 2020 = 799.1 ktonnes/yr; and
- PM10: 2010 = 133.5 ktonnes/yr; 2015 = 129.4 ktonnes/yr; 2020 = 134.4 ktonnes/yr.
- Worst case scenario (extension of 2003 baseline):
- NOx: 2010 = 1151.0 ktonnes/yr; 2015 = 1030.3 ktonnes/yr; 2020 = 910.7ktonnes/yr;

Measurements and modelling show that, without further measures, objectives for particles such as particulate matter (PM10), nitrogen dioxide (NO2), ozone (03) and

[137] http://www.defra.gov.uk/sustainable/government/progress/documents/SDIYP2009_a9.pdf

[138] http://www.defra.gov.uk/evidence/statistics/environment/eiyp/

[139] http://www.airquality.co.uk/reports/reports.php?action=category&section_id=17

polycyclic aromatic hydrocarbons (PAHS) are unlikely to be achieved in some parts of urban areas within the UK.[140]

England

PM_{10} pollution overall has been decreasing in recent years and this is predicted to continue in the future. By 2015 71.7km of main urban road is predicted to be in exceedance of 31.5 µg/m^3 (roughly equivalent to the Stage 1 PM10 24-hour limit value and objective), this is a 96.7% decrease compared to the 2003 baseline.[141]

Concentrations of NO_2 have been declining on average, although London Marylebone Road (the site with the highest NO_2 levels in England) and several other sites, are showing increasing concentrations in the most recent years. By 2015, 1,331 km of main urban road is predicted to be in exceedence of the annual mean objective of 40 µg.m^{-3}, this is an 80.2% decrease compared to the 2003 baseline.

6.5.2 North East of England

The additional growth in the region put forward in the North of England are likely to increase levels of traffic leading to additional pressure on the road network and decreasing levels of air quality, particularly within urban areas and around strategic transport corridors. Higher temperatures experienced during the summer as a result of a changing climate can be expected to amplify the negative effects of poor air quality. Conversely however, national trends suggested that background air quality across the UK can be expected to improve over the next 10-15 years, largely as a result of tightening EU emission standards and this is also likely to be reflected across the North East.

6.6 Assessing Significance

Table 6.3 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on the air quality objective. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

[140] Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, http://www.official-documents.gov.uk/document/cm71/7169/7169_i.asp

[141] Defra (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, /www.official-documents.gov.uk/document/cm71/7169/7169_i.asp

Table 6.3 Approach to Determining the Significance of Effects on Air Quality

Effect	*Description*	*Illustrative Guidance*
++	Significant positive	• Alternative would significantly improve local air quality through a sustained reduction in concentrations of pollutants identified in the national air quality objectives. • Alternative has a strong and sustained positive effect on local communities and biodiversity due to a significant reduction in air and odour pollution and particulate deposition.
+	Positive	• Alternative would lead to a minor improvement in local air quality from a reduction in concentrations of pollutants identified in the national air quality objectives. • Alternative has a positive effect on local communities and biodiversity due to a reduction in air and odour pollution and particulate deposition.
0	No (neutral effects)	• Alternative would not affect local air quality. • Alternative has no observable effects on local communities and biodiversity within the region.
-	Negative	• Alternative would result in a minor decrease in local air quality. • Alternative has a negative effect on local communities and biodiversity due to an increase in air and odour pollution and particulate deposition.
- -	Significant negative	• Alternative would cause a significant decrease in local air quality (e.g. leading to an exceedence of air Quality Objectives for designated pollutants and the designation of a new Air Quality Management Area). • Alternative has a strong and sustained negative effect on local communities and biodiversity due to significant increase in air and odour pollution and particulate deposition.
?	Uncertain	• From the level of information available the effects the impact that the alternative would have on this objective is uncertain.

6.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 6.3 summarises the significant effects identified in the detailed assessment of the North East of England Plan policies against the air quality topic.

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Policy 3: Climate Change	Retention	++	++	++	On climate change mitigation, this policy seeks to drive development to sustainable locations, so reducing the need to travel, promote alternatives to road, and improving local air quality as a result. Furthermore the policy promotes renewable energy and encourages sustainable land use practices which help capture and store carbon, potentially yielding climate change and soil benefit. The effects of revocation are anticipated to be broadly the same as they are for retention.
	Revocation	++	++	++	
Policy 8: Protecting and Enhancing the Environment	Retention	++	++	++	This policy sets high level objectives for protecting and enhancing the Environment, which are developed further in other policies (including policies 31-34 and 37). Protection and enhancement of the local landscape, particularly designated areas, will have significant benefits for biodiversity and landscape, and through better recreational opportunities should have benefits to human health. It is likely to have cultural benefits as well. Provision of green infrastructure should have biodiversity benefits through the creation and enhancement of new habitats, as well as provide flood attenuation and provide recreational space, so improving air quality, reduce carbon emission and protect soils. Paragraph 109 of the NPPF expects the planning system to contribute to and enhance the natural and local environment by: • Protecting and enhancing valued landscapes, geological conservation interests and soils; • Recognising the wider benefits of ecosystems services; • Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biosdiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; • Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					affected by unacceptable levels of soil, air, water or noise pollution or land instability; and • Remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land where appropriate. Paragraph 110 of the NPPF states that in preparing plans, the aim should be to minimise pollution and other adverse effects on the local and natural environment. Paragraph 124 of the NPPF states that planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of AQMA and the cumulative impacts on air quality from individual sites in local areas. The support within the NPPF for Green Infrastructure is also considered to have positive impacts particularly for biodiversity, climate change and air quality.
Policy 21: Airports	Retention	=	=	=	Providing for further growth in air travel is incompatible with the need to address climate change. Reductions in impacts from shifting journeys to airports from car to public transport are trivial compared to the impacts of the flying itself. The policy identifies the anticipated growth in passenger numbers to 10 million per annum at Newcastle Airport (double 2011 figures) and 3 million passengers at Durham by 2016. The effects are considered to be significant for air and climate change. Future development at and related to Newcastle and Durham Tees Valley Airports will be driven by evolving national aviation policy and strategy, National Policy Statements (when published) and commercial operators decisions with or without the Regional Strategy. The relevant authorities will need to determine what policies are appropriate to support the airports informed by local needs and Operators' requirements as well as National Policies and guidance on sustainable development. It appears unlikely that the revocation of the regional policy will in itself have any significant environmental effects in regard to the future of airports in the North East. Paragraph 33 of the NPPF states that when planning for ports, airports and airfields that are not subject to a separate national policy statement, plans should take account of their growth and role in serving business, leisure, training and emergency service needs. Plans should take account of this Framework as well as the principles set out in the relevant national policy statements and the Government Framework for UK Aviation. Increasing air travel will increase exposure to noise and air pollution. The assessment for revocation remains the same for retention.
	Revocation	=	=	=	
Policy 37: Air	Retention	++	++	++	This policy seeks to continue the downward trend in air pollution in the region, and making sure that it is

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Quality	Revocation	++	++	++	considered as part of the development control process, particularly the impacts of traffic and the impact on designated areas. Reduction in pollutants in the air will have strong beneficial effects on air quality and benefits for human health, both in urban and rural areas. Furthermore, mitigation measures to offset the increase in pollutants inside or near designated areas should have beneficial effects on local biodiversity and population through seeking to mitigate traffic levels. Paragraph 124 of the NPPF states: Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan. The NPPF emphasises good design, and paragraph 35 gives more detail on design relating to transport. Paragraph 144 states the requirements on local planning authorities relating to dust and particle emissions associated with minerals development. In preparing plans to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment. Given the RSS policy provided generic advice on how local plans can achieve improvements and the existence of the above national policy framework for local plans to take account of, there should be no material adverse impact of revoking this policy.
Policy 50: Regional Public Transport Provision	Retention	++	++	++	This policy seeks to rebalance the transport system in favour of more sustainable modes by setting the framework for improvements to public transport across the region, with particular emphasis on sustainable travel within the city-regions and to key Employment locations and other employment areas. Seeking to deliver a shift away from the car towards public transport should significantly improve human health, reduce inequality by increasing access to employment locations and result in improvements to air quality. Policy 50 does not have specific spatial outcomes but provides the generic planning policy context in which local plans will promote sustainable travel patterns and passenger movements in the region. The NPPF and other relevant government policies reflect the new administration's transport related policy context for local plans to take account of.
	Revocation	++	++	++	

6.7.1 Effects of Retention

The effects of retention of the Plan have been assessed on the assumption that, in the absence of the legislation and regional architecture enabling updating of the Plan, although the general principles of development will remain some policies will become increasing outdated and in some cases in conflict with the national policies in the Framework.

Many of the policies seek to change behaviour (such as transport choice) or are outside the direct control of the planning system. Although the effects of encouraging walking/cycling will depend on the ability to change travel behaviour and the demand for transport, as well as other factors outside the scope of the planning system, policies which may encourage walking and cycling, such as, Policies 2 (Sustainable Development), 7, (Connectivity and Accessibility) and 51 (Strategic Public Transport Hubs), would have a beneficial role. Policy 8 (Protecting and Enhancing the Environment) along with Policy 36 (Trees, Woodlands and Forests) which seeks to protect and increase the area of woodland (an important absorber of pollutants) could also play a beneficial role.

Retaining the Regional Strategy is likely to result in the environmental baseline continuing to evolve as identified in section 6.5.2 above. The greatest impact of the planning system on air quality is through the level of growth of transport linked to the anticipated level of growth in homes and employment. Effects will depend on the resulting scale, nature and location of housing development across the region over the plan period and beyond, linked to growth in local employment, transport and services and the uptake of less polluting forms of travel, local parking provision and access to green space.

6.7.2 Effects of Revocation

The Regional Strategy contains a range of policies which seek to address transport growth and to achieve more sustainable transport modes such as increased use of public transport, walking and cycling. Taken together the transport policies have the potential, if implemented, to reduce the impact of traffic emissions, and contribute to improving air quality with the related benefits to human health and biodiversity. However, much will depend on a number of factors including whether the population does change its behaviour, pricing policy on public transport, technological advances in engine efficiency and emission standards. It is difficult to predict the impact of revocation of these policies. However, the legal requirement to achieve the air quality standards set by European Directives, underpinned by national and locally derived solutions (for example, the Action Plans for Air Quality Management Areas) is likely to have a greater effect on air quality than the policies in the Regional Strategy.

This is reflected in paragraph 124 of the NPPF which states that planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.

A significant concern for the region is the level of growth of transport linked to the anticipated level of growth in homes and employment, as well as development of region's airports. This could contribute significantly to air pollution particularly in those seven areas which are already subject to the Action Plans for Air Quality Management.

The revocation of other policies in the plan could also have implications for air quality depending on the pattern of development that local authorities decide to adopt. The current focus on development within the two main City-Regions, required by Policies 9 and 10 could change; more concentrated or dispersed development could change private car use, depending on the locations in question, but could also result in a better or worse air quality in urban areas compared to the situation with the plan.

6.7.3 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and retaining for a transitional period the non spatial policies, ambitions and priorities;
- Retaining for a transitional period all the spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and revoking the non spatial policies, ambitions and priorities; or
- Retaining for a transitional period policies, ambitions and/or priorities, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on air quality associated with the revocation of the only identified quantitative or spatially specific policy (21) are summarised in **Table 6.3**. However, the effect concerns a significantly negative effect on local air quality arising from the potential for significant expansion particularly at Newcastle International Airport.

The assessment has found that there are no policies in the North East of England Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

6.7.4 Mitigation Measures

It is recognised that local authorities will need to co-operate with the Environment Agency and neighbouring local authorities in line with the “duty of co-operate” to ensure air quality benefits are delivered in the long term.

6.7.5 Proposals for Monitoring

Significant and uncertain effects in respect of air quality relate to:

- Number of AQMA;
- Air pollution levels;
- Decline in favourable condition of SSSI due to air quality.

7. Climatic Factors

7.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals for revoking the regional strategies on climate change. Information is presented for both national and regional levels.

Climate change within this context in concerned with increasing the likelihood of climate change effects through greenhouse gas emissions and the ability to adapt to predicted climate change effects.

There are links between the climate change and other topics in the SEA, specifically biodiversity and nature conservation, air, coastal change and flood risk, and traffic and material assets (transport).

7.2 Summary of Plans and Programmes

7.2.1 International

The ***United Nations Framework Convention on Climate Change*** (UNFCCC) sets an overall framework for international action to tackle the challenges posed by climate change. The Convention sets an ultimate objective of stabilising greenhouse gas concentrations *"at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system."* The Convention requires the development and regular update of greenhouse gas emissions inventories from industrialised countries, with developing countries also being encouraged to carry out inventories. The countries who have ratified the Treaty, known as the Parties to the Convention, agree to take climate change into account in such matters as agriculture, industry, energy, natural resources and where activities involve coastal regions. The Parties also agree to develop national programmes to slow climate change.

The ***Kyoto Protocol***, adopted in 1997, is the key international mechanism agreed to reduce emissions of greenhouse gases. The Kyoto Protocol sets binding targets for 37 industrialised countries and the European Community for reducing greenhouse gas emissions. These targets equate to an average of 5% reductions relative to 1990 levels over the five-year period 2008-2012. The key distinction between this and the UNFCCC is that the Convention encourages nations to stabilise greenhouse gases while the Kyoto Protocol commits them to doing so through greenhouse gas reductions. Countries must meet their targets primarily through national measures

however, the Kyoto Protocol offers them an additional means of meeting their targets by way of three market-based mechanisms: emissions trading, the clean development mechanism (CDM) and Joint Implementation (JI).

As the current Kyoto Protocol period draws to a close, a new agreement is being negotiated. The United Nations Climate Change Conference in Poznań during December 2008 established a commitment from governments that during 2009, a new "ambitious and effective international response to climate change" would be negotiated, and then agreed in Copenhagen at the end of 2009. However, the outcome of the Copenhagen summit was inconclusive and further negotiation took place at the United Nations Climate Change Conference held in Cancun in 2010. The Cancun Summit resulted in the adoption of the Cancun Agreements, a set of significant decisions by the international community to address the long-term challenge of climate change. This document presents information communicated by Parties included in Annex I to the Convention on the quantified economy-wide emission reduction targets of these Parties for 2020 and, where available, beyond that date, as well as associated context, conditions and considerations provided by Parties when they communicated their quantified economy-wide emissions reduction targets. The next United Nations Climate Change Conference is due to be held in April 2011 at Bangkok, Thailand, which will comprise a series of workshops discussing implementation of the Cancun Agreement.

The ***EU Emissions Trading Scheme (EU ETS)*** is a Europe wide scheme which aims to reduce emissions of carbon dioxide and combat the serious threat of climate change and has been in place since 2005. EU ETS puts a price on carbon that businesses use and creates a market for carbon. It allows countries that have emission units to spare (emissions permitted to them but not "used") to sell this excess capacity to countries which are likely to exceed their own targets. Since carbon dioxide (CO_2) is the principal greenhouse gas, this is often described as a carbon market or trading in carbon; the total amount of carbon emissions within the trading scheme being limited, and reduced over time. There are other units which can be transferred under the scheme, each equal to one tonne of CO_2, for example:

- A removal unit (RMU) on the basis of land use, land-use change and forestry (LULUCF) activities such as reforestation;
- An emission reduction unit (ERU) generated by a joint implementation project; and
- A certified emission reduction (CER) generated from a clean development mechanism project activity.

The ***EU Sixth Environmental Action Plan (EAP) (2002 – 2012)*** reviews the significant environmental challenges and provides a framework for European environmental policy up to 2012. The four priority areas are Climate Change; Nature

and Biodiversity; Environment and Health; Natural Resources and Waste. The action plan highlights that ambitious action is needed to reduce global emissions particularly after 2012 when Kyoto's targets expire.

- The ***Renewable Energy Directive (2009/28/EC)*** mandates levels of renewable energy use within the European Union. The directive requires EU member states to produce a pre-agreed proportion of energy consumption from renewable sources such that the EU as a whole shall obtain at least 20% of total energy consumption from renewables by 2020. This is then apportioned across member states. The UK's target is for 15% of energy consumption in 2020 to be from renewable sources. Under Article 4 of the directive each Member State is also required to complete a National Renewable Energy Action Plan that will set out the trajectory and measures that will enable the target to be met.

7.2.2 National

UK

The ***May 2007 Energy White Paper "Meeting the energy challenge'*** set out the UK's international and domestic energy strategy, in the shape of four policy goals:

- Aiming to cut CO_2 emissions by some 60% by about 2050, with real progress by 2020;
- Maintaining the reliability of energy supplies;
- Promoting competitive markets in the UK and beyond; and
- Ensuring every home is heated adequately and affordably.

In the UK, the ***Climate Change Act (2008)*** introduces legislative targets for reducing the UK's impacts on climate change and the need to prepare for its now inevitable impacts. The Act sets binding targets for a reduction in CO_2 emissions of 80% by 2050, compared to a 1990 baseline. Interim targets and five-year carbon budget periods will be used to ensure progress towards the 2050 target. The Climate Change Act 2008 also requires the Government, on a regular basis, to assess the risks to the UK from the impact of climate change and report to Parliament. The first ***Climate Change Risk Assessment*** is to be published by 2012. Government will be required to publish and regularly update a programme setting out how the UK will address these likely impacts, based on the principles of sustainable development, thereby ensuring that environmental, economic and social issues are all fully considered. The Climate Change Act 2008 also introduced powers for Government to require public bodies and statutory undertakers (in this context these are utilities companies which provide a

public service) to carry out their own risk assessments and make plans to address those risks.

The ***Low Carbon Transition Plan*** plots how the UK will meet the 34% cut in emissions on 1990 levels by 2020 and the ***Renewables Strategy (2009)*** sets out the path for the UK to meet the legally-binding target to ensure 15% of energy to come from renewable sources by 2020.

The ***Carbon Plan: Delivering our low carbon (2011)*** sets out how the UK will achieve decarbonisation within the framework of energy policy: to make the transition to a low carbon economy while maintaining energy security, and minimising costs to consumers, particularly those in poorer households. It includes proposals for energy efficiency, heating, transport and industry.

The ***Energy Act 2008*** implements the legislative aspects of the Energy White Paper. It updates energy legislation to:

- Reflect the availability of new technologies (such as carbon capture and storage and emerging renewable technologies);
- Correspond with the UK's changing requirements for secure energy supply (such as offshore gas storage);
- Protect our environment and the tax payer as our energy market changes.

The ***Energy Act 2010*** includes provisions on carbon capture storage. It introduces a new CCS incentive to support the construction of four commercial-scale CCS demonstration projects in the UK and the retrofit of additional CCS capacity to these projects should it be required at a future point. It also requires the Government to prepare regular reports on the progress made on the decarbonisation of electricity generation in Britain and the development and use of CCS.

The ***Energy Act 2011*** provides for a further step change in the provision of energy efficiency measures to homes and businesses, and makes improvements to our framework to enable and secure low carbon energy supplies and fair competition in the energy markets.

England

The ***NPPF (2012)*** sets out a set of core land-use planning principles should underpin both plan-making and decision-taking. One of these core principles specifically deals with climates change stating that planning should: *"support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of*

existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy)".

Throughout the document's text reference is made in context to climate change for example it sets out a definition of sustainable development whose economic, social and environmental dimensions give rise to the need for the planning system to perform a number of roles: *"an environmental role – contributing to protecting and enhancing our natural, built and historic environment; and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy".*

The NPPF also specifically states that "*Planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change*". It is clear though the NPPF that Government expects local Policies and decisions to be part of a proactive response to climate change issues. In this regard the NPPF states that authorities need to have proactive strategies to mitigate and adapt to climate change meaning new development should:

- Comply with adopted local plan policies on energy supply; and
- Take account of design changes that minimise energy consumption.

To support this demand, local planning authorities are also expected to provide;

- Strategy and policies that to promote renewable and low carbon energy sources;
- Identified suitable areas for renewable and low carbon energy sources and infrastructure; and
- Support community-led initiatives for renewable and low carbon energy.

The NPPF also requires that long-term impacts from climate change are also considered and dealt with at the local plan level. Local plans should apply a sequential, risk-based approach to the location of development to avoid where possible flood risk to people and property and manage any residual risk, taking account of the impacts of climate change, by:

- Applying the Sequential Test;
- If necessary, applying the Exception Test;
- Safeguarding land from development that is required for current and future flood management;

- Using opportunities offered by new development to reduce the causes and impacts of flooding; and

- Where climate change is expected to increase flood risk so that some existing development may not be sustainable in the long-term, seeking opportunities to facilitate the relocation of development, including housing, to more sustainable locations.

Changes that may occur over the longer term include flood risk, coastal change, water supply and changes to biodiversity and landscape. The NPPF states that it is important for such future changes to be included in strategic Planning that ensures new development does not increase future vulnerabilities. In this way the complete responsibility for climate change and development is included at the local level.

7.2.3 North East of England

The regional plans relating to climate change which form the core documents in relation to base line gathering are:

A Climate Change Action Plan for North East 2008 tells us what we need to do to tackle climate change in North East England.

North East England Climate Change Adaptation Study (2008) takes the assessment of the potential impact of climate change to a new level of detail which helps the North East England now has a clear picture of what changes are likely in the years ahead, what areas will be most affected and what we need to do now to prepare and adapt.

A Summary of Climate Change Risks for North East England (2012) analyses the main risks and opportunities to the UK, arising from climate change over the coming years. It provides the underpinning evidence to inform discussions on adaptation action needed in such areas as infrastructure, health, environment and business.

The North East England Greenhouse Gas Emissions Baselines and Trajectories Study (2009) examined different sectors of the economy. Using 2005 as a baseline, projections were made to 2020 and 2050, and back to 1990.

7.3 Overview of the Baseline

7.3.1 National

UK

In 2010, UK emissions of the basket of six greenhouse gases covered by the Kyoto Protocol were estimated to be 590.4 million tonnes carbon dioxide equivalent (MtCO2e). [142] This was 3.1 per cent higher than the 2009 figure of 572.5 million tonnes. Between 2009 and 2010 the largest increases were experienced in the residential sector, up 15.1 per cent (11.8 MtCO2e), and the energy supply sector, up by 2.8 per cent (5.6 MtCO2e). Emissions from all other sectors were relatively stable, compared to 2009 levels.

Carbon dioxide (CO_2) is the main greenhouse gas, accounting for about 84 per cent of total UK greenhouse gas emissions in 2010.[91] In 2010, UK net emissions of carbon dioxide were estimated to be 495.8 million tonnes (Mt). This was around 3.8 per cent higher than the 2009 figure of 477.8 Mt. There were notable increases in emissions from the residential sector, up by 15.8 per cent (11.8 Mt), and from the energy supply sector, up 3.1 per cent (5.8 Mt). Again, emissions from all other sectors were relatively unchanged from 2009.

All areas of the UK are getting warmer, and the warming is greater in summer than in winter.[143]

There is little change in the amount of precipitation (rain, hail, snow etc) that falls annually, but more is falling in the winter, with drier summers, for much of the UK.[143] Sea levels are rising, and are greater in the south of the UK than the north.[143] The widespread flooding events of 2007 cannot be directly attributed to climate change but it is expected to see more extreme rainfall events in the future, and hence more flooding as our climate changes.

England

In 2009 England's net emissions of CO_2 (by end user) were estimated to be 372 million tonnes, giving an estimate of 7.2 tonnes of CO_2 emissions per capita.[144] This compares

[142] DECC Statistical Release February 2012.

http://www.decc.gov.uk/assets/decc/11/stats/climate-change/4282-statistical-release-2010-uk-greenhouse-gas-emissi.pdf

[143] Department for Energy and Climate Change: 2007 Greenhouse Gas Emissions, Final Figures 3rd February 2009, http://www.decc.gov.uk/assets/decc/202_20090326104955_e_@@_greenhousegasemissions.pdf

to emissions of 433 million tonnes, giving an estimate of 8.6 tonnes of CO_2 emissions per capita in 2005.

In 2008, 29% of CO_2 emissions were from the energy supply sector, 20.3% from road transport, 31.1% from business and 24.1% from residential fossil fuel use.[145]

The 10 warmest years on record have occurred since 1997. Global temperatures for 2000-2008 now stand almost 0.2% warmer than the average for the decade 1990-1999.

Rainfall has decreased in summer and increased in winter since records began in 1766. Winter rainfall has been increasingly falling as heavy events over the past 45 years (rather than longer, more gentle rainfall). This kind of intense rainfall is a key factor in river and surface water flooding.

The frequency of dry summers has increased over the decades, with 10 of the driest summers occurring in the last 30 years.

Sea levels around the UK have risen by 1 mm/yr in the 20th century, (corrected for land movement). The rate for the 1990s and 2000s has been higher. Rising sea levels are the result of various factors including the warming up and expansion of the ocean and the melting of low latitude glaciers due to climate change.

7.3.2 North East of England

Regional Climate Profile

The coldest waters around the UK are found off NE England with sea surface temperatures varying from about 5 °C in winter to 13 °C in summer (compared to a range of 8°C to 18°C off SW England). This, coupled with extensive areas of upland, leads to a prevailing coolness with mean annual temperatures typically in the range of 8.5°C to 9.5°C in the lower parts. Over the UK, mean annual temperatures range from about 7°C in the Shetlands to over 11°C in Cornwall and the Channel Islands.

An 'air frost' occurs when the temperature at 1.25 metres above the ground falls below 0°C, whereas incidence of a 'ground frost' refers to a temperature below 0°C measured on a grass surface. In NE England, the average number of days with air frost varies from about 30 a year on the coast to about 55 inland and over 80 in higher areas.

[144] DECC Statistical Release September 2011, http://www.decc.gov.uk/assets/decc/11/stats/climate-change/2750-statistical-summary-la-co2-emissions.pdf

[145] DECC http://www.decc.gov.uk/assets/decc/Statistics/climate_change/localAuthorityCO2/457-local-regional-co2-2005-2008-full-data.xls

Ground frost occurs on average on about 80 days per year on the coast and over 135 days on high ground, with a similar distribution to air frost.

Average annual sunshine durations over NE England range from almost 1500 hours on the coast to less than 1250 hours higher areas. These figures compare with values of less than 1100 hours a year in the Shetland Islands to over 1750 hours along the south coast of England and over 1900 hours in the Channel Islands.

The average annual rainfall exceeds 1500 mm in the higher parts of the Region. There is a decrease as the land falls eastwards, such that the east coast is one of the driest parts of the UK with less than 600 mm in places such as Tees-side and the Northumbrian coast[146].

Carbon Emissions

Between 1990 and 2005, there was a marked reduction in greenhouse gas emissions, largely due to falls in nitrous oxide emissions associated with industrial changes and a widespread switch to gas. In 2005, more than 80% of greenhouse gas emissions were due to CO_2, and as such, most targets are now based on this gas.[147]

Over the period 2005 to 2007, the industrial and commercial, and domestic sectors have seen significant reductions in CO_2 emissions of 5.3% and 4.2% respectively. However emissions in relation to road transport have not changed significantly, with less than a 1% reduction (see table 7.1 for more details).

Table 7.1 CO_2 Emissions by Sector

Sector	2005	2006	2007
Industry and commercial	13186	12748	12481
Domestic	6284	6277	6021
Road transport	4783	4695	4737
Total	24253	23720	23239

Units: KtCO2.
Source: Department of Energy and Climate Change – National Indicators (NI186).

CO_2 emissions are shown, broken down into three sectors, industry and commercial, domestic, and road transport, for 2007. In north east England, the industrial and commercial sector accounts for greater than 50% of CO_2 emissions.

[146] Met Office Regional Profile: http://www.metoffice.gov.uk/climate/uk/ne/print.html

[147] The North East England Greenhouse Gas Emissions Baselines and Trajectories Study (2009)

Each sub-region within the North East has recorded a reduction in CO_2 between 2005 and 2007. The Tees Valley has by far the greatest CO_2 emissions, but has also seen the greatest reduction of 5.4%. The other sub-regions saw reductions of between 3.1 and 3.4% (see table 7.2).

Table 7.2 CO_2 Emissions by Area

Sub- Region	2005	2006	2007
Tees Valley	10169	9738	9619
Durham	3421	3413	3314
Tyne and Wear	7574	7610	7413
Northumberland	2989	2959	2893
Total	24253	23720	23239

Units: KtCO2
Source: Department of Energy and Climate Change – National Indicators (NI186).

When broken down by sub-region, it is clear that Tees Valley's industrial and commercial sector accounts for more than 50% of CO_2 emissions associated with industry. In 2007, Redcar and Cleveland accounted for 31% of these emissions, and Stockton-on-Tees 16%.

When NI186 (measures the per capita reduction in CO_2 emissions in local authority areas) CO_2 emissions data is broken down to local authority level, most authorities have achieved a reduction between 2005 and 2007. The most significant reduction in percentage terms was in Hartlepool (13.5%), though much of this reduction was accounted for by a major industrial unit being incorporated into the EUETS scheme. Castle Morpeth (10.8%) also saw a substantial fall, largely accounted for by the closure of Ellington colliery. The significance of Redcar and Cleveland's contribution to CO_2 emissions is emphatic. In 2007, at 31.3t, the borough's per capita CO_2 emissions are double that of the second highest Stockton-on- Tees, with 14.4t per capita. However, these two boroughs also recorded by far the greatest reductions in CO_2 emissions in absolute terms, accounted for by changes in the fuel mix and energy efficiencies of industries.

Table 7.3 CO2 Emissions per Capita

	Per capita CO_2 emissions (t)			% change 2005/07	LA change 2005/07 (kt)
Local Authority Area	**2005**	**2006**	**2007**		
Tees Valley					
Darlington	8.0	7.8	7.5	-6.3	-33
Hartlepool	8.9	8.1	7.7	-13.5	-99
Middlesbrough	7.5	7.5	7.6	1.3	+15
Redcar and Cleveland	33.1	33	31.3	-5.4	-255
Stockton-on –Tees	15.6	13.6	14.4	-7.7	-178
County Durham					
Chester-le-Street	4.9	4.8	4.7	-4.1	-11
Derwentside	6.5	6.4	6.2	-4.6	-19
Durham	6.8	6.7	6.3	-7.4	-29
Easington	7.1	7.1	6.8	-4.2	-15
Sedgefield	7.7	7.8	7.5	-2.3	-28
Teesdale	10.2	10.3	10.2	0	+3
Wear Valley	6.2	6.1	6.0	-3.2	-10
Tyne and Wear					
Gateshead	8.3	8.5	8.3	0	-10
Newcastle upon Tyne	7.1	7.0	6.8	-4.2	-68
North Tyneside	7.3	7.0	6.7	-8.2	-98
South Tyneside	5.2	5.2	4.9	-5.8	-44
Sunderland	7.0	6.9	6.7	-4.3	-110
Northumberland					
Alnwick	8.0	7.8	7.7	-3.8	-8
Berwick-upon-Tweed	10.8	10.8	11	1.9	+3
Blyth Valley	6.2	6.0	5.8	-6.5	-29
Castle Morpeth	8.3	7.8	7.4	-10.8	-42
Tynedale	12.8	12.9	13.1	2.3	+21
Wansbeck	12.6	12.7	11.9	-5.6	-41

Source: Source: Department of Energy and Climate Change – National Indicators (NI186)

Middlesbrough, Berwick-on-Tweed and Tynedale were the only authorities to see a rise in per capita CO_2 emissions over the same period. Tynedale's increase was accounted for by the expansion of two industrial businesses. The small rise in CO_2 in Berwick was associated with increases in traffic emissions on the A1 trunk road, which not being a motorway, falls into the NI186 data set. Middlesbrough saw a fall in emissions from the domestic and transport sectors, but these were outweighed by increases associated with industry and commerce.

Renewable Energy

Table 7.4 outlines the number of renewable energy sites and installed megawatt capacity (MWe) for each potential type of renewable energy for the north east up to 31st December 2011. There are 6,838 sites in total are generating renewable energy which is the second lowest of any region within England. It is approximately 3.9% of England's total. The 312.7 MWe of renewable energy produced within the region is the third lowest producing region in England after London and West Midlands.

Table 7.4 Number of Sites Generating Electricity from Renewable Energy December 2011 [148]

Type	Hydro	Wind and Wave	Landfill Gas	Sewage Gas	Other Bioenergy	Total excl Solar	Solar PV	Total
England	175	1,425	378	162	148	2,288	174,988	177,276
North East England	9	121	20	8	7	165	6,673	6,838
NE England MWE	7.1	156.5	42.3	15.6	71.1	n/a	20.2	312.7

7.4 Environmental Characteristics of Those Areas Most Likely to be Significantly Affected

7.4.1 National

UK

The main source for determining how the climate of the UK may change is the UK Climate Impacts Programme scenarios, published in 2009 and known as UKCP09.

[148] https://restats.decc.gov.uk/cms/regional-renewable-statistics/

The UKCP09 findings indicate that all areas of the UK are getting warmer, and the warming is greater in summer than in winter. There is little change in the amount of precipitation (rain, hail, snow etc) that falls annually, but more is falling in the winter, with drier summers, for much of the UK. Sea levels are rising, and are greater in the south of the UK than the north. [149]

The UK is experiencing sea level rise of approximately 1mm per year. Global sea-level is rising at about 3mm per year.[150] Central England's temperature has risen by about 0.7 ºC over the last century, with 2004 being the warmest on record. [151] Sea-surface temperatures around the UK coast have risen over the past three decades by about 0.7 ºC. Global average temperatures are rising at about 0.2 ºC per decade. Severe windstorms around the UK have become more frequent in the past few decades, though not above that seen in the 1920s. Annual mean precipitation over England and Wales has not changed significantly since records began; however seasonal rainfall appears to be decreasing in summer and increasing in winter.[150]

Key climate change include that the UK climate is warming and becoming more seasonal; climate changes are more pronounced in south east of the UK compared to the north west; sea levels are rising, and UK greenhouse gas emissions are falling with a target of an 80% cut in emissions by 2050 (compared to 1990 levels).

7.4.2 North East of England

Climate change is likely to lead to more flooding in the region due to the predicted increased winter rainfall. Due to the topography of many of the river valleys within the region, there will not necessarily be vast additional expanses of land flooded, but rather those areas presently prone to flooding will become more frequently affected, particularly during winter months. Regeneration and redevelopment in riverside areas susceptible to flooding will compound this problem by increasing the assets that will be at risk due to flooding.

Increasing mean and extreme sea levels will result in the erosion of the coastline in areas composed of softer sediments like sand or mud, as opposed to harder rock. This means that coastal areas will be more prone to erosion.

Much of the region has a former heavy-industry heritage and as a result there are considerable areas of land containing contaminated soils. The significantly increased rainfall in winter will lead to some of this material leaching from contaminated sites or

[149] DECC (2007) http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/loc_reg_dev/ni185_186/ni185_186.aspx

[150] Defra, Environment in your Pocket Statistics, 2009, http://www.defra.gov.uk/evidence/statistics/environment/eiyp/

being eroded from sites adjacent to river banks due to increased winter river flows. Similarly, increased sea levels will increase the release of hazardous material from former landfill sites located along the coastal margin, presenting both public health and safety and environmental risks at the point of discharge, and more widely when dispersed into the sea.

Rising temperatures and reduced annual and summer rainfall will mean that grassland and moorland will at times be tinder dry. Fires will spread much more rapidly for instance where fires are started in urban parklands due to arson or carelessly discarded cigarette butts or in the remote moors and fells due to natural ignition or heather burning getting out of control. [152]

7.5 Likely Evolution of the baseline

7.5.1 National

UK

There has been a steady decrease in the 6 greenhouses gases of the Kyoto basket since 1990. In 2009 566.3 million tonnes of CO_2 equivalent were emitted from the UK, which was a 27.2% decrease compared to volumes emitted in 1990 and a 8.2% decrease compared to values in 2008. However, provisional results for 2010 estimate 582.4 million tonnes of CO_2 equivalent were emitted giving an increase of 2.8% compared to 2009 values.[153]

UKCP09 provides the following prediction on changes to climate within the UK based on the medium emission scenario with 90% probability:[154]

- **2080 mean winter temperature**: the central estimates of change are projected to be generally between 2 and 3ºC across most of the country, with slightly larger changes in the south east and slightly smaller in the north west of Britain;
- **2080 mean summer temperature**: a more pronounced south to north gradient exists with changes in some parts of southern England being just over 4ºC and in parts of northern Scotland about 2.5ºC;

[152] ClimateNE (2009): North East England Climate Change Adaption Strategy

[153] DECC (2011) 2010 Provisional GHG emissions http://www.decc.gov.uk/publications/basket.aspx?filetype=4&filepath=Statistics%2fclimate_change%2f1514-ghg-emissions-provisional-2010.xls&minwidth=true#basket

[154] UKCP09 http://ukclimateprojections.defra.gov.uk/content/view/515/499/

- **2080 mean summer daily maximum temperature**: central estimates show a gradient between parts of southern England, where they can be 5ºC or more, and northern Scotland, where they can be somewhat less than 3ºC;
- **2080 mean annual precipitation**: shows little change (few percent or zero);
- **2080 mean winter precipitation:** increases are in the range +10 to +30% over the majority of the country. Increases are smaller than this in some parts of the country, generally on higher ground;
- **2080 mean summer precipitation**: general south to north gradient, from decreases of almost 40% in SW England to almost no change in Shetland;
- The range of absolute sea level rise around the UK (before land movements are included) and across the three emissions scenarios is projected to be between 12 and 76 cm for the period 1990–2095, which is a wider spread than that of the global average;
- The projected long-term future trends in storm surge that we find in UKCP09 are physically small everywhere around the UK, and in many places can be accounted for by natural variability. The surge level we expect to be exceeded on average once in 2, 10, 20 or 50 yr is not projected to increase by more than 9 cm by 2100 anywhere around the UK coast (not including the mean sea level change). The largest trends are found in the Bristol Channel and Severn Estuary; and
- Seasonal mean and extreme waves are generally expected to increase to the South West of the UK, reduce to the north of the UK and experience a small change in the southern North Sea. Changes in the winter mean wave height are projected to be between –35 and +5 cm. Changes in the annual maxima are projected to be between –1.5 and +1 m.

The Climate Change Act 2008 was passed in November 2008 and creates a new approach to managing and responding to climate change in the UK. This includes putting in place legally binding targets with the aim of reducing emissions by at least 80% by 2050 (compared to 1990 levels) and a set of five-year carbon budgets (legally binding limits on the total quantity of greenhouse gas emissions that the country produces over a 5 year period) to 2022. Included within the Fourth Carbon Budget the Committee on Climate Change is the recommendation for an indicative 2030 target to reduce emissions by 60% relative to 1990 levels (46% relative to 2009 levels).[155]

[155] Committee on Climate Change (2010) Fourth Carbon Budget, http://www.theccc.org.uk/reports/fourth-carbon-budget.

In response, the White Paper 'The UK Low Carbon Transition Plan' sets out the UK's first comprehensive low carbon transition plan to 2020. Carbon Reduction Commitments and individual company budgets will ensure that large energy users gradually reduce their carbon footprints, or have to purchase credits through the European Emissions Trading Scheme. Emissions reductions are expected to be achieved initially within 5 Sectors (power and heavy industry; transport, homes and communities; workplaces and jobs; farming, land and waste). DECC aims to put the UK on a path to a low carbon UK by cutting CO_2 emissions; investing in energy efficient and clean technologies, maintain secure energy supplies; and protecting the most vulnerable.[156] The UK is committed to delivering 20% of its energy from renewable sources by 2020. [156, 157] There are plans for a new generation of nuclear power stations in the UK. DECC aims for no homes to be in fuel poverty by 2016-2018.[156]

England

In 2009 England's emissions of the basket of six greenhouse gases covered by the Kyoto Protocol were provisionally estimated to be 436 million tonnes CO_2 equivalent which is a 29.5% decrease compared to emissions in 1990.[158]

UKCP09 provides the following changes in climate for England in 2080 based on a medium emission scenario with 90% probability:[159]

- **2080 mean winter temperature**: a change in temperature from 4.0ºC in the Northwest to 4.7ºC in the South and East of England.
- **2080 mean summer temperature**: a change in temperature from 5.4ºC in Yorkshire to 6.5ºC in the South East.
- **2080 mean winter precipitation:** increases are in the range 41% in the East Midlands to 54% in the South West; and
- **2080 mean summer precipitation**: no change is expected in Yorkshire to a 7% increase in the South East and London.

[156] DECC, The UK Low Carbon Transition Plan: National Strategy for Climate and Energy, http://www.decc.gov.uk/assets/decc/white%20papers/uk%20low%20carbon%20transition%20plan%20wp09/1_20090909102052_e_@@_nationalstrategyclimateenergy.pdf

[157] Energy Challenge, A White Paper on Nuclear Power, January 2008, http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/files/file43006.pdf

[158] National Atmospheric Emissions Inventory , Devolved Administration End User GHG Emissions Data http://uk-air.defra.gov.uk/reports/cat07/1109061103_DA_GHGI_report_2009_Main_text_Issue_1.pdf

[159] UKCP09 http://ukclimateprojections.defra.gov.uk/content/view/515/499/

England shares the same targets related to climate change and energy use as the rest of the UK. Although there are additional targets on a regional and local authority level contained within strategies there are too many to mention for the purposes of this report.

7.5.2 North East of England

The main climate changes predicted for the region by the 2050's are:[160]

- Rainfall patterns will change with increases of up to 21 per cent in winter and reductions of up to 37 per cent in summer, with an overall reduction of 10 per cent;
- Average seasonal temperatures will increase, with extreme hot temperatures increasing by around 3 degrees centigrade and heatwaves likely to occur more often;
- There will be a reduction in the number of frost days and a major reduction in winter snowfall of around 45 per cent to 83 per cent; and
- Average sea levels will rise by around 0.3m with an increase in sea surge levels of a further 0.3m.

7.6 Assessing Significance

Table 7.5 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on climate change. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 7.5 Approach to Determining the Significance of Effects on Climate Change and Energy Use

Effect	*Description*	*Illustrative Guidance*
++	Significant positive	• Alternative would significantly reduce carbon footprint of region (by >34% by 2020 compared to a 1990 baseline). • Alternative will increase resilience/decrease vulnerability to climate change in the wider environment.
+	Positive	• Alternative would reduce carbon footprint of region (by <34% by 2020 compared to 1990). • Alternative may increase resilience/decrease vulnerability to climate change in the wider environment.

[160] ClimateNE (2009) North East Climate Change Action Plan.

Effect	Description	Illustrative Guidance
0	No (neutral effects)	• Alternative would not lead to an overall change in greenhouse gas emissions in a way that will not contribute to climate change or resilience to climate change within the wider environment.
-	Negative	• Alternative would increase carbon footprint of region (by <10% by 2020 compared to 1990). • Alternative may decrease resilience/increase vulnerability to climate change in the wider environment. • Alternative could result in increase in people or property at risk or affected by flooding, coastal inundation or sea level rise.
- -	Significant negative	• Alternative would increase carbon footprint of region (by >10% by 2020 compared to 1990). • Alternative will decrease resilience/increase vulnerability to climate change in the wider environment. • Alternative could result in increase in significant number of people or property affected by flooding, coastal inundation or sea level rise.
?	Uncertain	• From the level of information available the impact that the alternative would have on this objective is uncertain.

7.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 7.6 summarises the significant effects identified in the detailed assessment of the North East of England Plan policies against the climate change topic.

Table 7.6 Significant Effects against the Climatic Factors Topic

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Policy 2: Sustainable Development	Retention	+	++	++	The policy identifies the need for LDF to support sustainable development and construction. The measures identified within the policy will, along with other policies in the RSS, assist in mitigating and adapting to climate change. Revocation of the policy will not have a significant change in the long term as the purpose of the planning system is to contribute towards the achievements of sustainable development, as set out in section 39(3) in the Planning and Compulsory Purchase Act 2004 and reiterated in paragraph 6 of the NPPF. Specific reference is made to the five 'guiding principles' of sustainable development set out in the UK Sustainable Development: Strategy Securing the Future. These are: living within the planet's environmental limits; ensuring a strong, healthy and
	Revocation	+	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					just society; achieving a sustainable economy; promoting good governance; and using sound science responsibly. The policies in paragraphs 18 to 219, taken as a whole, constitute the Government's view of what sustainable development in England means in practice for the planning system. The 2004 Act, places statutory duties particularly with regard to environmental protection, sustainable development and climate change, when local authorities prepare their local plans. Paragraph 94 of the NPPF states that local planning authorities should adopt proactive strategies to mitigate and adapt to climate change in line with the provisions of the Climate Change Act 2008. The same effects are anticipated in the medium to long term following the revocation of this policy.
Policy 3: Climate Change	Retention	++	++	++	Policy 3 – Climate Change identifies the need for all strategies, plans and programmes in the Region to contribute to mitigating climate change and assisting adaptation to the impacts of a changing climate. On climate change mitigation, this policy seeks to drive development to sustainable locations, so reducing the need to travel, promote alternatives to road, and improving local air quality as a result. Furthermore the policy promotes renewable energy and encourages sustainable land use practices which help capture and store carbon, potentially yielding climate change and soil benefit. On climate change adaptation, this policy provides measures to ensure that local planning authorities take account the need to adapt to unavoidable impacts. This will have potential benefits regarding water, soil biodiversity and landscape issues. Policy 3.3 places a responsibility on the regional planning body to draw up a regional greenhouse gas emissions inventory and co-ordinate a programme of data collection and monitoring. As a consequence of the Localism Act 2011, this policy cannot be delivered. Revocation of this policy would not remove the requirement for local authorities to be consistent with legal and national policy requirements, such as paragraph 17 of the NPPF which as an overarching planning principle expects the planning system to support the transition to a low carbon future, taking full account of flood risk and coastal change, and encourage the reuse of existing resources. Therefore in the long term significant positive effects are considered to result. Paragraph 94 of the NPPF states that local planning authorities should adopt proactive strategies to mitigate and adapt to climate change in line with the provisions of the Climate Change Act 2008.
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					Paragraph 95 of the NPPF seeks to support the move to a low carbon future, by stating that local planning authorities should plan for new development in locations and ways which reduce greenhouse gas emissions; actively support energy efficiency improvements to existing buildings; and when setting any local requirement for a building's sustainability, do so in a way consistent with the Government's zero carbon buildings policy and adopt nationally described standards. Specifically, local planning authorities are expected to identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supplies (paragraph 97). In addition to the statutory requirement to take the Framework into account in the preparation of local plans, Section 19 of the Planning and Compulsory Purchase Act 2004 puts a specific duty on local planning authorities to ensure their local plan (taken as a whole) includes policies designed to tackle climate change and its impacts. Overall, planning, including through working at differing spatial scales, gives local communities clear opportunities to take action on climate change. With the legislative, policy and financial framework now in place to drive cuts in carbon emissions and deliver places well-adapted to its impacts, it is reasonable to conclude that the contribution made by planning decisions to real world outcomes will not differ significantly from what could have been expected with the RS's policies in place. Therefore the revocation of this policy is unlikely to have a significant impact overall on the region's contribution to the challenge of climate change, either in terms of cutting greenhouse gas emissions or adapting to its impacts
Policy 8: Protecting and Enhancing the Environment	Retention	++	++	++	This policy sets high level objectives for protecting and enhancing the Environment, which are developed further in other policies (including policies 31-34 and 37). The RES acknowledges the need to protect, enhance and capitalise upon the regions unique and special natural and historic environment, recognising that the quality of the environment can do much to attract inward economic investment. Protection and enhancement of the local landscape, particularly designated areas, will have significant benefits for biodiversity and landscape, and through better recreational opportunities should have benefits to human health. It is likely to have cultural benefits as well. Provision of green infrastructure should have biodiversity benefits through the creation and enhancement of new habitats, as well as provide flood attenuation and provide recreational space, so improving air quality, reduce carbon emission and protect soils. The core planning principles of the NPPF include
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					the recognition that some green space and open land can perform many functions (such as for wildlife, recreation, flood risk mitigation, carbon storage, or food production). Under paragraph 156 of the NPPF local planning authorities should set out the strategic priorities for the area which will include climate change mitigation and adaptation, conservation and enhancement of the natural and historic environment, including landscape. The NPPF makes clear that the planning system should contribute to and enhance the natural environment, including by protecting and enhancing valued landscapes, minimising impacts on biodiversity and providing net gains in biodiversity where possible. The Framework underlines that pursuing sustainable development means moving from a net loss of biodiversity to achieving net gains for nature.
Policy 21: Airports	Retention	=	=	=	The RES identifies that there is a need to ensure that transport investment is designed to support increased economic activity. In particular the RES identifies the need to support inter-regional connectivity. The RES identifies a series of actions including: • Retaining existing London hub services from both Newcastle International and Durham Tees Valley Airports; • Expanding services to other European Centres; and Developing a transatlantic route from the region. It is considered that providing for further growth in air travel is incompatible with the need to address climate change. Reductions in impacts from shifting journeys to airports from car to public transport are trivial compared to the impacts of the flying itself. The policy identifies the anticipated growth in passenger numbers to 10 million per annum at Newcastle Airport (double 2011 figures) and 3 million passengers at Durham by 2016. The effects are considered to be significant for air and climate change. The assessment for revocation remains the same for retention.
	Revocation	=	=	=	
Policy 34: The Marine and Aquatic Environment	Retention	++	++	++	Although the region has an abundance of water supply, the purpose of this policy is to ensure the sustainable provision and use of water (including through water efficiency and sustainable urban drainage systems) in a manner which protects and enhances the river and marine environment. This approach should protect the habitats for many species whilst steering development to appropriate locations away from the risk of coastal change. This policy will therefore have significant biodiversity, water and climate change benefits. The NPPF identifies mitigating and adapting to climate change a being a key feature of sustainable development.
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					Therefore no differences have been identified between retention and revocation.
Policy 36: Trees, Woodlands and Forests	Retention	++	++	++	The policy seeks to achieve an increase in woodland cover by protecting and achieving better management of existing woodland and promoting new planting where consistent with landscape character. This approach will have significant benefits on biodiversity and the region's landscape, and could protect and enhance the soil as well as delivering climate change benefits through its absorption of carbon dioxide. Whilst the NPPF has important provisions for woodland conservation and enhancement the retention of the policy is likely to lead to a more consistent approach across local authorities particularly with regard to integrated timber processing facilities and supporting initiatives such as the North East Regional Forest. The implementation of the findings of the Independent Panel on Forestry will also be of relevance.
	Revocation	+	+	+	
Policy 38: Sustainable Construction	Retention	++	++	++	This policy encourages development which minimises energy use, promotes energy efficiency and increases the amount of energy from renewable sources. This policy support policy 2 on sustainable development and should deliver positive climate change benefits. Part D of the policy requires developments of more than 10 dwellings or 1000m^2 of non- residential floorspace should secure at least 10% of their energy from decentralised and renewable or low-carbon sources, unless, having regard to the type of development involved and its design, this is not feasible or viable. The loss of strong policy direction on revocation means that although long term effects will be positive they may not be significant. A total of 11 development plans in the North East were identified as having a similar policy to that contained within the RSS with regard to securing a percentage of development energy needs from decentralised and renewable or low carbon sources (of the 11 authorities, Alnwick, Blyth Valley, Tynedale and Wansbeck now form part of Northumberland). The need to support opportunities for development to draw its energy supply from decentralised, rewnewable or low carbon energy supply systems is stated in Paragraph 97 of the NPPF. The NPPF lays out a clear set of expectations on local planning authorities. They are required to adopt proactive strategies to mitigate climate change, including planning for new development in locations and ways which reduce greenhouse gas emissions (not least through transport solutions which support reductions in greenhouse gas emissions); actively supporting energy efficiency improvements to existing buildings; and promoting
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					energy from renewable and low carbon sources. These strategies are expected (paragraph 94) to be in line with the objectives and provisions of the Climate Change Act 2008 which introduced a statutory target of reducing carbon dioxide emissions to at least 80% below 1990 levels by 2050, with an interim target of at least 34% by 2020. In addition to the statutory requirement to take the NPPF into account in the preparation of local plans, Section 19 of the Planning and Compulsory Purchase Act 2004 puts a specific duty on local planning authorities to ensure their local plan includes policies designed to tackle climate change and adapt to its impacts. With the legislative, policy and financial framework now in place to drive cuts in carbon emissions and deliver places well-adapted to its impacts (set out in Chapter 10), it is reasonable to conclude that the contribution made by planning decisions to real world outcomes will not differ significantly from what could have been expected with the RS's policies in place.
Policy 39: Renewable Energy Generation	Retention	++	++	++	The policy seeks to achieve 10% of the region's energy consumption from renewable sources by 2010, rising to 20% by 2020. This would contribute to the national target in the Climate change programme, and to meeting European obligations by 2020. There would be strong benefits to climatic factors. The RSS did not identify renewable energy targets at a local authority level. Instead it adopted sub-regional targets for Northumberland, Durham, Tyne & Wear and Tees Valley with an overall target of 454MW by 2010. The local plan analysis shows that, consistent with the approach adopted in the RSS, local plans and/or core strategies do not therefore include targets for the production of renewable energy at local authority level. Only the adopted plans of Darlington, Redcar & Cleveland and Gateshead make reference to contributing towards the RSS 2010 target, albeit without apportioning the target to a local level. Some local plans adopted before the North East of England Plan was adopted do not contain policies on renewable energy and for these authorities there is a clear policy gap. Other pre-2008 local plans contain policies that support the production of renewable energy but do not include a target for its generation for the local authority areas. In the short term, the amount of renewable energy development will be dependent on the decisions of individual local authorities made in the light of their adopted plans, the NPPF and other material considerations. The NPPF published on 27 March 2012 must now be taken into account in the preparation of local plans, and is a material consideration in planning
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					decisions. For the first 12 months, decision-makers may continue to give full weight to relevant policies adopted since 2004 even if there is a limited degree of conflict with this Framework. Going forwards, beyond March 2013, plans and decisions need to be consistent with the NPPF including its policies on renewable energy and, the energy National Policy Statement for Renewable Energy Infrastructure (EN3), the local plan and other material considerations. It is noted from DECC 2009 statistics that the North East had failed to meet its 2010 target for 454MW of renewable energy with 281 MW of installed capacity being achieved. Data from the DECC 2011 statistics illustrate that there is now 312MW of installed renewable energy capacity in the North East. There is a further 1047MW of consented capacity awaiting construction and a further 186MW in the planning system. If the consented capacity were to be implemented, the North East would exceed its 20% target of 897MW by 2020. Therefore, the revocation of this policy would have no effect upon meeting the regional targets as identified to the period 2020 resulting a significant positive effect on climatic factors and long term significant positive assessment for biodiversity.
Policy 40: Planning for Renewables	Retention	++	++	++	Policy 40 identifies the need to support and encourage renewable energy proposals and in assessing proposals for renewable energy development to give significant weight to wider environmental, economic and social benefits. The policy also identifies the need to features of biodiversity and cultural heritage significance as well as areas of landscape value. Retention of this policy should have significant positive effects on climatic factors. Given the emphasis on moving towards a low carbon economy and the NPPF's requirement for planning to encourage the use of renewable resources, (including renewable energy) it is considered that revocation and retention can both be appraised as having significant positive effects.
	Revocation	++	++	++	
Policy 41: Onshore Wind Energy Development	Retention	++	++	++	This policy identifies the areas within the region which offer the greatest potential to accommodate onshore wind energy development, to support delivery of the targets in policy 39, with the least environmental constraint. Retention of this policy will deliver significant climate change benefits. The policy identifies Kielder Forest at a Strategic Renewables Resource Area and a number of broad locations which have the potential for medium scale and small wind farms. In the case of Kielder Forest, South and West Berwick upon Tweed, North/South Charlton, Knowesgate, Harwood Forest, Northern Coalfield and Kiln Pit Hill these were all identified within the Northumberland Structure Plan. The relevant policy is no longer saved and therefore the
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					revocation of this policy leaves a void which may deter potential investors resulting in adverse environmental effects. A review of adopted local plans and core strategies identified that only Redcar & Cleveland Core Strategy includes a policy which identifies potential areas for wind farm development (identified as areas of least constraint). The remaining policies appraised in response to this policy all include criteria based assessments for appraising new wind farm developments. It is noted that the RSS policy left it to individual authorities to set out specific policies in their plans and strategies
Policy 46: Waste Management Provision	Retention	++	++	++	The policy reinforces aspects of national policy that will need to apply across the region if waste generation is to be successfully decoupled from economic growth. It respects the European and national policy context and, in seeking to achieve the required shift towards more sustainable waste management, building on principles set out in the Waste Strategy for England and PPS10. Moving waste up the waste hierarchy, such as through promotion of waste minimisation and re-use activities will have significant benefits to material assets from example by replacing primary aggregate with recycled construction waste. It will also have climate change and air quality benefits from having to manage less waste. Revocation of this policy is not likely to have a significant environmental effect. Local planning authorities are expected to draw up local plans which comply with Planning Policy Statement 10. This policy sets out key objectives to deliver sustainable waste management, and highlights the pivotal role of the planning system in putting in place the right facilities at the right time in the right place .
	Revocation	++	++	++	

7.7.1 Effects of Retention

The effects of retention of the Plan have been assessed on the assumption that, in the absence of the legislation and regional architecture enabling updating of the Plan, although the general principles of development will remain some policies will become increasing outdated and in some cases in conflict with the national policies in the Framework. By setting out the overarching direction within which local plans should be developed retention of the Plan would have significant benefits on climate change in the short to long term.

The effects of retaining the Regional Strategy would see a continuation of the baseline, at least in so far as it is influenced by the planning system. It needs to be acknowledged that there are factors outside of the planning system which will necessitate behavioural changed in order to address climate change and its impacts.

7.7.2 Effects of Revocation

The RSS identifies that climate change is the single most significant issues what affects global society in the 21st Century. There are two key aspects to climate change considered in this assessment.

The first is the extent to which the region contributes to global emissions of greenhouse gases. Growth of housing, transport movement, waste generation and energy use are areas where increases in carbon dioxide emissions could be seen. The short, medium and long term impacts of the revocation of Policy 28 (Gross and Net Dwelling Provision) are unknown as regional housing targets will be lost. However, it is anticipated that the same if not greater level of housing will be provided resulting in the same significant negative effects on climate change in the long term.

The second is the extent to which planning policy facilitates adaption and mitigation of the impacts of climate change. The Climate Change Act 2008 as explained above creates a new approach to managing and responding to climate change in the UK. This includes putting in place legally binding targets with the aim of reducing emissions by at least 80% by 2050 (compared to 1990 levels) and a set of five-year carbon budgets (legally binding limits on the total quantity of greenhouse gas emissions that the country produces over a 5 year period) to 2022. In addition, the Carbon Plan 2011 explains that there will have to be major changes in how energy is generated and used. Energy efficiency will have to increase dramatically across all sectors, including through more efficient buildings and cars. The planning system will have an important, but not necessarily leading role in taking this forward.

In this respect revocation of the plan and the removal of regional policies will not have any material effect in the long term although in the short-medium term there are likely to be some limitations on improving accessibility through increased urban density and related public transport networks and thereby greenhouse gas emissions. One of the 12 core principles of planning set out in paragraph 17 of the NPPF is to support the transition to a low carbon future, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy). Similarly, paragraph 94 of the NPPF states that local planning authorities should adopt proactive strategies to mitigate and adapt to climate change in line with the provisions of the Climate Change Act 2008.

The NPPF seeks to support the move to a low carbon future, by stating that local planning authorities should plan for new development in locations and ways which reduce greenhouse gas emissions; actively support energy efficiency improvements to existing buildings; and when setting any local requirement for a building's sustainability, do so in a way consistent with the Government's zero carbon buildings policy and adopt nationally described standards. Specifically, local planning authorities are expected to identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supplies.

Behavioural change can include policy which encourages more sustainable patterns of living and working, with less of a requirement to drive promoted by locating development in the most accessible locations. The RSS contains a significant body of policy which supports development in sustainably accessible locations. This is mirrored by the NPPF within the 12 Core Principles which include for example the principle that significant development should take place in locations which are or can be made sustainable.

Following revocation of regional strategies, local authorities will be expected to continue to work together across administrative boundaries and with the Environment Agency to plan development that properly minimises the effects of climate change, particularly from flooding and coastal change. For flooding matters, local authorities already have a duty to co-operate under the Floods and Water Management Act 2010. Paragraph 156 of the NPPF requires local planning authorities to set out the strategic priorities for the area in the local plan, including strategic policies to deliver the provision of infrastructure for flood risk and coastal change management. Shoreline Management Plans should continue to inform the evidence base for planning in coastal areas (paragraph 168). The prediction of future impacts should include the longer term nature and inherent uncertainty of coastal processes (including coastal landslip), and take account of climate change.

The exception to this is the removal of Policy 39 (Renewable Energy Generation) which required at least 10% of the Regions consumption of electricity from renewable resources by 2010 and to aspire to a target of 20% by 2020. This equates to 454MW installed capacity by 2010 and 897MW by 2020. On revocation this would be replaced by the national target of 15% and there would be no regional target to be met. Data collated by the Department of Energy and Climate Change indicates that the north east failed to meet its 2010 target with only 281MW of installed capacity being achieved (312.7 MWe was installed by the end of 2011). However there is a further 1047MW of consented capacity awaiting construction and a further 186MW in the planning system. If the consented capacity were to be implemented, the North East would exceed its 20% target of 897MW by 2020. Therefore, the revocation of this policy would have no effect upon meeting the Regional Targets as identified to the period 2020. Consideration needs to be afforded as to how future targets or incentives are provided

to ensure that local authorities assist in meeting the National Targets and delivering a low carbon economy.

However, it is possible that some local authorities, in following the policy on renewable energy in the NPPF, may decide not to consent significant additional capacity due to the weight they place on unavoidable adverse environmental impacts, e.g. on landscape, from renewable energy sources such as wind.

7.7.3 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and retaining for a transitional period the non spatial policies, ambitions and priorities;
- Retaining for a transitional period all the spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and revoking the non spatial policies, ambitions and priorities; or
- Retaining for a transitional period policies, ambitions and/or priorities, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on climate change associated with the revocation of the quantitative policies are summarised in **Table 7.4** for policies 21 (Airports), 39 (Renewable Energy Generation) and 41 (Onshore Wind Energy Development). Revocation will not affect the intent (to move towards a low carbon economy) behind the revoked policy. One of the 12 core principles of planning set out in paragraph 17 of the NPPF is to support the transition to a low carbon future. Under the Renewables Energy Directive, there is a legally-binding target to ensure 15% of energy comes from renewable sources by 2020 in the UK. The Carbon Plan 2011 sets out how the UK are to meet this. Whilst the policy target is higher than the 15% statutory target set out in the Carbon Plan 2011 the direction of travel and transformational shift from the current proportions of renewable and non renewable energy generation mix is very similar.

The assessment has found that there are no policies in the North East of England Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

7.7.4 Mitigation Measures

It is recognised that local authorities will need to co-operate with the Environment Agency and neighbouring local authorities in line with the “duty of co-operate” to ensure climate change benefits are delivered in the long term.

7.7.5 Proposals for Monitoring

Significant and uncertain effects in respect of climate change relate to:

- Public transport accessibility;
- Cycling and walking statistics;
- Green infrastructure provision and accessibility;
- Renewable energy installed;
- Carbon dioxide emissions from power stations.

8. Material Assets

8.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals on revoking the regional strategies on material assets including waste and minerals. Information is presented for both national and regional levels.

Waste management in this context is defined as the processing, recycling or disposal of a range of waste types including municipal, commercial and industrial, construction, excavation and demolition and hazardous wastes. However, it is important to note that consideration of the management of waste links to a number of other SEA topics, the most relevant being climate change and adaptation given the potential for waste to be recovered for energy use.

8.2 Summary of Plans and Programmes

8.2.1 International

The ***Waste Framework Directive*** (75/442/EEC as amended by 91/156/EEC, 91/92/EEC and 2008/98/EC) provides the overarching framework for waste management at the EU level. It relates to waste disposal and the protection of the environment from harmful effects caused by the collection, transport, treatment, storage and tipping of waste. In particular, it aims to encourage the recovery and use of waste in order to conserve natural resources. The key principles of the Directive include the 'Waste Management Hierarchy' which stipulates waste management options based on their desirability. In order, these are: prevention; preparing for re-use; recycling; other recovery, e.g. energy recovery; and disposal. Key objectives are to reduce the adverse impacts of the generation of waste and the overall impacts of resource use. This should be done through a variety of mechanisms, including:

- By 2020 requiring member states to recycle 50% of their household waste and 70% of their non-hazardous construction and demolition waste;
- Applying the waste hierarchy - promoting waste minimisation followed by reuse and recycling , other recovery (such as energy recovery) and disposal - as a priority order in waste prevention and management legislation and policy;
- Ensuring that four specified materials (paper, metal, plastics and glass) are collected separately by 2015,

- Taking measures as appropriate to promote the re-use of products and preparing for re-use activities; and
- Extending the self-sufficiency & proximity principles to apply to installations for recovery of mixed municipal waste from households.

The Directive was transposed into English legislation through the Waste (England and Wales) Regulations 2011 (SI2011 No.988).

A compromise agreement was reached between the Council of Environment Ministers and the European Parliament in June 2008 on revisions to the Waste Framework Directive. Once formally adopted, these will come into force in 2010. The main changes include EU-wide targets for reuse and recycling 50% of household waste by 2020, and for reuse, recycling and recovery of 70% of construction and demolition waste by 2020. In this context, the ***Landfill Directive*** (European Commission, 1999) focuses on waste minimisation and increasing levels of recycling and recovery. The overall aim of the Directive is to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, groundwater, soil and air and on the global environment, including the greenhouse effect as well as any resulting risk to human health from the landfilling of waste, during the whole lifecycle of the landfill. The Directive sets the target of reducing biodegradable municipal waste landfilled to 35% of that produced in 1995 by 2020.

There are a number of **Producer Responsibility Directives** relating specifically to consumer products. Their purpose is to require businesses to reuse, recover and recycle waste which comes from products they produce, and each Directive sets national targets for recovery and recycling of these wastes.

The ***EU Thematic Strategy on the Prevention and Recycling of Waste (2002-2012)*** is a long-term strategy aims to help Europe become a recycling society that seeks to avoid waste and uses waste as a resource.

The ***Basel Convention*** came into force in 1992 and is a global agreement, ratified by several member countries and the European Union, for addressing the problems and challenges posed by hazardous waste. The key objectives of the Basel Convention are:

- To minimise the generation of hazardous wastes in terms of quantity and hazardousness;
- To dispose of them as close to the source of generation as possible; and
- To reduce the movement of hazardous wastes.

8.2.2 National

UK

Environmental Permitting (England and Wales) Regulations (2010) SI 675 provides a system for environmental permits and exemptions for industrial activities, mobile plant, waste operations, mining waste operations, water discharge activities, groundwater activities and radioactive substances activities. It also sets out the powers, functions and duties of the regulators.

England

The **Waste Strategy (2007)** translates the principles of the previous EU Waste Framework Directive into UK policy. Its key objectives include:

- Decoupling waste growth (in all sectors) from economic growth and put more emphasis on waste prevention and re-use;
- Meeting and exceeding the Landfill Directive diversion targets for biodegradable municipal waste in 2010, 2013 and 2020;
- Increase diversion from landfill of non-municipal waste and secure better integration of treatment for municipal and non-municipal waste;
- Secure the investment in infrastructure needed to divert waste from landfill and for the management of hazardous waste;
- Get the most environmental benefit from that investment, through increased recycling of resources and recovery of energy from residual waste using a mix of technologies.

The Strategy sets national targets for:

- Reducing the amount of household waste that is not either re-used, recycled or composted;
- Recycling and composting of household waste – at least 40% by 2010, 45% by 2015 and 50% by 2020;
- Recovery of municipal waste – 53% by 2010, 67% by 2015 and 75% by 2020.

The Coalition Government carried out a ***National Review of Waste Policy in England (2011)***, looking at the most effective ways of reducing waste, maximising the money to be made from waste and recycling and considering how waste policies affect local communities and individual households. The report set out a number of 'Principal

Commitments' which aims to achieve a more sustainable approach to the use of materials, deliver environmental benefits and support economic growth. These include:

- Promoting resource efficient product design and manufacture and target those waste streams with high carbon impacts, both in terms of embedded carbon (food, metals, plastics, textiles) and direct emissions from landfill (food, paper and card, textiles, wood);
- Promoting the use of life cycle thinking in all waste policy and waste management decisions and the reporting of waste management in carbon terms, as an alternative to weight-based measures;
- Developing a comprehensive Waste Prevention Programme and in the meantime will work with businesses and other organisations across supply chains on a range of measures designed to drive waste reduction and re-use as part of a broader resource efficiency programme;
- Continue to help local communities develop fit for purpose local solutions for collecting and dealing with household waste and work with councils to meet households' reasonable expectations for weekly collections, particularly of smelly waste.

Defra's ***Strategy for Hazardous Waste Management in England (2010)*** sets out the following principles for hazardous waste management:

- Waste hierarchy;
- Infrastructure provision;
- Reduce our reliance on landfill;
- No mixing or dilution;
- Treatment of hazardous organic wastes; and
- End reliance on the use of Landfill Directive waste acceptance criteria derogations.

PPS10: Planning for Sustainable Waste Management (2005) sets out the national planning framework in relation to waste. It states that planning has a key role in delivering sustainable waste management through both the development of appropriate strategies for growth, regeneration and the prudent use of resources and by providing sufficient opportunities for the development of new waste management facilities. PPS10 states that:

- Waste planning authorities should identify in their plans (development plan documents) sites and areas suitable for new or enhanced waste management facilities for the waste management needs of their area.

Development plans form the framework within which decisions on proposals for development are taken;

- The regional planning body should convene a broadly-based 'Regional Technical Advisory Board' (RTAB) to provide advice on the preparation of the strategy for waste management in the Regional Spatial Strategy and its implementation. PPS10 sets out the role and composition of a RTAB – it should be broadly based drawing from those with a direct interest in and knowledge of sustainable waste management;

- In deciding which sites and areas to identify for such facilities, waste planning authorities should assess their suitability against criteria set out in PPS10. This includes the physical and environmental constraints on development and the cumulative effect of previous waste disposal facilities on the well-being of the local community;

- The ***Natural Environment White Paper (2011)*** sets out the ambition that the use of peat will be reduced to zero in England by 2030. This will contribute to the protection of important lowland peat habitats (both here and overseas) and significant carbon stores, and will promote a shift towards the greater use of waste-derived and by-product materials. It also sets ambitious targets for reducing use within individual sectors, to drive action and provide clarity about the long-term direction of policy;

- The ***Resource Security Action Plan (2012)*** provides a framework for business action to address risks about the availability of some non-renewable raw materials (including minerals), and sets out high level actions to build on the developing partnership between Government and businesses to address resource concerns. This Action Plan emphasizes the need to make best use of resources currently in use, reducing as far as practicable the quantity of material used and waste generated, and using as much recycled and secondary material as possible, before securing the remainder of material needed through new primary extraction;

- The ***NPPF (2012)*** replaced a number of Planning Policy statements, Planning Policy Guidance, Minerals Planning Statements, Minerals Planning Guidance and some Government Circulars. It provides a strong policy framework for local planning authorities to have regard to in their plan making and in development management, and will provide the main policy framework for local planning authorities, neighbourhood groups and communities following the revocation of the Regional Strategies. Key policies with implications for minerals planning are set out in paragraphs 142-149, 156-157 and 163 of the Framework.

8.2.3 North East of England

The regional plans relating to material assets and used to inform the baseline are:

Towards a Waste Management Strategy for North East England: identifies options for meeting the future waste management requirements of the North East region and give guidance on the land use planning aspects of waste management for the future.

Residual Waste Treatment Capacity Study: In October 2005, Entec was commissioned to conduct a study into the number, types and location of residual waste treatment plants planned for the North East region in the short and medium term. The study is built on the work of the Regional Landfill Allowance Trading Schemes (LATS) Capacity Study 2005. The study is funded by Defra, The North East Regional Technical Advisory Body and the DT1 Renewable Fund.

Apportionment of Future Waste Arisings: Entec UK Ltd. produced a second report (2008) for the North East Assembly to aide understanding of waste arising and capacities within the North East region and to inform a review of the strategy for waste with the RSS.

North East Aggregates Working Party Annual Aggregates Monitoring Report 2010 produced by Northumberland County Council to presents statistical information on production and reserves of aggregate minerals in the North East region.

8.3 Overview of the Baseline

8.3.1 National

UK

In 2004, total UK non-radioactive waste arisings were around 335 million tonnes. Of this 32% was construction and demolition waste; 29% was mining and quarrying waste; 13% was industrial waste; 12% was commercial waste; 9% was household waste; 5% was dredging waste; and agricultural and sewage wastes made up for less than 1% each. Commercial and industrial waste arisings were therefore around 0.84 million tonnes in 2004. In 2007, 73 million tonnes of waste were sent to landfill (a decrease of 19.5% since 2002). The amount of waste recycled or composted has increased accounting for 34% of waste in 2007/08.[161]

[161] Defra, Sustainable Development Indicators in your Pocket 2009, http://www.defra.gov.uk/sustainable/government/progress/documents/SDIYP2009_a9.pdf

In 2002, 41% of commercial and industrial waste arisings were landfilled; 33% were recycled; 9% were reused; 4% were treated; 4% were thermally treated; 4% were unrecorded; 3% went to land recovery; 2% were transferred; and 1% was unsampled.[162]

The total hazardous waste produced in UK in 2009 was 4,437,212 tonnes.[163]

England

In 2004, total non-radioactive waste arisings in England were around 272,000,000 tonnes. Of this 32% was construction and demolition waste; 30% was mining and quarrying waste; 13% was industrial waste; 11% was commercial waste; 9% was household waste; 5% was dredged material; and agricultural and sewage wastes made up for less than 1% each.[164] In 2007, 73,000,000 tonnes of waste (household, commerce & industry, and construction & demolition) was sent to landfill (a decrease of 19.5% since 2002).[161]

Commercial and industrial waste arisings in England were estimated to be around 67,900.000 tonnes in 2002/2003. At that time, 41% of commercial and industrial waste arisings were landfilled; 33% were recycled; 9% were reused; 4% were thermally treated; and 2% was recovered by other means.[165]

The total hazardous waste produced in England in 2009 was 4,095,477 tonnes.[166]

8.3.2 North East of England

Waste

Tables 8.1 and 8.2 outline the landfill inputs and capacities for the North East (for 2010). The figures outline that the landfill input levels are relatively even through the

[162] Defra, edigest waste statistics.

http://www.defra.gov.uk/environment/statistics/waste/wrindustry.htm

[163] Environment Agency 2009 Hazardous Waste Arisings figures, http://www.environment-agency.gov.uk/static/documents/Research/EWHaz09_Final.xls

[164] Waste Strategy for England 2007, Defra,

http://www.defra.gov.uk/environment/waste/strategy/strategy07/documents/waste07-strategy.pdf

[165] Commercial and Industrial Waste in England: Statement of aims and actions 2009, Defra, October 2009,

http://www.defra.gov.uk/environment/waste/topics/documents/commercial-industrial-wasteaims-actions-091013.pdf

[166] Environment Agency 2009 Hazardous Waste Arisings figures, http://www.environment-agency.gov.uk/static/documents/Research/EWHaz09_Final.xls.

sub-regions with the exception of Northumberland. Similarly the landfill capacities for the sub-regions are higher within the more urbanised sub-regions of Tees Valley and Tyne and Wear the majority or the population are concentrated.

Table 8.1 North East Landfill Inputs

Landfill Type	Sub- Region				North East
	Durham	Northumberland	Tees Valley Unitary Authorities	Tyne and Wear	
Hazardous Merchant	-	-	107	-	107
Hazardous Restricted	-	-	-	-	-
Non Hazardous with Stable non reactive wastes	93	4	123	-	220
Non hazardous	47	318	594	813	1,770
Non Hazardous Restricted	-	-	-	-	-
Inert	717	47	-	336	1,100
Total	**857**	**369**	**823**	**1,149**	**3,197**

Key: All figures are provided in 000s tonnes. Source: Environment Agency, Waste Data 2010.

Table 8.2 North East Landfill Capacities

Landfill type	Sub- Region				North East
	Durham	Northumberland	Tees Valley Unitary Authorities	Tyne and Wear	
Hazardous Merchant	-	-	6,892	-	6,892
Hazardous Restricted	-	-	-	-	-
Non Hazardous with Stable non reactive wastes	2,934	1,252	2,589	-	6,774
Non hazardous	1,926	374	5,594	9,245	17,140
Non Hazardous Restricted	-	-	-	-	-
Inert	5,891	3,000	-	2,943	11,834
Total	**10,751**	**4,626**	**15,075**	**12,188**	**42,640**

Key: All figures are provided in 000s cubic metres. Source: Environment Agency, Waste Data 2010.

The projected Municipal Waste arisings are outlined below in table 8.3 and show that the waste arisings levels for the Tees Valley Authorities are twice the levels of the rest of the authorities (due to the size and multiple authorities included). The urban authorities also have higher levels of waste that the more rural ones. The table predicts a steady rise of approximately 1,000 tonnes of extra waste arising per area with the exception of Durham County Council which predicts a fall and levelling off of waste flows.

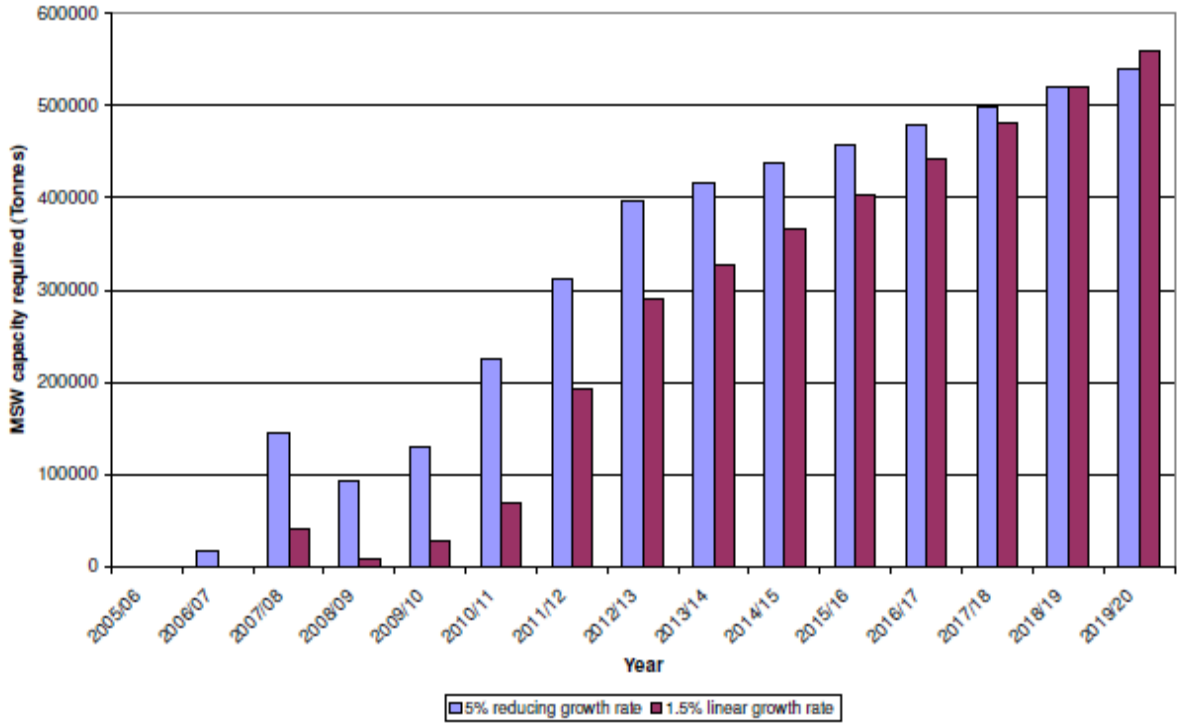
Table 8.3 Projected Municipal Waste Arisings

	Durham County Council	Northumberland County Council	Tees Valley Authorities	Gateshead	Newcastle City Council	North Tyneside	South Tyneside	Sunderland
2009/10	287,680	196,000	412,330	113,897	181,900	133,590	94,211	164,269
2010/11	286,817	200,000	416,140	114,995	183,694	134,847	95,064	165,858
2011/12	286,817	202,000	419,080	116,103	185,507	136,117	95,926	167,464
2012/13	286,817	204,000	422,460	117,223	187,338	137,400	96,796	169,085
2013/14	286,817	207,000	425,870	118,354	189,187	138,696	97,674	170,723
2014/15	286,817	209,000	429,300	119,496	191,055	140,004	98,562	172,377
2015/16	286,817	211,000	432,320	120,649	192,941	141,326	99,458	174,048

Source: Entec Apportionment Report 2008, Figures received from individual WPAs

Figure 8.1 illustrates the additional capacity required within the region to meet the LATS targets, after inclusion of current and planned capacity. The chart compares the capacity required if waste grows at a rate of 5% per annum, reducing to 0% by 2015 with the capacity required if waste grows at a linear rate of 1.5%.

Figure 8.1 Total Requirement for Residual Waste Treatment Capacity in the North East (after inclusion of current and planned facilities)



Source: 2005 LATS assessment

Table 8.4 outlines the predicted recycling, recovery and disposal figures for Municipal Solid Waste for 2010, 2015 and 2020. The figures outline that recycling rates will generally increase by between 10,000 to 20,000 tonnes approximately across the region across each 5 year period up until 2020. This will be counterbalanced by the disposal rates which will retract between approximately 10,000 to 30,000 tonnes over the 10 year period depending on the size of authority and comparative rates.

Table 8.4

WPA	2010			2015			2020		
	Recycling	Additional Recovery*	Disposal	Recycling	Additional Recovery*	Disposal	Recycling	Additional Recovery*	Disposal
Durham	102,590	49,420	134,800	115,420	76,750	94,650	128,240	86,870	71,700
Tees Valley	132,910	101,030	182,190	155,340	158,000	118,980	177,830	172,030	95,550
South Tyneside	34,460	21,300	39,310	409,740	33,050	25,670	52,040	31,420	20,610
North Tyneside	44,450	32,080	58,320	52,560	50,680	38,090	61,370	56,170	30,590
Sunderland	59,540	28,370	77,950	70,400	48,987	54,670	82,210	56,550	43,900
Newcastle City Council	70,840	26,510	86,340	83,760	50,350	58,830	97,820	57,600	47,240
Gateshead	41,420	19,520	54,050	48,980	31,860	39,810	57,190	37,750	31,650
Northumberland	78,540	103,640	16,580	86,260	108,090	17,200	94,410	110,790	18,010

* Additional Recovery has been calculated as the difference between the recycling and composting targets and the recovery target.
Source: Entec 2008 Apportionment Report 2008, Figures received from individual WPAs.

Minerals

North East England is rich in mineral resources. Minerals currently extracted or which are potentially exploited, include coal, clays for brick-making, igneous rock, limestone, sandstone, sand and gravel, peat and oil and gas.

The guidelines for land won primary aggregate production in North East England are 20 million tonnes of sand and gravel and 119 million tonnes of crushed rock[167].

Table 8.5 below shows the recommended sub-regional apportionment for the provision of aggregates from North East England, 2005 to 2020 (million tonnes).

Table 8.5 Regional Apportionment of Aggregates

	Crushed rock	Sand and gravel
Durham	59.4	5.0
Northumberland	33.6	13.1
Tees Valley	3.0	2.8
Tyne and Wear	3.0	3.1
North East England	**99.0**	**24.0**

Source: North East Aggregates Working Party Annual Aggregates Monitoring Report 2010.

Sales of primary aggregates from North East England in 2010 were 4.9 million tonnes (see table below). Sales included 3.5 million tonnes of crushed rock, 757,000 tonnes of land-won sand and gravel and 678,000 tonnes of marine-dredged sand and gravel. Sales of primary aggregates from North East England in 2010 have decreased by 40% when compared with sales 2005. This includes a 40% decrease in sales of crushed rock, a 44% decrease in sales of land-won sand and gravel and a 35% decrease in sales of marine-dredged sand and gravel. This decrease is considered to be mainly as a result of the economic downturn and the resulting reduction in demand for primary aggregates. It does, however, appear that the level of sales have stabilised somewhat following significant declines from 2007 to 2009.

[167] RSS AMR 2009/10

Table 8.6 Aggregates Sales from North East England, 2005 to 2010 (thousand tonnes)

	Land Won Sand and Gravel	Marine Dredged Sand and Gravel	Crushed Rock	Total Aggregates
2005	1,360	1,049	5,740	**8,149**
2006	1,325	1,142	5,652	**8,119**
2007	1,037	1,132	5,689	**7,858**
2008	926	998	5,079	**7,003**
2009	757	563	3,379	**4,699**
2010	757	678	3,469	**4,904**

Source: North East Aggregates Working Party Annual Aggregates Monitoring Report 2010.

At 31 December 2010, North East England had 16.5 million tonnes of permitted sand and gravel reserves and 216.5 million tonnes of permitted crushed rock reserves. This equated to a landbank of 11.0 years for sand and gravel and a landbank of 35.0 years for crushed rock.

Table 8.7 Permitted Reserves and Landbank of Primary Aggregates in North East England at 31 December 2010

	Permitted Reserves	Landbank
Sand and gravel	16.5 million tonnes	11.0 years
Crushed rock	216.5 million tonnes	35.0 years

Source: North East Aggregates Working Party Annual Aggregates Monitoring Report 2010.

Planning Applications for the Extraction of Primary Aggregates

Seven planning applications for the extraction of additional primary aggregates reserves were granted planning permission in North East England during 2010. These applications involve the proposed extraction of 2.6 million tonnes of crushed rock and 2.6 million tonnes of sand and gravel. No planning applications for the extraction of sand and gravel for aggregate use were refused planning permission during 2010. Applications potentially involving the extraction of 36.7 million tonnes of crushed rock and 10.9 million tonnes of sand and gravel were pending determination at 31 December 2010.

Table 8.8 outlines the quantities of primary aggregates subject to planning applications in the North East in 2010.

Table 8.8 Quantities of Primary Aggregates subject to Planning Applications

	Crushed Gravel			Sand and Gravel		
	Approved	Refused	Pending	Approved	Refused	Pending
Durham	100	0	26,200	70	0	4,392
Northumberland	2,520	0	0	2,524	0	0
Tees Valley	0	0	4,540	0	0	0
Tyne and Wear	0	0	6,000	0	0	6,550
North East England	2,620	0	36,740	2,594	0	10,942

Source: North East Aggregates Working Party Annual Aggregates Monitoring Report 2010.

Department for Communities and Local Government in 2005 carried out surveys that estimated that in North East England 1.7 million tonnes of recycled aggregates were produced from construction, demolition and excavation waste and 0.43 million tonnes of aggregate was produced from other materials.

Coal Supply

Opencast coal production in the North East Region has increased from 787,317 tonnes in 2005/06 to 1,142,187 tonnes in 2008/09 (table 8.9). This increase is mainly due to production commencing from five schemes in Northumberland that were granted planning permission over this period. All of the coal produced in 2008/09 came from sites within Northumberland.

Table 8.9 Opencast Coal Production in the North East region, 2005/06 to 2008/09 (tonnes)

	2005/06	2006/07	2007/08	2008/09
Durham	42,260	134,209	91,006	0
Northumberland	652,910	768,276	1,305,960	1,142,187
Tyne and Wear	92,147	89,086	7,015	0
Tees Valley	0	0	0	0
North East Region	787,317	991,571	1,404,041	1,142,187

Source: Coal Authority.

8.4 Environmental Characteristics of Those Areas Most Likely to be Significantly Affected

8.4.1 National

UK

Although reuse and recycling rates for industrial wastes are increasing, due to the combined effects of statutory, reputational and financial drivers, there are still high levels of waste being disposed of, with limited opportunity for recycling hazardous and very low-level radioactive materials. There is pressure to achieving as close to zero landfill as possible throughout the UK.[168, 169]

Commercial and industrial waste data is not routinely collated (Defra intend to carry out a national survey of commercial and industrial waste by the end of 2010). However it is subject to similar pressures as municipal waste, namely increased waste prevention, adoption of recycling and reuse alternatives and reduced reliance on landfill.

[168] Wales Waste Information 2008, Environment Agency, http://www.environment-agency.gov.uk/research/library/data/111408.aspx

[169] Scotland's Zero Waste Plan Data, Scottish Environment Protection Agency, June 2010, http://www.sepa.org.uk/waste/waste_data/zero_waste_plan_data.aspx

8.4.2 North East of England

Waste

It is not possible to draw strong conclusions regarding the performance of the preferred growth strategy in terms of supporting good waste management practices. There is evidence to suggest that parts of the region that are performing less well in terms of waste minimisation and recycling, but it is not thought that this is indicative of any inherent constraints that cannot be addressed through investment.

There is no evidence to suggest a regional limit in terms of waste that can be managed sustainably therefore the impact of the growth levels within the RSS is uncertain. Much of the predicted growth however will be accommodated within existing urban areas which are likely to have good access to waste management facilities.

The levels of growth and development put forward in eth RSS are likely to increase construction and demolition waste across the region, particularly in urban areas where the use of Brownfield sites is more likely.

Minerals

The growth scenario put forward in the North East RSS is likely to place demand upon mineral reserves within the region, particularly those related to construction industries.

8.5 Likely Evolution of the Baseline

8.5.1 National

UK

Non-radioactive waste management in the UK is moving towards greater reuse and recycling and less landfill. Between 2002 and 2007 in the UK, there was 19.5% decrease in waste disposed of in landfill sites. This includes waste produced by households, commerce and industry and construction and demolition.[170]

Hazardous waste production in England and Wales has decreased since 2004 by 17%. The majority of the decrease is due to the reduction in liquid inputs to one treatment facility on Teesside in 2009.[171]

[170] Waste Strategy for England 2007, Defra

[171] Environment Agency Waste Trends, http://www.environment-agency.gov.uk/research/library/data/123472.aspx

England

In England, the total amount of non-radioactive waste sent to landfill has decreased from 80,000,000 tonnes annually in 2000/01 to 72, 500,000 tonnes in 2004/05 at licensed landfill sites: with falls from 50% to 44% for industrial and commercial waste between 1998/99 and 2002/03.4 Between 1998/99 and 2002/03 there was a 1% reduction in the total amount (in tonnes) of commercial and industrial waste produced in England. Within this total, industrial waste had reduced to 38,000,000 tonnes in 2002/3 while the amount of commercial waste had grown to 30,000,000 tonnes. During this period, the tonnage of commercial and industrial waste sent to landfill has decreased, with more waste handled by transfer stations and treatment facilities.[172] In 2002/3 for the first time, recycling and reuse had overtaken landfill as the most common method of waste management. Overall 44% was sent to landfill and 45% recycled.

Defra has established targets for England which includes a greater focus on waste prevention seeking to achieve a fall of 50% per person of household waste arising. Recycling and composting of household waste targets have been established - at least 40% by 2010, 45% by 2015 and 50% by 2020; and recovery of municipal waste - 53% by 2010, 67% by 2015 and 75% by 2020.[173]

On the basis of the policies set out in Waste Strategy for England 2007, levels of commercial and industrial waste landfilled are expected to fall by 20% by 2010 compared to 2004. The Government is considering, in conjunction with the construction industry, a target to halve the amount of construction, demolition and excavation wastes going to landfill by 2012.

8.5.2 North East of England

The North East region reflects the national trend in a reduction in waste being disposed of to landfill.

Authorities include figures for waste arisings in their waste and mineral plans, allowing for population increases over the period for waste reduction in their waste and mineral plans. For example in the Tees Valley Minerals and Waste Development Plan Document (adopted 2011) covering the Boroughs of Darlington, Hartlepool, Middlesbrough, Redcar & Cleveland and Stockton-on-Tees, the overall amounts of

[172] Commercial and Industrial Waste in England: Statement of aims and actions 2009, Defra, October 2009,

http://www.defra.gov.uk/environ ment/waste/topics/documents/commercial-industrial-waste-aimsactions-091013.pdf

[173] Waste Strategy for England 2007, Defra.

waste are expected to increase from 88,987 tonnes per year in 2010 to 119,058 tonnes per year in 2010.

Plans also include recycling and recovery targets for the different waste streams. For example in the Tees Valley targets are as follows:

- 40% of household waste from the Tees Valley to be recycled or composted from 2010, rising to 46% from 2016;
- To recover value from 53% of municipal solid waste from the Tees Valley from 2010, rising to 72% from 2016; and
- To increase the recovery of value from commercial and industrial waste from the Tees Valley to 73% from 2016;Current targets are not available across all seven authorities.

8.6 Assessing Significance

Table 8.10 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on the land use and materials objective. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 8.10 Approach to Determining the Significance of Effects on Material Assets

Effect	*Description*	*Illustrative Guidance*
++	Significant positive	• Option will increase capacity of waste management infrastructure. • Option would create no additional hazardous or non-recyclable waste, whilst maximising the proportion of materials that are re-useable or recyclable. • Option will ensure the safe handling of radioactive and hazardous wastes.
+	Positive	• Option would not create an increase in the volume of hazardous and non-recyclable wastes that require disposal. • Option would increase the volume of materials reused and recycled. • Option will ensure the safe handling of radioactive and hazardous wastes.
0	No (neutral effects)	• Option would not create an increase in the volume of hazardous and non-recyclable wastes that require disposal. • Option will have no effect on the capacity of waste management infrastructure.
-	Negative	• Option will result in an increase in radioactive waste for disposal. • Option will increase volumes of hazardous and non-recyclable waste that would require disposal. • Option may have a limited adverse impact on the capacity of existing waste management systems.

Effect	Description	Illustrative Guidance
--	Significant negative	• Option will generate high volumes of radioactive waste for disposal. • Option will generate a high volume of hazardous and non-recyclable waste that would require disposal. • Option will impede the achievement of government and national targets for minimising, recovering and recycling waste. • Option will have a significant adverse impact on the capacity of existing waste management systems (e.g. leading to the permitting of additional landfill capacity to accommodate waste). • Option may increase risks associated with the handling of radioactive and hazardous wastes.
?	Uncertain	• From the level of information available the effects the impact that the option would have on this objective is uncertain.

8.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 8.11 summarises the significant effects identified in the detailed assessment of the North East of England Plan policies against the material assets topic.

Table 8.11 Significant Effects against the Material Assets Topic

Regional Plan Policy	Score				Commentary
		Short Term	Medium Term	Long Term	
Policy 45: Sustainable Waste Management	Retention	++	++	++	The policy reinforces aspects of national policy that will need to apply across the region if waste generation is to be successfully decoupled from economic growth. It respects the European and national policy context and, in seeking to achieve the required shift towards more sustainable waste management, building on principles set out in the Waste Strategy for England and PPS10. Moving waste up the waste hierarchy, such as through promotion of waste minimisation and re-use activities will have significant benefits to material assets from example by replacing primary aggregate with recycled construction waste. Revocation of this policy is not likely to have a significant environmental effect. Local planning authorities are expected to draw up local plans which comply with Planning Policy Statement 10. This policy sets out key objectives to deliver sustainable waste management, and highlights the pivotal role of the planning system in putting in place the right facilities at the right time in the right place
	Revocation	++	++	++	

8.7.1 Effects of Retention

The effects of retention of the Plan have been assessed on the assumption that, in the absence of the legislation and regional architecture enabling updating of the Plan, although the general principles of development will remain some policies will become increasing outdated and in some cases in conflict with the national policies in the Framework. By setting out the overarching direction within which waste and minerals local plans should be developed retention of the Plan would have significant benefits in the short to long term.

The effects of retaining the Regional Strategy would see a continuation of the baseline, at least in so far as it is influenced by the planning system. It is expected, that the development of sustainable waste management will improve over time in line with the waste hierarchy such that there is an increase in recycling and reduction in waste going to landfill. It is also expected that retention would result in continued mineral extraction throughout the region.

8.7.2 Effects of Revocation

Waste management and the protection of minerals are key issues within the North East and this is highlighted through a number of policies within the North East of England Plan which seek to conserve and manage minerals and waste. However, the need for sustainable waste management is identified through national policy and specific targets have been set so the revocation of the RSS is unlikely to lead to a loss of the benefits provided through the relevant policies as set out above. However, there may be greater effects on the management and protection of minerals and the surrounding landscapes.

8.7.3 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and retaining for a transitional period the non spatial policies, ambitions and priorities;
- Retaining for a transitional period all the spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and revoking the non spatial policies, ambitions and priorities; or

- Retaining for a transitional period policies, ambitions and/or priorities, the revocation of which may lead to likely significant negative environmental effects.

The only policy identified as having significant effects under the material assets is not identified as being a quantified or spatially specific policy.

The assessment has found that there are no policies in the North East of England Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

8.7.4 Mitigation Measures

Resource minimisation and waste management will be driven by national legislation through the Environment Agency and local authorities responsible for waste management.

8.7.5 Proposals for Monitoring

Significant and uncertain effects in respect of waste and minerals relate to:

- Waste generation;
- Recycling rates;
- Waste to landfill;
- Minerals extraction;
- Renewable energy installed;
- Carbon dioxide emissions from power stations.

9. Cultural Heritage

9.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals to revoke regional strategies on cultural heritage. Information is presented for both national and regional levels.

Cultural heritage, including architectural and archaeological heritage, within this context is defined as below-ground and upstanding evidence of past human activity and encompasses artefacts, buried and underwater archaeological sites, earthworks, buildings, battlefields, historic gardens, historic landscapes, wrecks, hedgerows and ancient woodland.

There are links between the cultural heritage topic and other topics in the SEA, specifically landscape and material assets (land use and materials).

9.2 Summary of Plans and Programmes

9.2.1 International

The ***World Heritage Convention*** aims to promote co-operation amongst nations to protect heritage that is of such outstanding value that its conservation is important for current and future generations; and established a register of World Heritage Sites. It is intended that properties on the World Heritage List will be conserved for all time. Member states commit themselves to ensure the identification, protection, conservation, and presentation of World Heritage properties.

The World Heritage Committee's ***Operational Guidelines for the Implementation of the World Heritage Convention (2008)*** set out: the procedure from the inscription of properties on the World Heritage List and the List of World Heritage in Danger; the protection and conservation of World Heritage properties; the granting of International Assistance under the World Heritage Fund; and the mobilisation of national and international support in favour of the Convention.

The ***UNESCO Convention for the Protection of the Archaeological Heritage of Europe (revised)*** is a Europe-wide international treaty which establishes the basic common principles to be applied in national archaeological heritage policies. It supplements the general provisions of the ***UNESCO World Heritage Convention (1972)*** and aims to protect archaeological heritage as a source of the European

collective memory and as an instrument for historical and scientific study. It sets out a framework which requires the member states to:

- Maintain an inventory of archaeological heritage and designated protected monuments and areas;
- Create archaeological reserves; and
- For finders of any element of archaeological heritage to report and make it available to the competent authority.

The ***European Convention on the Protection of the Archaeological Heritage (1992)*** made a number of important agreements including setting the definition of archaeological heritage as 'all remains and objects and any other traces of mankind from past epochs….shall include structures, constructions, groups of buildings, developed sites, moveable objects, monuments of other kinds as well as their context, whether situated on land or under water.

9.2.2 National

UK

The ***Ancient Monuments and Archaeological Areas Act (1979)*** provides for the scheduling of ancient monuments and offers the only legal protection specifically for archaeological sites. The ***Planning (Listed Buildings and Conservation Areas) Act (1990)*** outlines the level of protection received by listed buildings, scheduled monuments and buildings within Conservation Areas.

There are a number of other Acts which afford protection to cultural and historical assets, including the ***Protection of Wrecks Act (1973)***, which provides protection for shipwrecks of historical, archaeological or artistic value; the ***Protection of Military Remains Act (1986)***, which provides protection for the wreckage of military aircraft and designated military vessels, and the ***Treasure Act (1996)***, which sets out procedures for dealing with finds of treasure, its ownership and rewards, in England, Wales and Northern Ireland.

Conservation areas were introduced by the **Civic Amenities Act 1967** and are designated for their special architectural and historic interest. Most conservation areas are designated by the local planning authority. English Heritage can designate conservation areas in London, where they have to consult the relevant London Borough Council and obtain the consent of the Secretary of State for National Heritage. The Secretary of State can also designate in exceptional circumstances - usually where the area is of more than local interest.

At a national level, the draft ***Heritage Protection Bill*** contains provisions to unify the designation and consent regimes for terrestrial heritage assets, and transfer responsibility for designation of these assets. It also contains provisions to reform the marine heritage protection regime in England and Wales by broadening the range of marine historic assets that can be protected. The draft Bill is based on the proposals set out in the White Paper, Heritage Protection for the 21st Century (2007), and is one element of a wider programme of on-going heritage protection reforms. There are however, no current plans to enact the Bill and it is not known whether its provisions will become statute.

The Department for Culture, Media and Sport White Paper ***Heritage Protection for the 21st Century (2007)*** sets out a strategy for protecting the historic environment, based on three core principles: developing a unified approach to the historic environment; maximising opportunities for inclusion and involvement; and supporting sustainable communities by putting the historic environment at the heart of an effective planning system.

England

The National Planning Policy Framework (NPPF) (2012) replaces the majority of previously used planning policy including Planning Policy Statements (PPSs), Planning Policy Guidance (PPGs), Mineral Planning Statements (MPSs), Minerals Planning Guidance (MPGs) and some Government Circulars. The NPPF now provides a policy framework to guide and passes more responsibility to, local planning authorities in their plan making and in development management.

Following the publication of the NPPF, the chief national planning policy for historic assets and cultural heritage PPS5, was deleted. However the PPS5 Practice Guide presently remains in place pending a Government review of all national planning policy supporting documents. Furthermore, the new policies in the NPPF are complimentary to the text in the Practice Guide meaning a useable set of guidance is maintained. In regard to historic assets, of particular note are the broad principles that planning policies and decisions should recognise and address the value of connections between people and places and to ensure that new development integrates in a positive way with the historic environment.

There are several references throughout the NPPF to the importance of maintaining historic and cultural resources and how both plans and development proposals must be mindful of historic resource in all design, decisions and implementation. For example, the NPPF states that "*Local planning authorities should set out in their Local Plan a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. In doing so, they should recognise that heritage assets are an irreplaceable resource and conserve them in a manner appropriate to their significance*."

The final words of this example are a repeated core theme in the NPPF with regard to historic and cultural assets; that policies and development actions should be made or undertaken "*in a manner proportionate to their importance and the impact*". The NPPF is very clear that any polices or decisions should quantify and take clear account of the worth of any asset to then respond accordingly.

English Heritage, the Government's statutory adviser on the historic environment in England, have published a number of guidance documents for the protection of the historic environment, including ***Wind Energy and the Historic Environment (2005)***, ***Biomass Energy and the Historic Environment (2005)***, ***Climate Change and the Historic Environment (2005)*** and ***Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment (2008)***.

9.2.3 North East of England

Culture North East published a **Regional Cultural Strategy** for the period 2001 -2010. The strategy recognizes the significant contribution to the economic and social regeneration of the region made by culture, tourism and sport and provides a cohesive cultural vision for the region, establishes goals and sets cultural priorities and themes for the region.

9.3 Overview of the Baseline

9.3.1 National

UK

The UK has over 459,000 listed buildings, approximately 33,720 scheduled monuments, 2416 historic parks and gardens, in excess of 10,259 conservation areas and 28 World Heritage Sites.[174]

England

In England there are approximately 374,081 listed building entries, 19,717 scheduled monuments, 1,601 registered historic parks and gardens, 9,080 conservation areas, 43 registered historic battlefields, 46 designated wrecks and 17 World Heritage Sites. Nearly 19,446 sites in England are 'at risk'.

The density of shipwreck remains in the English territorial sea is amongst the highest in the world due to the combined effects of historically high volumes of shipping traffic, a long history of seafaring and an often hazardous coastline.[175]

[174] Department of Culture, Media and Sport, 2009, http://www.culture.gov.uk/4168.aspx

English Heritage have identified the following proportions of heritage sites as at risk within England:

- 3.1% of grade I and II listed buildings;
- 7.4% of conservation areas (from those that were included within the report);
- 17.2% of scheduled monuments;
- 6.1% of registered parks and gardens;
- 14% of registered battlefields, and;
- 17% of protected wreck sites.[176]

A nationwide survey of conservation areas, conducted by English Heritage and the 75% of England's local planning authorities who responded, indicates that approximately 1 in 7 is at risk from neglect, decay or unsympathetic change.[177] The main threats identified were:

- Unsympathetic replacement doors and windows (83% of conservation areas);
- Poorly maintained roads and pavements (60%);
- The amount of street clutter (45%);
- Loss of boundary walls, fences or hedges (43%);
- Unsightly satellite dishes (38%);
- The effects of traffic calming or traffic management (36%);
- Alterations to front elevations, roofs and chimneys (34%);
- Unsympathetic new extensions (31%);
- The impact of advertisements (23%);
- Neglected green spaces (18%).

[175] English Heritage, http://www.english-heritage.org.uk/caring/listing/what-can-we-protect/listed-buildings/

[176] English Heritage, 2010, Heritage at Risk Summary, http://www.english-heritage.org.uk/publications/har-2010-summary/

[177] http://www.english-heritage.org.uk/content/publications/publicationsNew/heritage-at-risk/Conservation_Areas_at_Risk/caar-booklet-acc.pdf

9.3.2 North East of England

The North East has a rich cultural heritage with two World Heritage Sites: Hadrian's Wall and Durham Cathedral among the outstanding architectural legacy which enriches the region. The North East has two of England's World Heritage Sites - Durham Cathedral and Castle, and Hadrian's Wall. The Region's Cultural Strategy[178] states that a string of castles and fortified farms bear testimony to past acrimonious relations with the Scots, whilst sites at Lindesfarne, Jarrow and Monwearmouth support the region's claim to be the cradle of British Christianity. The region also has a strong industrial heritage which provides a strong link to the region's role in the industrial revolution.

Table 9.1 details the region's heritage assets and Figures 9.1 to 9.3 show the density of historic assets across the region.

Table 9.1 North East Regional Cultural Assets (2011)

Regional Asset	2011 Totals
World Heritage Sites	2
Scheduled Monuments	1,378
Listed Buildings Grade I	387
Listed Buildings Grade II*	754
Listed Buildings Grade II	11,111
Registered Parks and Gardens	53
Registered Battlefields	6
Protected Ship Wrecks	1
Conservation Areas	297
Designated Collections	7
Accredited Museums	66

Source: Heritage counts 2011.

[178] Culture North East; Regional Cultural Strategy for North East England 2001-2010

Figure 9.1 Density of All Listed Buildings Across the North East

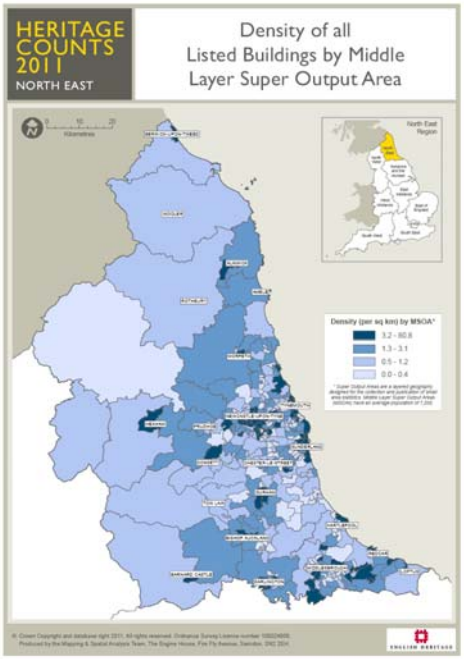


Figure 9.2 Density of all Scheduled Monuments Across the North East

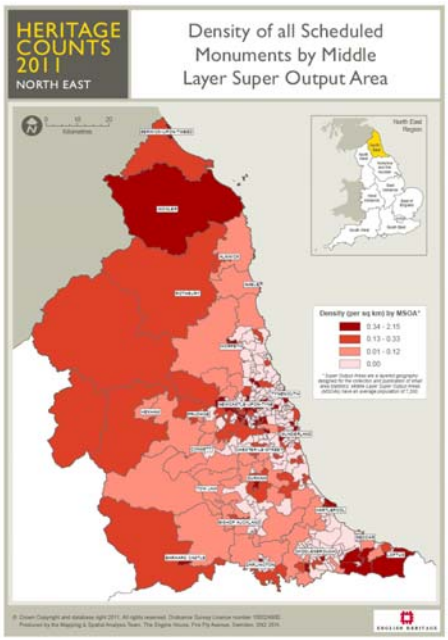


Figure 9.3 Density of All Registered Parks and Gardens Across the North East

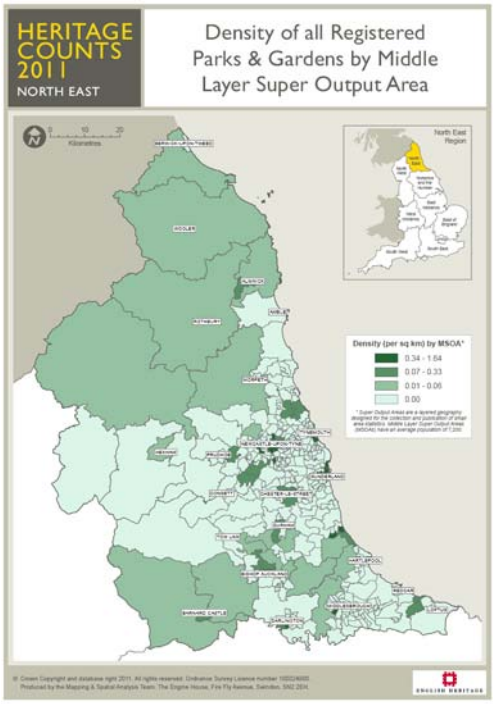
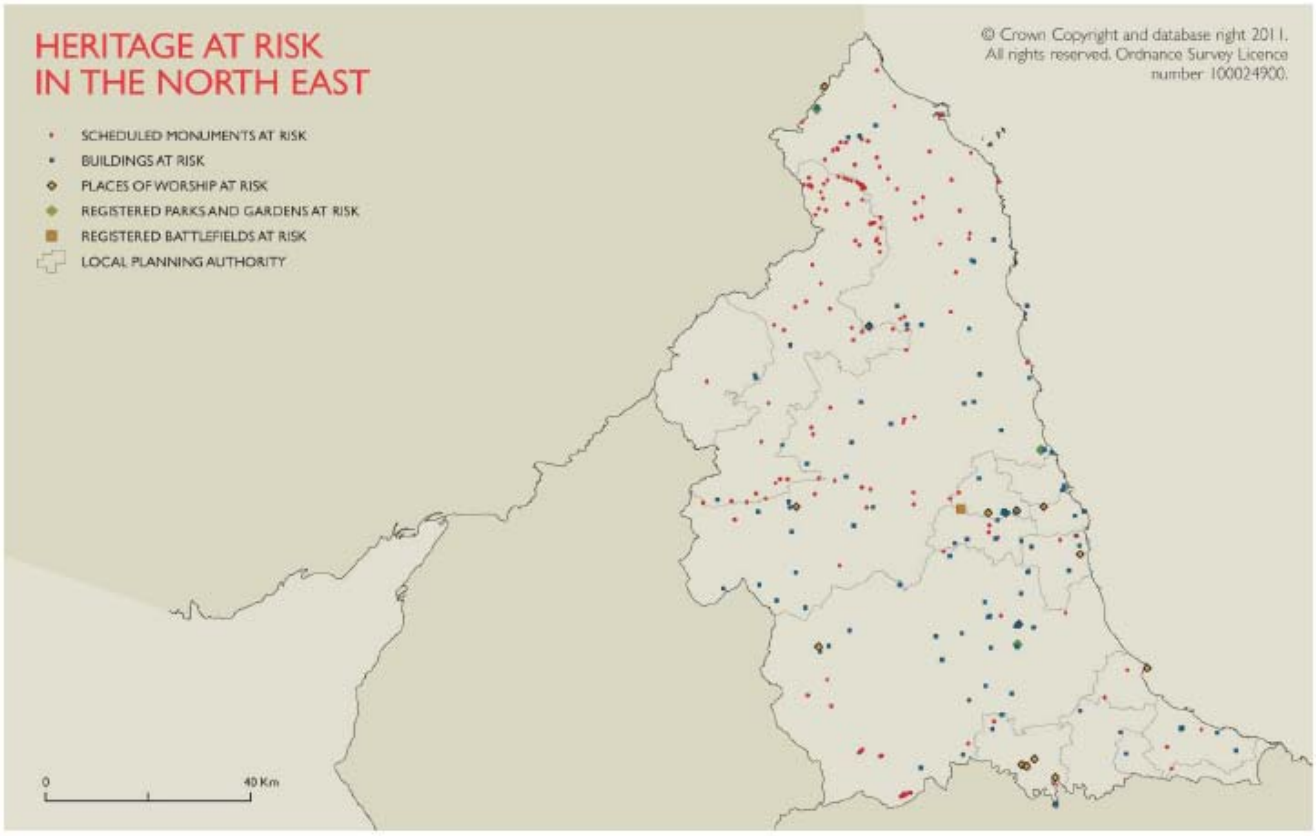


Figure 9.4 Heritage at Risk in the North East (2011)



Over the past four years, the percentage of designated heritage assets at risk in the North East has fallen steadily from 7.4% in 2008 to 6.3% in 2011. However, at 6.3% (compared to the national average of 3.0%), the North East still has the biggest percentage of its grade I and II* buildings at risk. A total of £1.6m in grant aid was offered to sites in the North East during 2010/11 but there is a danger that the current squeeze on public and private sector resources will, in time, undermine this effort and see a reversal of the recent positive trends.

Figure 9.4 details the heritage at risk in the North East region. Nationally, 3.0% of grade I and II* listed buildings are at risk. In the North East this rises to 6.3%, representing 72 sites. 8 sites have been removed from the 2010 Register, but 4 have been added. 56% of entries (64 buildings) on the baseline 1999 Register for the North East have been removed as their futures have been secured, compared to the national figure of 53% (757 buildings). Nationally, £5.2m was offered to 71 sites on the Register during 2010/11. In the North East we awarded grants totaling £691k to 13 sites.

16.9% (3,339) of England's 19,748 scheduled monuments are at risk, compared to13.4% (184 sites) in the North East. In the North East, 16 sites have been removed from the 2010 Register, but 6 sites have been added. 11.8% of entries (20 sites) on

the baseline 2009 Register for the North East have been removed due to positive reasons, compared to the national figure of 11.9% (399 sites). Arable ploughing and unrestricted plant, scrub or tree growth account for nearly two thirds of sites at risk nationally. In the North East, the latter is responsible for 41% of sites at risk. Nationally, 82% of scheduled monuments at risk are in private ownership, this rises to 85% in the North East. Of the £357k offered by English Heritage to owners of scheduled monuments at risk in 2010/11, £55k was to 6 sites in the North East.

103 of England's 1,610 registered parks and gardens are at risk, an increase from 6.2% (99) in 2010 to 6.4% this year. In the North East, 3 of the region's 54 sites are at risk (5.6%). Nationally, 6 sites have been added and 2 removed from the 2010 Register. In the North East, 1 site has been added.

288 local planning authorities (86%) have taken part in English Heritage's national survey of conservation areas, of which 13 are in the North East (100% of local authorities). English Heritage have information on 7,841 of England's 9,600 designated conservation areas and 516 (6.6%) are at risk, of the 265 conservation areas surveyed in the North East, 16 (6%) are at risk.

9.4 Environmental Characteristics of Those Areas Most Likely to be Significantly Affected

9.4.1 National

UK

Although from 2000 to 2007 there has been a steady decrease in the number of buildings identified as at risk, for the first time between 2007 and 2008, the number of entries within the Buildings at Risk Register rose for the first time.[179] Furthermore, the average cost of repairing each building on the Register has steadily increased.

Redundancy is a major factor driving listed buildings into risk. The kinds of historic buildings now at greatest risk are those associated with defence (15%), agriculture (8%) and manufacturing industry (13%).

There are concerns that the current recession will reduce public spending which will further reduce conservation staff for local authorities and reduce grants and subsidies to problem sites at a time when there will be an reduction in the willingness of developers to take on more challenging buildings at risk, an increase in vacancy rates and a decrease in funds owners will be able to invest in repair and maintenance.

[179] English Heritage, Heritage at Risk Report 2010, http://www.english-heritage.org.uk/publications/har-2010-report/

9.4.2 North East of England

The North East still has the biggest percentage of its grade I and II* buildings at risk of all English regions, however his is reflective of the high concentration of assets in the region.

The scheduled ancient monuments at risk are largely concentrated in the North of the region. This is largely reflective of the regional distribution of historic assets, with higher densities of assets in the north and west of the region.

The historic assets located in and close to existing urban areas are those most susceptible to harm from development pressure in the region.

9.5 Likely Evolution of the Baseline

9.5.1 National

UK

The current trend in cultural heritage condition is generally towards little change in the number of historic assets and a decline in the percentage that are at risk.[180]

English Heritage report that there has been little change in the total number of historic assets between 2002 and 2009; the total number of listed buildings in England has increased by 0.9% during this period with the largest increase in Grade II* (1.4%). The number of scheduled monuments has increased by 1.9% over the same period whilst registered parks and gardens increased by 7.3% (104) between 2002 and 2009. The number of scheduled monuments increased by 1.9% between 2002 and 2009.[181]

9.5.2 North East of England

English Heritage's Heritage at Risk Register 2011 for the North East of England lists the heritage assets at risk within each local authority area and identifies that risk results from neglect, decay or inappropriate development. The following key trends relevant to historic assets in the North East of England have been identified as:

- Over the past four years, the percentage of designated heritage assets at risk in the North East has fallen steadily from 7.4% in 2008 to 6.3% in 2011;

[180] http://www.english-heritage.org.uk/hc/upload/pdf/HC08_National_Acc.pdf)

[181] English Heritage, Heritage Counts 2009, England, http://hc.english-heritage.org.uk/upload/pdf/HC09_England_Acc.pdf?1286268742

- 64 listed buildings (56% of entries) on the baseline 1999 Register for the North East have been removed as their futures have been secured;
- 20 Scheduled ancient monuments (11.8% of entries) have been removed from the 1990 baseline register on the baseline.

9.6 Assessing Significance

Table 9.2 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on cultural heritage. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 9.2 Approach to Determining the Significance of Effects on Cultural Heritage

Effect	*Description*	*Illustrative Guidance*
++	Significant positive	• Alternative would make a significant positive and long-term contribution to the setting and conservation of designated cultural heritage features (e.g. – through enhancement of settings, permanent removal of structures creating a negative visual impact, large scale enhancement of designated features).
+	Positive	• Alternative would bring minor short-term improvements to the setting and conservation of designated or locally important cultural heritage features.
0	No (neutral effects)	• Alternative would not have any significant effects on any cultural heritage sites or assets.
-	Negative	• Alternative would bring minor short-term degradation to the setting and conservation of designated cultural heritage features.
- -	Significant negative	• Alternative would cause long-term degradation to the setting and conservation of designated and locally important cultural heritage features (e.g. – through direct and permanent loss or damage to designated sites, introduction of structures that will have a considerable and permanent negative visual impact).
?	Uncertain	• From the level of information available the effects the impact that the alternative would have on this objective is uncertain.

9.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 9.3 summarises the significant effects identified in the detailed assessment of the North East of England Plan policies against the cultural heritage topic.

Table 9.3 Significant Effects Against the on the Cultural Heritage Topic

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Policy 4: The Sequential Approach to Development	Retention	++	++	++	Policy 4 – Sequential Approach to Development requires LDF to adopt a sequential approach to the identification of land for development and to give priority to previously developed land and buildings in the most sustainable locations. Sequential Approach to Development requires LDF to adopt a sequential approach to the identification of land for development and to give priority to previously developed land and buildings in the most sustainable locations. The policy as written excludes renewable energy and mineral workings. The sequential approach provides the greatest scope to: re-use land and buildings; reduce pressure on greenfield land; best utilise existing infrastructure and investment; reduce the need to travel whilst maximising accessibility and use of public transport; reducing social exclusion; and reducing greenhouse gas emissions. Legislation protecting listed buildings, scheduled monuments, conservation areas and registered parks and gardens remain in place. These high levels of protection would be unchanged by revocation. The NPPF includes reference to the historic environment within the definition of sustainable development, 'sustainable development involves seeking positive improvements in the quality of the built, natural and historic environment, as well as in people's quality of life'. Section 12 of the NPPF provides the policies for LPAs concerning the historic environment. The NPPF expects LPAs to set out in their local plan a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. In doing so, they should recognise that heritage assets are an irreplaceable resource and conserve them in a manner appropriate to their significance. In consequence the effects of retention and revocation are considered to be the same in terms of impact on cultural heritage.
	Revocation	++	++	++	
Policy 8: Protecting and Enhancing the Environment	Retention	++	++	++	The RES acknowledges the need to protect, enhance and capitalise upon the regions unique and special natural and historic environment, recognising that the quality of the environment can do much to attract inward economic investment. Legislation protecting listed buildings, scheduled monuments, conservation areas and registered parks and gardens remain in place. These high levels of protection would be unchanged by revocation. Paragraph 58 of the NPPF states that planning policies and decisions should aim to ensure that developments respond to local character and
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation. Paragraph 126 states that local planning authorities should set out in their local plan, a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. In consequence, it is considered that the positive effects associated with the retention of Policy 8 will remain the same for revocation.
Policy 31: Landscape Character	Retention	++	++	++	Protection and enhancement of landscape character across the region, and particularly the nationally designated landscapes – including the Northumberland National Park, and Northumberland Coast and north Pennines Areas of Outstanding natural beauties as set out in part a of the policy – will have significant landscape benefits and will have population benefits through creating recreation benefits. There are also significant cultural heritage benefits through the aim to respect local distinctiveness for any development in such areas. It is considered that the positive effects on cultural heritage would be maintained through the policies contained in the NPPF.
	Revocation	++	++	++	
Policy 32: Historic Environment	Retention	++	++	++	This policy requires local authorities to identify, protect, conserve and enhance the historic environment, and seeks to ensure that future development takes account of the existing historical context where possible to reflect local distinctiveness This approach will deliver cultural and landscape benefits. Legislation protecting listed buildings, scheduled monuments, conservation areas and registered parks and gardens will remain in place. Paragraphs 126 - 141 of the NPPF set out strong national policy on conserving and enhancing the historic environment. It states that local planning authorities should set out in their local plan a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats. When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be. With regard to conservation-led regeneration, Paragraph 126 of the NPPF states that local planning authorities should take into account: • The desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation; • The wider social, cultural, economic and
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					environmental benefits that conservation of the historic environment can bring. Paragraph 131 of the NPPF goes on to state that local planning authorities should take account of "the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality. Therefore the effects associated with the revocation of policy 32 are considered to be the same as retention given the legislative requirement to protect heritage assets. It is assumed that local authorities will continue to prepare and regularly maintain registers of Grade II listed buildings at risk, consider preparing and maintaining lists of locally important buildings, registered landscapes, historic landscape assessments and prepare conservation area appraisals and management plans. Local planning authorities will also need to continue to liaise with English Heritage regarding planning applications where appropriate.

9.7.1 Effects of Retention

The effects of retention of the Plan have been assessed on the assumption that, in the absence of the legislation and regional architecture enabling updating of the Plan, although the general principles of development will remain some policies will become increasing outdated and in some cases in conflict with the national policies in the Framework. The Regional Strategy contains a number of policies which seek to protect or enhance cultural heritage in the region. By setting out the overarching direction within which local plans should be developed, retention of the Plan would have significant benefits in the short to long term. Retention of the Regional Strategy is likely to result in continuation of the baseline (subject to factors such as the level of Heritage Lottery Funds and English Heritage funding available) because of the strong planning policy direction, most damaging activities will be caused by factors outside of the control of the planning system (such as, severe weather conditions and abandonment of buildings).

9.7.2 Effects of Revocation

The North East has a rich cultural heritage with two World Heritage Sites: Hadrian's Wall and Durham Cathedral among the outstanding architectural legacy which enriches

the region. The Region's Cultural Strategy[182] states that a string of castles and fortified farms bear testimony to past acrimonious relations with the Scots, whilst sites at Lindesfarne, Jarrow and Monwearmouth support the region's claim to be the cradle of British Christianity. The region also has a strong industrial heritage which provides a strong link to the region's role in the industrial revolution. The North East has 12,252 Listed Buildings equating to approximately 3% of the total number in England of which approximately 8.29% of Grade I and II are identified as being at risk.

There are a number of examples of cultural heritage playing a key role in regenerating in the North East e.g. Sunniside in Sunderland and Grainger Town in Newcastle. The importance of the heritage value and the need to promote, protect and enhance the region's cultural heritage is a key theme within the RES.

Paragraphs 126 - 141 of the NPPF sets out a strong national policy on conserving and enhancing the historic environment. It states that local planning authorities should set out in their local plan a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats.

When considering the impact of a proposed development on the significance of a designated heritage asset, great weight should be given to the asset's conservation. The more important the asset, the greater the weight should be (paragraph 132).

Despite these safeguards, it is far from certain that the overall effect of revocation on local and regional cultural heritage assets would be positive in the short to medium term as local plans may not provide as strong a policy direction, this means that negative effects could be felt in the short term if inappropriate development is permitted. It is also unclear whether existing and future land allocations will affect areas of local and regional cultural heritage value particularly if increased housing delivery over and above the current allocation is required, therefore the medium to long term effects are unknown.

The most important cultural heritage sites are subject to statutory protection. Following revocation of regional strategies, local authorities would still need to continue to work together on conservation, restoration and enhancement of the heritage and historic environment.

In planning for the historic environment, local authorities should continue to draw on available information, including data from partners, to address cross boundary issues; they should also continue to liaise with English Heritage to identify and evaluate areas, sites and buildings of local cultural and historic importance.

[182] Culture North East; Regional Cultural Strategy for North East England 2001-2010

9.7.3 Effects of Partial Revocation

The effects of partial revocation concern either:

- Revoking all the quantified and spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and retaining for a transitional period the non spatial policies, ambitions and priorities;
- Retaining for a transitional period all the spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and revoking the non spatial policies, ambitions and priorities; or
- Retaining for a transitional period policies, ambitions and/or priorities, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on cultural heritage associated with the revocation of the quantitative policies are summarised in **Table 9.3** for policy 32 which makes specific reference to Hadrian's Wall Military Zone World Heritage Site, Durham Cathedral and Castle World Heritage Site and the Candidate World Heritage Site at Jarrow and Monkwearmouth. It is understood that the bid for World Heritage Status at Jarrow and Monkwearmouth has now been withdrawn. However this should not detract from the need to protect those features of importance and its wider setting.

The assessment has found that there are no policies in the North East Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit.

9.8 Mitigation Measures

No significant effects have been recorded against the cultural heritage topic; as such no mitigation measures have been identified.

9.9 Proposals for Monitoring

Significant and uncertain effects in respect of cultural relate to:

- Scheduled Monuments at Risk;
- Listed Buildings at Risk;

- Registered Parks and Gardens at Risk;
- Green infrastructure delivery and accessibility.

10. Landscape and Townscape

10.1 Introduction

The overview of plans and programmes and baseline information contained in this section provides the context for the assessment of potential effects of the proposals to revoke the regional strategies on landscape and townscape. Information is presented for both national and sub-regional levels.

Landscape in this context is defined by **The European Landscape Convention** as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/ or human factors'. This definition is stated as covering natural, rural, urban and peri-urban (i.e. the urban-rural fringe) and includes land, inland water and marine areas. For the purposes of this appraisal though, landscape is taken to apply to rural areas and townscape to urban areas. Visual effects are those effects that influence how people see a landscape or townscape, such as the erection of a building.

10.2 Summary of Plans and Programmes

10.2.1 International

The ***European Landscape Convention*** is principally directed at the national level, but emphasises the importance of landscape as a cultural as well as an aesthetic asset. It commits signatories to promoting the protection, management and enhancement of landscapes across a country, and integrating landscape considerations into all relevant policies. The Convention's definition of landscape reflects the idea that landscapes evolve through time, as a result of being acted upon by natural forces and human beings. It also underlines that a landscape forms a whole, whose natural and cultural components are taken together, not separately. The convention also calls for improved public involvement in landscape matters. The UK became a signatory to the European Landscape Convention in 2006.

10.2.2 National

UK

In the UK, there are numerous Acts governing the protection of the countryside, landscape and natural environment. The ***National Parks and Access to the Countryside Act 1949*** makes provision for National Parks, confers powers for the establishment and maintenance of nature reserves, makes provision for the recording,

creation, maintenance and improvement of public paths and for securing access to open country and confers further powers for preserving and enhancing natural beauty. National Parks are areas of relatively undeveloped and scenic landscape. Designation as a national park may include substantial settlements and human land uses which are often integral parts of the landscape. Land within a national park remains largely in private ownership. There are currently thirteen national parks in England and Wales. Each park is operated by its own national park authority, with two "statutory purposes":

- To conserve and enhance the natural beauty, wildlife and cultural heritage of the area, and
- To promote opportunities for the understanding and enjoyment of the parks.

The Norfolk Broads and Suffolk Broads has the same status as the national parks in England and Wales. The Broads Authority has powers and duties almost identical to the national parks, but is also the third-largest inland navigation authority. Because of its navigation role the Broads Authority was established under its own legislation on 1 April 1989. The Broads Authority Act 2009 improves public safety on the water.

AONBs are areas of high scenic quality that have statutory protection in order to conserve and enhance the natural beauty of their landscapes. AONB landscapes range from rugged coastline to water meadows to gentle lowland and upland moors. Natural England has a statutory power to designate land as Areas of Outstanding Natural Beauty

The ***Countryside and Rights of Way Act 2000*** increased the duty of provision of public access to the countryside and strengthened legislation relating to Sites of Special Scientific Interest (SSSIs). In particular, it requires public bodies to further the conservation and enhancement of SSSIs both in carrying out their operations, and in exercising their decision making functions.

The ***Marine and Coastal Access Act 2009*** seeks to ensure clean healthy, safe, productive and biologically diverse oceans and seas, by putting in place better systems for delivering sustainable development of marine and coastal environment.

Other relevant Acts include:

- The ***1967 Forestry Act (as amended 1999)*** restricts and regulates the felling of trees. The ***1968 Countryside Act*** enlarges the function of the Agency established under the National Parks and Access to the Countryside Act 1949, to confer new powers on local authorities and other bodies for the conservation and enhancement of natural beauty and for the benefit of those resorting to the countryside;

- The ***1986 Agriculture Act (with numerous revisions)*** covers the provision of agricultural services and goods, agricultural marketing compensation to tenants for milk quotas, conservation and farm grants;

- The ***Commons Act 2006***, which protects common land and promotes sustainable farming, public access to the countryside and the interests of wildlife.

England

The ***Natural Environment and Rural Communities (NERC) Act 2006*** implements key elements of the Government's Rural Strategy published in July 2004. The NERC Act is designed to help achieve a rich and diverse natural environment and thriving rural communities through modernised and simplified arrangements for delivering Government policy. The NERC Act established a new independent body - Natural England - responsible for conserving, enhancing, and managing England's natural environment for the benefit of current and future generations. The Act made amendments to the both the Wildlife and Countryside Act 1981 and the Countryside and Rights of Way Act 2000, which further enhance provisions to biodiversity generally and SSSIs in particular.

The ***National Planning Policy Framework (2012)*** includes strong protections for valued landscapes and townscapes as well as recognising the intrinsic character and beauty of the countryside. The importance of planning positively for high quality design is underlined and local and neighbourhood plans are expected to "develop robust and comprehensive policies that set out the quality of development that will be expected for the area". Planning policies and decisions are expected to respond to local character and history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation. The Framework states (paragraph 64) that "Permission should be refused for development of poor design that fails to take the opportunities available for improving the character and quality of an area and the way it functions".

The Framework has a number of specific requirements relating to planning and landscape including a clear expectation that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes. Local planning authorities are expected to set criteria based policies against which proposals for any development on or affecting protected landscape areas will be judged. In doing so, distinctions should be made between the hierarchy of international, national and locally designated sites and "great weight" should be given to "conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty". Local planning authorities in their plan-making are expected to take account of climate change and changes to landscape and contain a clear strategy for enhancing the natural, built and historic environment. Where

appropriate, “landscape character assessments should also be prepared, integrated with assessment of historic landscape character, and for areas where there are major expansion options assessments of landscape sensitivity”.

10.2.3 North East of England

No relevant regional plans or programmes were identified under this topic.

10.3 Overview of the Baseline

10.3.1 National

UK

Statutory sites designated (wholly or partially) for their landscape value include National Parks, AONBs, Country Parks, Registered Historic Parks and Gardens, Historic Gardens and Designed Landscapes, National Scenic Areas (NSAs) and Regional Parks (in Scotland) and World Heritage Sites.[183]

Other important (non-statutory) sites include Areas of Great Landscape Value (AGLV) in Scotland; Heritage Coasts (in England and Wales); and National Trust/National Trust for Scotland properties.

The UK has 15 National Parks [184] and (excluding Scotland) 49 AONBs.[185] Each National Park is administered by its own National Park Authority whose duty it is to conserve and enhance natural beauty, wildlife and cultural heritage; and to promote opportunities for the understanding and enjoyment of the special qualities of National Parks by the public. The Broads Authority in England has a third purpose to protect the interests of navigation[186]. The primary purpose of AONB is to conserve and enhance the natural beauty of the landscape.

England

The 'Character of England Landscape, Wildlife and Cultural Features Map' produced in 2005 subdivides England into 159 areas with similar landscape character called National Character Areas (NCA).[187]

[183] JNCC, landscape designations, http://www.jncc.gov.uk/page-1527

[184] Association of National Park Authorities, http://www.nationalparks.gov.uk/

[185] National Association of AONB, http://www.aonb.org.uk

[186] http://www.nationalparks.gov.uk/learningabout/factsandfigures.htm

[187] http://www.naturalengland.org.uk/ourwork/landscape/englands/character/areas/default.aspx

There are nine National Parks in England; the most recently designated National Park being the South Downs National Park on 31 March 2010). Together with The Broads (which has similar protection to a National Park) they cover 9.3% of the land area in England.

There are 34 AONBs in England, one of which straddles England and Wales (the Wye Valley AONB). AONBs cover 18% of England and Wales.[188] The East Hampshire and Sussex Downs AONB designations were revoked on the 31 March 2010 when the South Downs National Park Designation Order came into effect. In all, AONB designation covers approximately 15 per cent of the land area of England.

England has been divided into areas with similar landscape character, which are called National Character Areas (NCAs). A total of 159 NCAs have been identified in England. The boundaries of the NCAs are not precise and that many of the boundaries should be considered as broad zones of transition.

Natural England are currently re-writing and re-designing all of England's 159 NCA profiles and aim to publish the first of the new versions from September 2012.

Heritage Coasts are areas defined (they are not statutorily designated) for the beauty and undeveloped nature of the coastline. They represent 33% (1,057km) of England's coastline and are managed to conserve their natural beauty and, where appropriate, to improve accessibility for visitors. Most Heritage Coasts are within the boundaries of National Parks or AONBs, although some including Lundy, the Durham Coast, and Flamborough Head stand alone.

A national record of nearly 1450 Registered Historic Parks and Gardens which contribute to the landscape is maintained by English Heritage. It is a non-statutory designation but the designation is a material planning consideration.

There are 17 World Heritage Sites in England, the most recent of these to be recognised as such is the Cornwall and West Devon mining landscape which was encrypted by UNESCO in 2006.[189]

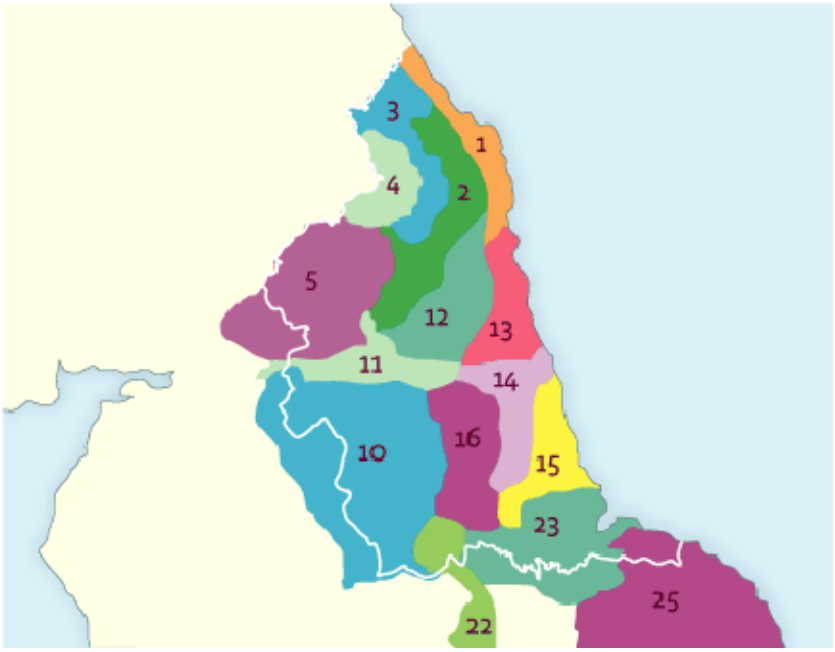
10.3.2 North East of England

There is no Regional Landscape Character Assessment or Landscape Character Framework for the North East, however Figure 10.1 provides an overview of the landscape using the Countryside Commission's Countryside Character framework[190].

[188] See http://www.aonb.org.uk/wba/naaonb/naaonbpreview.nsf/Web%20Default%20Frameset?OpenFrameSet&Frame=Main&Src=%2Fwba%2Fnaaonb%2Fnaaonbpreview.nsf%2F%24LU.WebHomePage%2F%24first!OpenDocument%26AutoFramed (accessed 19.10.2009)

[189] http://whc.unesco.org/en/list/

Figure 10.1 North East National Character Area Map[191]



1 North Northumberland
2 Northumberland Sandstone Hills
3 Cheviot Fringe
4 Cheviots
5 Border Moors and Forests
10 North Pennines
11 Tyne Gap and Hadrian's Wall
12 Mid Northumberland
13 South East Northumberland Coastal Plain
14 Tyne and Wear Lowlands
15 Durham Magnesian Limestone Plateau
16 Durham Coalfield Pennine Fringe
23 Tees Lowlands
22 Pennine Dales Fringe
25 North Yorkshire Moors and Cleveland Hills

Figure 10.2 shows tranquility in the North East, showing that the more tranquil areas are the more rural locations in the region's west and north. Table 10.1 shows how tranquility has been eroded in the region between the 1960's to 2007 showing a significant increase in the disturbed area across all regions, particularly in

[190] Countryside Commission: Countryside Character Volume North East: the Character of England's Natural and Man Made Landscape.

[191] http://www.naturalengland.org.uk/publications/nca/northeast.aspx

Northumberland where the disturbed area has more than doubled and in Stockton on Tees where there has been an increase of a third.

Figure 10.2 Tranquility North East England

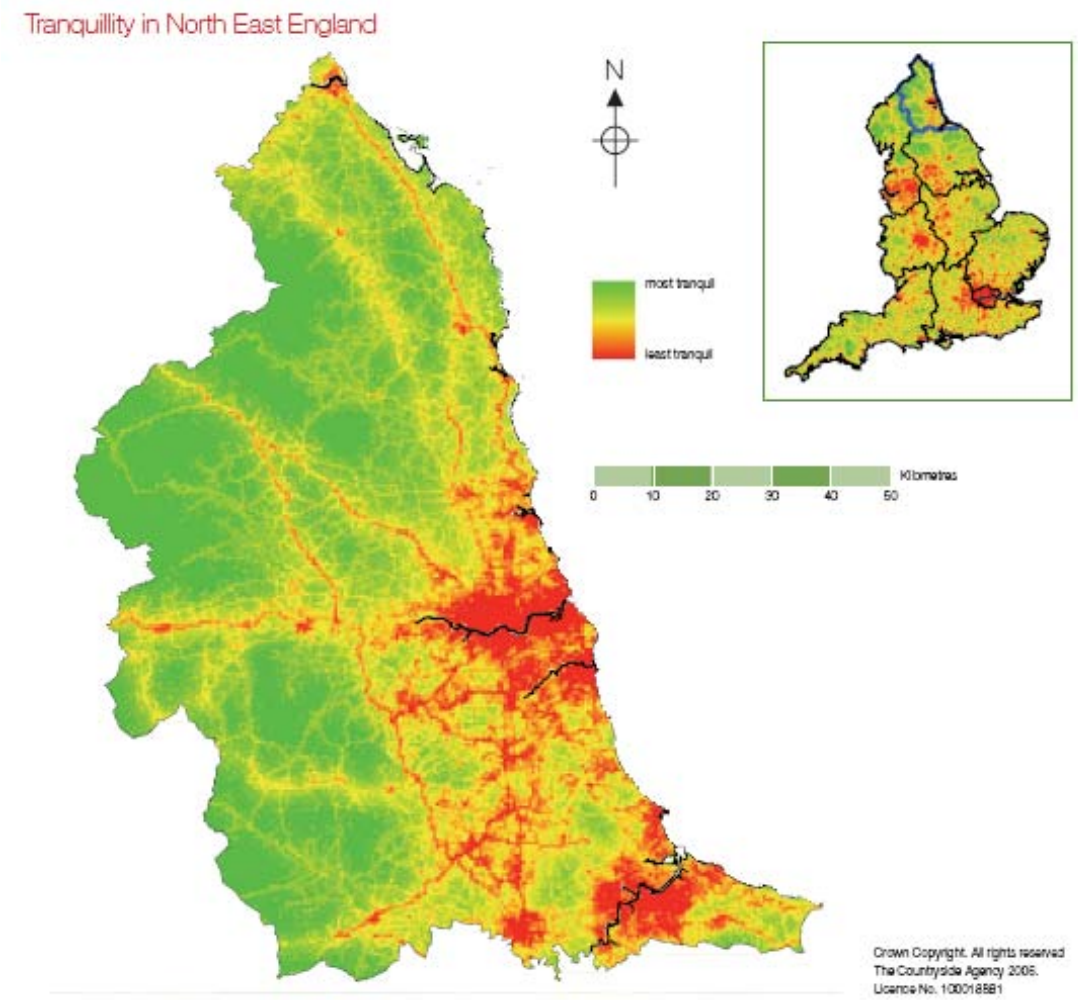


Table 10.1 Erosion in Tranquility across the North East Region. 1960-2007[192]

County, Unitary Authority or Metropolitan District	Total area (km^2)	Early 1960s		Early 1990s		2007	
		Disturbed area (km^2)	% of region	Disturbed area (km^2)	% of region	Disturbed area (km^2)	% of region
Darlington	197.47	114.63	58.05	135.12	68.42	139.58	70.68
Durham County	2232.74	704.22	31.54	835.74	37.43	904.93	40.53
Gateshead District	144.08	128.65	89.29	136.36	94.64	142.32	98.78
Harlepool	98.44	74.94	76.13	92.03	93.49	96.57	98.11
Middlesbrough	54.56	44.43	81.43	53.82	98.63	54.56	100.00
Newcastle upon Tyne District	115.12	102.93	89.41	109.58	95.19	112.96	98.12
North Tyneside District	85.18	83.81	98.40	83.78	98.36	85.18	100.00
Northumberland County	5078.41	394.58	7.77	651.57	12.83	858.46	16.90
Redcar and Cleveland	253.89	141.19	55.61	168.336	66.30	210.69	82.99
South Tyneside District	67.15	66.67	99.29	63.84	95.08	67.15	100.00
Stockton-on-Tees	209.74	138.22	65.90	180.70	86.15	197.96	94.38
Sunderland District	139.64	132.81	95.11	133.39	95.52	139.64	100.00
North East Total	**8676.41**	**2127.07**	**24.52**	**2644.24**	**30.48**	**3010.00**	**34.69**

[192] http://www.cpre.org.uk/resources/countryside/tranquil-places/item/1759-englands-fragmented-countryside-north-east-intrusion-statistics

10.4 Environmental Characteristics of Those Areas Most Likely to be Significantly Affected

10.4.1 National

UK

The UK has many important and protected landscapes which may be sensitive to development. The character of the UK's landscapes are broadly being maintained, however 20% show signs of neglect.

The natural environment of the UK is much less 'rich' than 50 years ago and remains under pressure from more intense use of the land and sea; continuing economic development, climate change and increased pressures from public access.

Although it is recognised that some changes in landscape, such as restoration of derelict industrial sites, have led to improvements in the quality of the natural environment, Natural England state that landscape change on the whole is resulting in declining diversity, distinctiveness and ecological richness.[193]

10.4.2 North East of England

There has been erosion in tranquillity across the region however the changes since the 1960's have not been as significant as in other regions. The urban authorities of Middlesbrough, North Tyneside, South Tyneside and Sunderland have 100% of their region disturbed by light, traffic noise and development. Northumberland is the most tranquil local authority with just 17% of its area disturbed. It's worth nothing however that the amount of disturbed area is Northumberland has doubled since the 1960's. The North of England Plan locational strategy directs much of the predicted new development in existing settlements, particularly within the North East's two city regions.

[193] http://www.naturalengland.org.uk/ourwork/landscape/threats/default.aspx

10.5 Likely Evolution of the Baseline

10.5.1 National

UK

Over the last century the following landscape character trends have been experienced: [194]

- A gradual erosion of local distinctiveness in some areas, through a process of standardisation and simplification of some of the components that make up landscape character;
- A loss of some natural and semi-natural features and habitats such as ancient woodlands and unimproved grassland;
- A decline in some traditional agricultural landscape features such as farm ponds and hedgerows, and a loss of archaeological sites and traditional buildings;
- Increased urbanisation, often accompanied by poor design standards and a decline in the variety of building materials, and the importation of urban and suburban building styles into rural areas; and
- A loss of remoteness and reduced tranquillity because of built development and traffic growth.

There are a number of pressures and risks outlined in the ***State of the Natural Environment 2008***) that may affect the quality of landscapes in England. These include[195]:

- **Sea-level rise:** Over the next few decades it is anticipated that there will be major sea incursions inland during storms, particularly on the south and east coasts of England. If measures such as managed retreat are not adopted in low-lying areas, there may be widespread losses of intertidal and coastal habitats. In the coastal zone, sea-level rise may also result in the direct loss of freshwater habitats such as reedbeds and wet grasslands;
- **Fire:** More droughts in the future will make the countryside increasingly vulnerable to wildfire, with potential for heathland, grassland, broadleaved woodlands and bogs to undergo major change in their structure;

[194] Natural England, State of the Natural Environment 2008, Landscape Characterisation and Change, http://www.naturalengland.org.uk/publications/sone/sections.aspx

[195] Natural England (2008) State of the Natural Environment http://www.naturalengland.org.uk/publications/sone/default.aspx

- **Grazing management:** More summer droughts may mean that grazing is no longer possible in some open habitats such as fens, grasslands and heathlands due to die-back of vegetation and a lack of drinking water for animals. The spread of diseases (e.g. bluetongue) related to climate change may also reduce livestock numbers and restrict movement, altering grazing patterns and landscapes;

- **Energy production:** The production of biofuels in the countryside may result in changes to landscapes. Wind energy developments are likely to be more common; and

- **Development pressure:** Within rural England, the area of developed land has increased by about 4% since 1990. It is expected that the pace of development within England will increase in the future to make up for the current shortfall in housing provision. The effect of this increase pressure for development is likely to be felt most acutely in central and southern England, particularly around identified Growth Areas and Growth Points.

England

Natural England report that in 2008 existing landscape character was being maintained in 51% of England's landscapes, whilst in a further 10% existing character was being enhanced. However, 20% of landscapes were showing signs of neglect. [196]

Data from 1990 to 2003 indicates that in England the number of Character Areas with patterns of change that either maintain or enhance character has increased from 36% to 61%. The number of Character Areas with evidence of neglect or erosion of character has decreased. This evidence suggests that the character of the majority of English landscapes, at Character Area scale, is being sustained.

Forestry Commission England seeks to maintain the area of certified woodland and to ensure that 95% of woodland SSSIs are in favourable condition by 2011. [197]

The protected nature of National Park and AONB landscapes make it less likely that these landscapes will be affected by some of the risks outlined (e.g. development pressure) although those protected landscapes nearest to existing urban areas are more likely to be at risk.

10.5.2 North East of England

Over the last century landscape and townscapes in the region have followed national trends and have experienced the following:

[196] Natural England, State of the Natural Environment 2008, Landscape Characterisation and Change, http://www.naturalengland.org.uk/publications/sone/sections.aspx

[197] Forestry Commission England, 2008, Delivery Plan 2008-2012: England's Trees, Woods and Forests

- A gradual erosion of local distinctiveness in some areas, through a process of standardisation and simplification of some of the components that make up landscape character;
- A loss of some natural and semi-natural features and habitats such as ancient woodlands and unimproved grassland;
- A decline in some traditional agricultural landscape features such as farm ponds and hedgerows, and a loss of archaeological sites and traditional buildings;
- Increased urbanisation;
- Reduced tranquillity because of built development and traffic growth.

Policy 31 in the North East Plan seeks to protect landscape character in the North East

10.6 Assessing Significance

Table 10.2 sets out guidance utilised during the assessment to help determine the relative significance of potential effects on the landscape and townscape objective. It should not be viewed as definitive or prescriptive; merely illustrative of the factors that were considered as part of the assessment process.

Table 10.2 Approach to Determining the Significance of Effects on Landscape and Townscape

Effect	*Description*	*Illustrative Guidance*
++	Significant positive	• Alternative would make a significant positive contribution to statutorily-designated landscapes. • Alternative would have a significant positive effect on the setting and attractiveness of local landscapes and townscapes (e.g. through the replacement of poorly designed/derelict buildings with high quality development). • Alternative would enhance public access to the countryside and increase open space provision.
+	Positive	• Alternative would serve to enhance statutorily-designated landscapes. • Alternative would have a positive effect on the setting and attractiveness of local landscapes and townscapes. • Alternative would enhance public access to open spaces and the countryside.
0	No (neutral effects)	• Alternative would not have any effects on landscapes or visual amenity. • Alternative would not enhance or restrict public access to open spaces and the countryside.

Effect	Description	Illustrative Guidance
-	Negative	• Alternative would have short-term negative effects on statutorily-designated landscapes. • Alternative would have a negative effect on the intrinsic character of landscapes and townscapes. • Alternative would affect the visual amenity of local communities. • Alternative would temporally restrict public access to open spaces and the countryside.
- -	Significant negative	• Alternative would have long-term negative effects on statutorily-designated landscapes (such as AONBs). • Alternative would severely affect the intrinsic character of landscapes and townscapes. • Alternative would severely affect the visual amenity of local communities. • Alternative would result in the loss of open spaces and restrict public access to the countryside.
?	Uncertain	• From the level of information available the effects the impact that the Alternative would have on this objective is uncertain.

10.7 Assessment of Significant Effects of Retention, Revocation and Partial Revocation

Table 10.3 summarises the significant effects identified in the detailed assessment of the North East of England Plan policies against the landscape topic.

Table 10.3 Significant Effects Against the Landscape and Townscape Topic

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Policy 4: The Sequential Approach to Development	Retention	++	++	++	Policy 4 – Sequential Approach to Development requires LDF to adopt a sequential approach to the identification of land for development and to give priority to previously developed land and buildings in the most sustainable locations. The policy as written excludes renewable energy and mineral workings. The sequential approach provides the greatest scope to: re-use land and buildings; reduce pressure on greenfield land; best utilise existing infrastructure and investment; reduce the need to travel whilst maximising accessibility and use of public transport; reducing social exclusion; and reducing greenhouse gas emissions. Furthermore the emphasis on avoid areas which are prone to flooding enhances delivery of climatic factors. Consequently retention of this policy could have positive environmental effects across most SEA
	Revocation	?	?	?	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					topics. The National Planning Policy Framework states that planning provides and decisions should encourage the effective use of land by re-using land that has been previously developed , provided that it is not of high environmental quality. Therefore the revocation of this policy could has been appraised has having positive effects on landscape and townscape.
Policy 8: Protecting and Enhancing the Environment	Retention	++	++	++	This policy sets high level objectives for protecting and enhancing the Environment, which are developed further in other policies (including policies 31-34 and 37). The RES acknowledges the need to protect, enhance and capitalise upon the regions unique and special natural and historic environment, recognising that the quality of the environment can do much to attract inward economic investment. Protection and enhancement of the local landscape, particularly designated areas, will have significant benefits for biodiversity and landscape, and through better recreational opportunities should have benefits to human health. It is likely to have cultural benefits as well. Provision of green infrastructure should have biodiversity benefits through the creation and enhancement of new habitats, as well as provide flood attenuation and provide recreational space, so improving air quality, reduce carbon emission and protect soils. Paragraph 115 of the NPPF states that great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to landscape and scenic beauty. The NPPF also maintains the policy previously contained in PPS7 that local planning authorities should set criteria based policies against which proposals for any development on or affecting protected landscape areas will be judged (paragraph 113), while paragraph 170 requires, where appropriate, landscape character assessments to be prepared, integrated with assessment of historic landscape character, and for areas where there are major expansion options assessments of landscape sensitivity. In addition to the landscape policies of the NPPF already noted, paragraphs 105 to 108 of the NPPF contains a number of policies specific to the coast. Local planning authorities should apply Integrated Coastal Zone Management across local authority and land/sea boundaries. They should reduce risk from coastal change by avoiding inappropriate development in vulnerable areas or adding to the impacts of physical changes to the coast. They should identify Coastal Change Management Area where any area is likely to be affected by physical changes to the coast and be clear as to what development will be appropriate in such areas and
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					in what circumstances. In addition, paragraph 114 provides for the maintenance of the character of the undeveloped coast, protecting and enhancing its distinctive landscapes, particularly in areas defined as Heritage Coast, and seeks improvement to public access to and enjoyment of the coast. Shoreline Management Plans (SMPs) are prepared by the Environment Agency to provide advice to local authorities and other organisations on the risks associated with coastal processes. Revocation will not affect the presence of SMPs and they should continue to inform the evidence base for planning in coastal areas. The retention of existing legislation and new policy and guidance contained in the NPPF combined with the SMPs will ensure that the landscape benefits identified will be maintained.
Policy 29: Delivering and Managing Housing Supply	Retention	++	++	++	The RES identifies the role to be played by The Regional Housing Board in setting the direction on restructuring the housing market The RES also identifies that development will be focused on brownfield sites in accordance with the RSS. The policy identifies sub-regional targets for housing development on previously developed land which reflect that 75% of the regions previously used land is located within Tyne and Wear and Tees Valley. Increasing the amount of development on previously developed sites, re-use of existing buildings and increasing housing density should have a positive effect on all environmental resources. Identifying densities for new housing development will help to protect the distinctiveness of rural and urban areas. It is possible that removing the requirement to direct most strategically significant growth to the region's major urban areas and removing the target for the use of previously developed land could lead to less development within the major urban areas, and result in less development of brownfield land. This could lead to more development of unconstrained countryside. There are potential benefits for biodiversity if it resulted in less development on those areas of brownfield land with high biodiversity value and to human health where there were lower housing densities and more opportunities for green space within urban areas However, if it increased the amount of development on green field land away from existing settlements, this could have negative impacts on the countryside (i.e. soil and landscape); and on air quality and greenhouse gas emissions (if there is a greater need to travel). Depending on the biodiversity value of any countryside lost, including any role it played, or might play, in contributing to a network or corridor for wildlife there could be either positive or negative effects. For example, agricultural land can host
	Revocation	?	?	?	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					lower biodiversity interest than suburban gardens given the wider range of different habitats provided. The removal of density targets could result in lower level density development necessitating more land to meet locally defined housing targets and resulting in adverse impacts on townscape quality. Effects will depend on the resulting scale, nature and location of development across the region over the plan period and beyond. The ultimate effects of revoking the policy will depend on local circumstances as local authorities will have the freedom to set their own local priorities in accordance with the NPPF In consequence the effects of revocation have been appraised as uncertain for landscape and townscape.
Policy 31: Landscape Character	Retention	++	++	++	Protection and enhancement of landscape character across the region, and particularly the nationally designated landscapes – including the Northumberland National Park, and Northumberland Coast and north Pennines Areas of Outstanding natural beauties as set out in part a of the policy – will have significant landscape benefits and will have population benefits through creating recreation benefits. There are also significant cultural heritage benefits through the aim to respect local distinctiveness for any development in such areas. The NPPF also maintains the policy previously contained in PPS7 that local planning authorities should set criteria based policies against which proposals for any development on or affecting protected wildlife or geodiversity or landscape areas will be judged (paragraph 113), while landscape character assessments should be prepared where appropriate (paragraph 170) . The NPPF devotes a whole section to good design (Section 7) and taken together with other policies in the framework should help to minimise the adverse effects of delivering the necessary development. Paragraph 58 of the NPPF states that local plan policies should develop robust and comprehensive policies that set out the quality of development that will be expected for the area. The policy continues by stating that planning policies and decisions should aim to ensure that developments respond to local character and history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation. Local planning authorities should look for opportunities for new development. The duty to co-operate, NPPF and relevant Local Economic Partnerships will mean that local authorities should continue to ensure that land use are mutually consistent, and deliver the most sustainable and effective development for their area.
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
Policy 32: Historic Environment	Retention	++	++	++	This policy requires local authorities to identify, protect, conserve and enhance the historic environment, and seeks to ensure that future development takes account of the existing historical context where possible to reflect local distinctiveness This approach will deliver cultural and landscape benefits. In some situations, it may also provide the basis for wider regeneration benefits. The policy has the potential to deliver benefits to material assets through the re-use of buildings and use local resources. Legislation protecting listed buildings, scheduled monuments, conservation areas and registered parks and gardens will remain in place. It is anticipated that there would be similar significant benefits to landscape values following revocation of the RS policy. Paragraph 58 of the NPPF states that local plan policies should develop robust and comprehensive policies that set out the quality of development that will be expected for the area. The policy continues by stating that planning policies and decisions should aim to ensure that developments respond to local character and history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation. Local planning authorities should look for opportunities for new development Paragraphs 126 - 141 of the NPPF set out strong national policy on conserving and enhancing the historic environment. Paragraph 126 states that local planning authorities should set out in their local plan a positive strategy for the conservation and enjoyment of the historic environment, including heritage assets most at risk through neglect, decay or other threats.
	Revocation	++	++	++	
Policy 36: Trees Woodlands and Forests	Retention	++	++	++	The policy seeks to achieve an increase in woodland cover by protecting and achieving better management of existing woodland and promoting new planting where consistent with landscape character. This approach will have significant benefits on biodiversity and the region's landscape, and could protect and enhance the soil as well as delivering climate change benefits through its absorption of carbon dioxide. The NPPF provides protection for ancient semi-natural woodland and other woodlands of acknowledged national or regional importance in line with the policies previously in PPS 9 and now in paragraph 118 of the NPPF. The NPPF makes clear that planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the
	Revocation	++	++	++	

Regional Plan Policy		Score			Commentary
		Short Term	Medium Term	Long Term	
					loss. It is anticipated that there would be similar significant benefits to landscape values following revocation of the RS policy.

10.7.1 Effects of Retention

The effects of retaining the Regional Strategy would see a continuation of the baseline. A high level of protection will continue to be given to those landscapes of national and local importance. It is anticipated that landscape quality could improve over time given the policy requirement to enhance as well as protect although it should be acknowledged that policy can only influence matters surrounding development and not the wider trends in the landscape (e.g. agri-environmental schemes which may have the potential to improve the conditions of the landscape, or changes in agricultural activities resulting from changes in the economic circumstances of landowners or market demand).

10.7.2 Effects of Revocation

The North East is identified as having some of the country's highest quality natural environment which includes areas of designated landscape such as Northumberland National Park (a small area of North York Moors National Park is also within the region, for the purposes of the RSS it is covered as a whole by the Yorkshire and Humber Region RSS) and two Areas of Outstanding Natural Beauty in the North Pennines AONB and Northumberland Coast AONB. These designated sites are afforded policy protection through a number of policies which seek to direct inappropriate development away from them. Policy 31: Landscape Character explicitly identifies the need to promote development appropriate to the special qualities and statutory purpose of threes areas.

The policy protection afforded to these designated sites would continue post-revocation. Paragraph 115 of the NPPF states: *Great weight should be given to conserving landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to*

landscape and scenic beauty. Furthermore, in the Northumberland National Park has its own adopted and up to date Core Strategy.

Policy 32 (Historic Environment) together with policy 33 (Biodiversity and Geodiversity) by seeking to conserve and enhance heritage and habitats in the region also provide important landscape benefits; following revocation protection of these assets will also largely be covered by national legislation.

Policy 31 identifies the need to incorporate the findings of Shoreline Management Plans and Catchment Flood Management Plans. The revocation of the policy will not remove the requirement for Local Authorities to take these plans into account. Local planning authorities should apply Integrated Coastal Zone Management across local authority and land/sea boundaries. They should reduce risk from coastal change by avoiding inappropriate development in vulnerable areas or adding to the impacts of physical changes to the coast. They should identify Coastal Change Management Areas where any area is likely to be affected by physical changes to the coast and be clear as to what development will be appropriate in such areas and in what circumstances. In addition, paragraph 114 states that local planning authorities should maintain the character of the undeveloped coast, protecting and enhancing its distinctive landscapes, particularly in areas defined as Heritage Coast, and seeks improvement to public access to and enjoyment of the coast. Paragraph 156 requires local planning authorities to set out the strategic priorities for the area in the local plan, including strategic policies to deliver the provision of infrastructure for flood risk and coastal change management.

The NPPF places significant emphasis upon design quality and identifies the need for local design review arrangements to provide assessment and support to ensure high standards of design. Furthermore, paragraph 126 of the NPPF identifies the need to take into account the desirability of new development making a positive contribution to local character and distinctiveness.

The Government is encouraging existing partnerships to join-up and integrate action to achieve multiple benefits – for example, on water and air quality, biodiversity, climate change adaptation and provision of green infrastructure all of which contribute to the landscape character. The White Paper on the Natural Environment sets out how the Government will help such groups to come together to become Local Nature Partnerships. Local Nature Partnerships will enable local authorities motivated by the "duty to co-operate" to work with a range of partners including land managers, businesses and conservation organisations to identify opportunities to protect and improving nature at local level. Local Nature Partnerships will link action to protect and improve the natural environment with wider national and local social and economic priorities. They are encouraged to make links with Local Enterprise Partnerships and Health and Wellbeing Boards and create new Nature Improvement Areas where there are significant opportunities to enhance and reconnect nature. It will also be necessary

to achieve legally binding targets for air and water quality and these will remain significant contributory factors in improving landscape character. Therefore in the long term it is anticipated that the same significant positive effects in relation to the landscape.

Despite these safeguards, it is far from certain that the overall effect of revocation on landscape would be in the short to medium term as in the absence of the RSS, local plans may not provide as strong a policy direction for non-designated sites. It is also unclear whether existing and future land allocations will affect areas of landscape value particularly if increased housing delivery over and above the current allocation is required.

10.7.3 Effects of Partial Revocation

The effects of partial revocation concern either

- Revoking all the quantified and spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and retaining for a transitional period the non spatial policies, ambitions and priorities;
- Retaining for a transitional period all the spatially specific policies (for instance where a quantum of development, land for development or amounts of minerals to be extracted or waste disposal is allocated to a particular location in the region) and revoking the non spatial policies, ambitions and priorities; or
- Retaining for a transitional period policies, ambitions and/or priorities, the revocation of which may lead to likely significant negative environmental effects.

The likely significant effects on landscape associated with the revocation of the quantitative policies are summarised in **Table 10.3** for policies 29 (Delivering and Managing Housing Supply) and 32 (Historic Environment).

The assessment has found that there are no policies in the North East of England Plan where the act of revocation will cause a significant negative effect whilst retaining the same policy will maintain a significant environmental benefit however the impacts of the revocation of policy 29 are considered to be uncertain.

10.8 Mitigation Measures

Given that all likely significant effects identified would be positive no mitigation measures are proposed for this topic. However, it is recognised that local authorities will need to co-operate with their Local Nature Partnerships and neighbouring local

authorities in line with the “duty of co-operate” to ensure benefits are delivered in the long term. They should also have due regard to non-statutory green infrastructure strategies and management plans.

10.9 Proposals for Monitoring

Significant and uncertain effects in respect of landscape relate to:

- Green infrastructure delivery and accessibility.