

# Climate Change



## A Local Development Framework Issues and Options Consultation Paper

November 2009





# Foreword

What will your town or village be like by 2026? It's not an easy question, but it is one that we need to try and answer with your help. Richmondshire's Local Development framework (LDF) will help shape future development across all parts of the District outside of the National Park. This includes Richmond, Leyburn, Catterick Garrison and the villages to the north and south. The National Park Authority is responsible for development in the rest of Richmondshire.

The LDF will be a set of policy documents that shape an overall direction for development in these places. These policies will help determine future planning applications for, amongst other things, housing, economic or green energy developments, once the LDF is adopted. Before we can write these policies we must understand local conditions. We need to find out about where people live and work and how they travel. We also need to recognise the sensitivity of the local environment and our local heritage to development.

This consultation report is one in a series of ten:

1. Achieving Sustainable Communities - Settlement Hierarchy
2. Achieving Sustainable Communities in the Central Area
3. Achieving Sustainable Communities in Lower Wensleydale
4. Achieving Sustainable Communities in the A66 North Richmondshire Area.

5. Scale and Distribution of Development
6. Economy
7. Environmental Assets
8. Housing
9. Infrastructure
10. Climate Change

Each report asks a series of questions about issues we need to debate. For example, how should we treat small villages in terms of development? Or how should Richmond and Catterick Garrison grow? You can make detailed responses to any of the questions using the on-line form on our website or by writing to us using the contacts below. Or simply get in touch with us to talk about the LDF.

Please ask if you would like this document in a different format or language.

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# 1. Introduction

- 1.1 There is general consensus that we need to take action to tackle climate change in all aspects of our lives. The Local Development Framework for that part of Richmondshire outside the National Park is important in this because it sets out how local communities could develop and how the fabric of those communities could change.
- 1.2 There are two ways in which we can respond to climate change. The first is to reduce its causes, known as mitigation. The second is to respond to climate changes, known as adaptation.

## Climate Change Mitigation

- 1.3 Mitigation is action to reduce the production of the greenhouse gases that cause global warming. In general this means reducing energy consumption and switching to cleaner supplies. At the local level this can be supported through, for example:
  - Renewable energy production, both large scale and within individual properties
  - Reducing the need to travel through sustainable communities
  - Building design standards to ensure efficient use of energy and other resources used in construction and occupation.

## Climate Change Adaptation

- 1.4 Adaptation is action taken not only to minimise the adverse impacts of climate change, but also to take advantage of any beneficial change. This might affect us in Richmondshire in the following ways:
  - Flood risk brought about by changes in rainfall patterns
  - Spread of disease from warmer countries
  - Changes in water, land and air quality
  - Changed growing and tourist seasons
  - Habitat change
  - Infrastructure integrity, for example impacting on water supply and drainage or on the operation of alternative modes of transport.
- 1.5 These are general headings which will be looked at in more detail throughout this consultation paper. This will help us understand how we can respond in Richmondshire and the impact of these measures on our local built or natural landscapes.



## 2. Key Climate Change features of the LDF Area

2.1 The Yorkshire and Humber Climate Change Adaptation Study (date) describes the likely climate change impacts in Richmondshire up to 2050. In terms of the climate the following changes are expected:

- An increase in the annual maximum temperature by 3C and an increase in the annual minimum temperature by 2C
- Annual average hot days will increase slightly
- Marginal increase in winter wind speeds
- The largest increase in winter average rainfall in the region.

2.2 These translate into the following expected impacts:

- Increased flood risk from rivers, drainage and surface run-off. Peak river flows are expected to increase by 20% by 2050
- A small risk of minewater breakout into the headwaters of the river Swale
- Increased risks from pests and diseases and spread of threats from warmer areas
- Increased risk of fires in upland areas due to drier summer conditions
- Increased demands on infrastructure - roads, drains, sewers power and water supplies - to cope with changes in demands
- Biodiversity affected by drier summers and wetter winters
- Increased growing and tourist seasons

### Settlements in a rural area

2.3 Distance is a fundamental issue in a rural context and we need to recognise that our local communities are distributed over a wide geographical area. When we look at our relationship to major centres like Darlington in the Tees Valley City region we can expect to travel routinely for work and access to services, including health and retail.

2.4 The other consultation papers create the context for our discussion of climate change issues. The papers on Sustainable Communities and the sub areas of Richmondshire introduced the idea of a settlement hierarchy, and have looked at how this might help us look towards sustainable future development across the plan area, which should help us to respond to the effects of climate change.

2.5 The paper on local environmental assets helps us understand the sensitivity, not only of the local environment to climate change, but also some of the options for mitigating its effects.

2.6 The paper on infrastructure issues looks at how communities connect up with each other through transport, utilities and community resources like schools and health facilities.



## Energy Consumption and Renewable Energy

2.7 Renewable energy is generated from natural resources that are replenished. This includes sunlight, wind, movement of water, geothermal heat and biomass, which is directly derived from plant sources. Renewable energy sources are suited not only to large scale applications which link to the National Grid, but also smaller off-grid installations. These smaller decentralised installations could provide new energy sources and opportunities in remoter rural areas like Richmondshire, where feasible.

2.8 There have been a number of successful renewable energy schemes in the LDF area. One example is the use of a biomass boiler in the conversion of the Aske business units. This uses wood sourced from maintenance of the woodlands on the Aske estate as its fuel supply. Other examples have been built or proposed for a number of commercial sites including Tan Hill Inn.

2.9 The table below sets out the total consumption in Richmondshire in 2005 and the amount that was derived from renewable sources at that time. The small proportion from renewable sources is similar to other rural areas in the Yorkshire and Humber region.

Consumer	Amount (GWhs)
Industrial and Commercial	454.9
Domestic	426.6
Transport	997.7
Total	1,879.3
Renewables	23.0

Source : Dept Energy and Climate Change

2.10 Total domestic energy consumption in Richmondshire had fallen to 337 GWh in 2007, reflecting the general increase in domestic energy efficiency, which gives an average consumption of 1.7MWhs per household in the District.

2.11 The table below converts energy use into the carbon dioxide emissions from the whole of Richmondshire. The figures are in kilotonnes of carbon dioxide per year. These are fairly typical of the rural areas of the region, reflecting higher transport demands.

	2005	2006	2007
Industry and Commercial	132	131	130
Domestic	127	126	123
Road Transport	274	269	269
Agriculture	5	1	2
Total	538	527	524
Population ('000s, mid-year estimate)	50.5	51.0	51.4
Per Capita Emissions (t)	10.7	10.3	10.2

Source : DECC Local and Regional CO<sub>2</sub> Emissions Estimates for 2005-2007



2.12 The report Planning for Renewable Energy Targets in Yorkshire and Humber (Yorkshire Forward 2004) identified the following renewable energy potentials for Richmondshire.

	Wind	Biomass Wood	Biomass Co-firing	Hydro	Photo Voltaic	Total
2010	17	0.0	0.0	0.78	0.12	17.9
2021	34	0.7	2.1	0.78	1.5	39.1

The report also identifies the difficult decisions we face as a planning authority when considering the installation of these new technologies in the Richmondshire environment. All of the plan area is judged to be at least of medium sensitivity, rising to high sensitivity in the upland areas bordering the Yorkshire Dales National Park.

### Quality of existing housing stock

2.13 The quality of existing housing stock impacts on the ability of people to afford warmth as well as affecting climate change. The Council's 2006 Private Sector House Conditions Survey illustrates the variety in the quality of housing stock. This

showed that on average the energy efficiency of local housing was above the national average in all areas, but the different styles of housing affected the costs of running them. Housing in Richmond, for example, tends to be older and larger and therefore more expensive to run.

### Flood risk

2.14 The draft North West Yorkshire Level 1 Strategic Flood Risk Assessment (Harrogate BC, Richmondshire DC and Craven DC, October 2009) identifies the general areas and scale of flood risk in the area covered by the Local Development Framework.

River and tributaries	Nature of flood risk
Swale	Downstream of Richmond, particularly around Catterick Village. Skeeby Beck presents problems for Gilling West.  Flood warning areas are in place at Richmond, Gilling West, Brompton on Swale, Catterick Bridge, Catterick Village
Tees	Properties in Croft on Tees at risk from the Tees and Clow Beck
Ure	Low risks because the river runs through rural areas and wide natural floodplains





## 3. Influences

### National Policy

3.1 The Climate Change Act 2008 sets the long term legal framework which commits this country to reducing carbon dioxide emissions by 34% of 1990 levels by 2020 and 80% by 2050. Current national action is contained in:

- Securing the Future: The UK Government Sustainable Development Strategy 2005
- Climate Change: The UK Programme 2006

3.2 In the context of our Local Development Framework this means that future development should promote effective and efficient use of resources in the local area through enhanced building design, sustainable patterns of development, and greater self sufficiency in energy supplies. National guidance is set out in:

- Planning and Energy Act 2008
- Planning Policy Statement 1: Delivering Sustainable Development 2005
- Planning and Climate Change Supplement to Planning Policy Statement 1 2007
- Planning Policy Statement 22 : Renewable Energy 2004
- Planning Policy Statement 25 : Development and Flood Risk 2006

3.3 The Planning and Energy Act now underpins the Planning Policy Statements by placing a duty on local planning authorities to take action on climate change. This requires them to include policies in their development plan documents designed to secure development and use of land in their area which contributes to mitigating and adapting to climate change.

3.4 The Government is committed to ensuring that the climate change impact of all new development is reduced and that by 2016 it should be carbon neutral. The way that this will be achieved is set out in the following documents:

- Building a Greener Future : Towards Zero Carbon Development 2006
- Code for Sustainable Homes
- Building Research Establishment Environmental Assessment Method (BREEAM)

### Regional Spatial Strategy

3.5 The Yorkshire and Humber Regional Spatial Strategy influences the impact of development on climate change in three ways, by expecting:

- a sustainable pattern of future development
- that flood risk is proactively managed in the landscape and development avoids higher risk areas (Policy ENV 1)
- that greenhouse gas emissions are reduced and renewable energy sources are maximised (Policy ENV 5) through:
  - Energy efficient design and use of combined heat and power (CHP) (A)
  - Delivering large grid-connected renewable energy installations according to regional targets (B.1.)
  - Securing use of decentralised and renewable or low carbon energy in new developments (B.3.)



- 3.6 Policy ENV5 Energy also sets specific targets to maximise renewable energy capacity by:
- delivering at least 209MW by 2010 and 428MW by 2021 for installed grid-connected renewable energy capacity in North Yorkshire
  - requiring new developments of more than 10 dwellings or 1000m<sup>2</sup> of non-residential floorspace to 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.
- 3.7 The target in the second bullet is a minimum and Local Development Frameworks are expected to set more ambitious targets if appropriate to local conditions.
- 3.8 Decentralised energy sources are not connected to the national grid, and supply energy directly to the buildings they are installed in or to its immediate neighbours, for example through a district heating scheme. Low carbon sources are technologies with low emissions that are not derived from fossil sources. These may include energy from waste plants and anaerobic digesters.

### North Yorkshire Sustainable Community Strategy

- 3.9 The Environment theme of the North Yorkshire Sustainable Community Strategy seeks to:
- Contribute to combating global warming through reduced greenhouse gas emissions and safeguarding and adding to carbon sinks

- Conserve and enhance bio-diversity, natural habitats and the natural and built environments
- Develop solutions to reduce the risk and mitigate against the impacts of flooding and use non-physical flood defence systems as opportunities to enhance habitats and bio-diversity
- Support and encourage greater involvement of commercial interests in environmental and conservation issues.

### Richmondshire Sustainable Community Strategy

- 3.10 The Green Living theme of the Sustainable Communities Strategy reflects the high landscape and environmental value of the Richmondshire. Underpinning its vision for Richmondshire it says:

We will work to ensure that our actions:

- Balance and integrate the social, economic and environmental components of our communities
- Meet the needs of today without compromising the ability of future generations to meet theirs
- Respect the needs of other communities, both within the region and further afield to make their communities sustainable.

### Local Transport Plan (LTP)

- 3.11 The Local Transport Plan 2006-2011 seeks to make North Yorkshire a better place by:
- Protecting and enhancing the environment
  - Building sustainable communities
  - Reducing the need and demand for travel



3.12 The LTP recognises that transport is a major consumer of energy, but in a rural area it is of great importance to ensure access to services and facilities that are distributed over a wider area. It indicates that the impact of transport can be mitigated in several ways:

- The pattern of future development can help to minimise the need to travel
- Wider transport options can reduce the demand for private cars, through public transport networks and safer walking and cycling routes.
- Better integration of transport modes so, for example, tourists are not wholly dependent on private transport when visiting this area.



## 4. Issues

4.1 Tackling climate change sets a number of challenges which we need to explore to help build the right development policies for the LDF area. Fundamentally the LDF is about sustainable growth, but how can this be achieved by ensuring that development supporting this growth is feasible and mitigates climate change factors and is resilient to the expected impacts of climate change?

### Mitigation

4.2 There are several ways in which the LDF can help mitigate the effects of climate change from both new development and redevelopment of existing buildings. These are looked at below and include:

- Sustainable patterns of development
- Standards for new buildings
- Standards for onsite renewable energy
- Emissions targets for refurbished buildings
- Local capacity for renewable and low carbon technologies
- Evaluating the impact on the local area

### Sustainable patterns of development

4.3 The consultation paper on the Scale and Distribution of development looks at the options for where development should be located in the Richmondshire LDF area. It seeks views on the how the potential development of 3,774 houses for general needs and a further 2,250 for military related development should go. Options are considered in terms of the Settlement hierarchy and the Central, Lower Wensleydale and A66 North Richmondshire sub areas.

4.4 A key principle, if climate change mitigation is to be achieved, is to reduce the distance between where people live, their place of work and the services they consume. This would tend to support the options which locate development (and the provision of infrastructure) more in proportion to the proposed sustainable settlement hierarchy. In particular these options would concentrate development in the upper tiers of the hierarchy around Richmond, the Garrison area, Leyburn and the proposed Service Settlements. This would however require more land to be found in these locations, which may have unacceptable environmental consequences. This might also reduce the potential to support the viability of smaller settlements by not allowing their further development. It is however arguable whether the level of development needed to increase the sustainability of the smaller settlements is feasible. These issues are developed, and options considered, in the Scale and Distribution of Development and the Sustainable Settlement Hierarchy papers.

### Standards for new buildings

4.5 The most sustainable way to reduce carbon emissions from development is to first reduce the energy consumption of buildings through changes to their fabric and then to improve the energy supply through the provision of renewable and low-carbon energy supplies. Two significant building standards have been developed to facilitate this progress:

- Code for Sustainable Homes (domestic)
- BREEAM (BRE Environmental Assessment Method) (non-domestic)



4.6 The Code for Sustainable Homes (CSH) became operational in England in April 2007 and a Code rating for new build homes became mandatory from 1<sup>st</sup> May 2008. The Code provides guidance on the construction of homes with high sustainability performance. It gives mandatory minimum levels of performance across seven criteria:

- Energy efficiency/CO<sub>2</sub>
- Water efficiency

- Surface water management
- Site waste management
- Household waste management
- Use of materials
- Lifetime homes (applies to Code Level 6 only)

The scoring system is broken down into 6 levels. The six levels for energy performance are:

CSH Level	Minimum % reduction in dwelling CO <sub>2</sub> emission rate	Achieved by	Required in Building Regs by
1	10%	Energy efficiency improvements	
2	18%		
3	25%		
4	44%	On site renewables or directly connected heat	2010
5	100%		2013
6	Zero carbon home	Allowable solutions	2016

4.7 BREEAM (BRE Environmental Assessment Method) is an environmental assessment method for buildings. The government expects that all new non-domestic buildings should be zero carbon by 2019.

4.8 The increased rigour of building design standards that will be enforced in the next few years means that we have little to talk about in terms of what standards to apply. The ratchetting up of standards to 2016 gives an opportunity for developers to assimilate new skills, materials and technologies. It is probably unlikely that this process could be accelerated, especially in an area such as this where house building rates are relatively lower.

### Issue CC1: Building Standards for new buildings

#### CC1a

Higher building standards will come into force by 2016. Is it possible to make faster progress than the Government's minimum targets in this area?



## Standards for onsite renewable energy

- 4.9 Policy ENV 5 of the Regional Spatial Strategy already expects new developments of more than 10 dwellings or 1000m<sup>2</sup> of non-residential floorspace to 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. This requirement is in addition to compliance with prevailing Building Standards.
- 4.10 Policy ENV 5 also recognises that the use of Combined Heat and Power systems (CHP) and district heating solutions should be promoted in larger developments with energy demands over 2 MW. These are fairly uncommon in Richmondshire and the most likely source of development of this scale could come from the military base at Catterick Garrison. The likely additional civilian development in this area offers the scope for the type of energy infrastructure expected by Policy ENV5.

### Issue CC2: On site or decentralised renewable and low carbon energy sources

#### CC2a

Do local circumstances make feasible standards higher than those in RSS Policy ENV 5 for the provision of on site renewables and low carbon sources in major developments as specified in para 4.9?

#### CC2b

How can the use of Combined Heat and Power systems and District heating systems be promoted and achieved in large developments with energy demands in excess of 2MW?

#### CC2c

What conditions could impede these policies?

## Emissions targets for refurbished buildings

- 4.11 Most of the buildings that will be in use over the period of the Local Development Framework are already standing and they will have been built to varying energy standards. Such a variety makes it difficult to envisage what kind of policies could support the improvement of their environmental performance.
- 4.12 The Energy Savings Trust recommends that local authorities set improvement targets for buildings that are subject to renovation, refurbishment or extension. With appropriate guidance this could be built into the planning application process so that best practice and modern technologies could be incorporated into a proposal where feasible and with realistic targets.



### Issue CC3: Emissions targets for existing dwellings

#### CC3a

Should achievable emissions targets be required for existing buildings when they are refurbished or extended?

#### CC3b

What sort of targets should be set?

#### CC3c

What conditions could impede these policies?

### Local capacity for renewable and low carbon technologies

- 4.13 So far we have considered how the impact of buildings and development on climate change can be reduced or eliminated. These issues require some combination of improved efficiency of building fabric and systems or the provision of alternative renewable and low carbon sources of energy. We now move on to thinking about the area's potential for accommodating renewable and low carbon technologies.
- 4.14 To do this we need to look at the potential to develop each of the main sources of renewable energy locally. This includes capacity for sunlight, wind and water generated energy, and biomass energy from plant products like wood chips or organic waste streams. It also includes low carbon sources as well including energy from waste. Assessing the acceptability of the local impact of such proposals is considered under the next heading.

### Evaluating the impact on the local area

- 4.15 It is likely that many of the policy options we have looked at so far will change the appearance of our settlements and have effects on the local environment. It is important that we think about how we ensure that the impact of these measures respects and safeguards our environmental and heritage assets.
- 4.16 The LDF area of Richmondshire contains international, national and locally designated sites and buildings that are recognised for their high quality landscape, biodiversity, architectural and historical features. These designations are protected through legislation and guidance and/or local development plan policies and include:
- Amenity Open Space
  - Biodiversity Action Plan (BAP) habitats
  - Conservation Areas
  - Historic Parks and Gardens
  - Listed Buildings
  - Local Biodiversity Action Plan species (BAP)
  - Local Nature Reserves (LNRs)
  - Nidderdale Area of Outstanding Natural Beauty (AONB) (part)
  - North Pennines AONB (part)
  - Special Areas of Conservation (SACs) identified through the EC Habitats Directive
  - Scheduled Ancient Monuments (SAMs)
  - Sites of Importance for Nature Conservation (SINCs)
  - Sites of Special Scientific Interest (SSSIs)
  - Special Protection Areas (SPAs) identified through the EC Birds Directive





4.17 Planning guidance on renewable energy sources (PPS 22) recognises the need to carefully consider the location and impacts of energy sources, and requires consideration of factors such as impact on nationally and internationally designated buildings, and impact on local communities for example from traffic. But we cannot be restrictive in our approach and cannot use local landscape designations to unnecessarily impede their progress other than in exceptional circumstances.

4.18 The Renewable Energy Study of North Yorkshire (October 2005) assesses landscape sensitivity areas and the potential impact of renewable energy proposals on landscape character rather than identifying specific locations for renewable energy projects. This report is useful in helping us to take account of local landscape and consider proposals for stand alone renewable energy projects on a case by case basis in tune with national guidance.

4.19 We also need to consider the physical impact of various technologies on local communities. This means assessing for example the:

- Visual impact of proposals and options for different configurations
- Noise
- Odour
- Traffic movements

The impact of wind turbines on defence, power and aviation installations will need to be assessed by developers prior to submitting planning applications.

### Issue CC4: Criteria for assessing impact of renewable energy installations

#### CC4a

What considerations should be taken into account in assessing the impact of renewable energy installations?

#### CC4b

What factors are particularly important in the LDF plan area?

### Adaptation

4.20 Preparing for climate change requires us to ask how vulnerable we are to the expected changes and how resilient we can make ourselves - in other words, how adaptation to climate change can be achieved. We need to prepare ourselves for:

- Water shortages and increased drought risk
- Falling water quality due to reduced water flows in rivers
- Damage to the built environment and infrastructure through extreme weather
- Increased water consumption in hot periods
- Disruption to transport
- Soil moisture changes leading to habitat stresses
- Increased flood risk.





- 4.21 The draft North West Yorkshire Strategic Flood Risk Assessment (2009) helps us to look at where development should go to reduce vulnerability from the changes in flood risk expected through climate change. As we have seen in para 2.14 there are a number of areas where we need to understand the likely risks to development from flooding. The main area affected covers Catterick Village to Catterick Bridge and nearby tributaries of the River Swale running through the Garrison area. These are being updated at the moment and we expect to publish the results on the LDF web pages before the end of November.
- 4.22 Guidance in PPS25 requires us to examine the risks posed by flooding and avoid development in areas at greatest risk. In looking to future climate change impacts, we should consider the likelihood of increasing flood risk in certain areas. To ensure that our policies remain up to date requires regular review of the baseline flood risk assessments rather than relying upon the current one for several years.

### Issue CC5: Flood risk

#### CC5a

In what ways should flood risk be managed in the LDF area to anticipate and respond to climate change?



# Notes





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