


# YORKSHIRE AND HUMBER CLIMATE CHANGE ADAPTATION STUDY

## LOCAL AREA REPORT KIRKLEES METROPOLITAN BOROUGH

<p><b>Location</b></p>	
<p><b>Description of District</b></p>	<p>Kirklees has a mix of urban and rural characters. Urban areas dominate the borough around Dewsbury and Huddersfield, whilst the area becomes more rural towards the Peak District National Park in the west.</p>
<p><b>Future Climate Projections</b></p>	<p>The results of the modelling carried out for the Yorkshire and Humber Regional Climate Change Adaptation Study suggest that the following changes are likely by 2050:</p> <ul style="list-style-type: none"> <li>• The annual maximum temperature reached (a measure of extreme hot days) is expected to rise by 3°C;</li> <li>• Winter rainfall will increase by 14.6% (9mm);</li> <li>• A reduction in average summer wind speeds of up to 2.5%.</li> </ul> <p>These figures relate to the nearest modelled cell, which was Leeds.</p>

## Key Impacts and Adaptation Actions

Although principally a regional / sub-regional study, there are a range of issues that are of particular relevance to the Kirklees Borough. These are set out below, using the same 'sector' headings as the main report. These points are not the only issues for consideration, however, as sub-regional and regional reports, as well as the thematic or sectoral areas of the website, do cover other issues relevant to this local authority area.

### Flooding

#### *Key Impacts*

- Greater flood risk (fluvial, sewer/drainage, and from direct surface runoff) as rainfall intensity is likely to mean faster flood flows off the Pennines; and
- Traffic impacts on main routes.

#### *Key Adaptations*

- Protect critical infrastructure and emergency services;
- Develop flood management strategies to protect local businesses and properties, including considering a wide range of flood reduction techniques across urban areas to reduce the wider impacts of surface water flooding.

### Groundwater and Minewater

#### *Key Impacts*

- Low risk of increased water outbreak from abandoned coal mines in the south and east of the district; and
- Risk of increased pumping and treatment burden for pumped coal mine water at Caphouse.

#### *Key Adaptations*

- Continued Coal Authority pumping operations at Caphouse and Wooley with planning for increased pumping capacity as required, and remedial schemes at the most polluting sites.

### Business and Economy

#### *Key Impacts*

- Digital industries will be particularly vulnerable to effects on telecommunications infrastructure, and to the effects of increased flooding on data storage and electrical services;

- Impacts on the built environment, in particular business premises, will have a significant effect on employee and customer wellbeing. Increased summer temperatures are likely to have a significant effect on the attractiveness of urban areas due to impacts on customer comfort;
- The distribution and logistics sector is susceptible to flooding and heat impacts at warehouse and distribution park sites. It is also heavily dependent on the wider transport network; and
- The financial services sector is expected to experience greater surges in consumer demand, due to an increase in weather-related damage, but will also experience building-related impacts itself, in common with many other industries.

### *Key Adaptations*

- Raise awareness of the impacts of climate change among the digital industries and those business sectors heavily reliant on data transmission and storage. In tandem, ensure that networks and transmission infrastructure are resilient;
- Climate adaptation should be built into all new developments to ensure working and other conditions are maintained at an agreeable standard into the future. Increased use of shade trees in urban areas, including redevelopment or renovation schemes will limit the heat island effect through shading and evaporative cooling. Sustainable drainage and other measures to limit urban flooding will also limit climate impacts; and
- Climate change should be built into future resource planning for many industries, but in particular responsive service industries such as insurance and financial services.

## **Public and Voluntary Services**

### *Key Impacts*

- Most social housing stock is pre-1980s, and will be vulnerable to changes in structural (e.g. subsidence) and environmental forces (e.g. increased intensity of rainfall);
- While fuel poverty may decline during winter months, increased summer temperatures will make conditions less comfortable, particularly for the elderly and vulnerable, increasing pressure on social and care services;
- It is likely that there will be a requirement for increased path and verge maintenance and grass cutting due to the longer growing seasons and increased growth of plants and weeds. This will impact the budget for parkland and vegetation management. It could also lead to increased pesticide use, with potential impacts on pollution.

### *Key adaptations*

- There are significant opportunities for refurbishment of housing stock in relation to insulation and energy efficiency, but in order to better integrate climate change adaptation into communities there should be greater education about measures that can be taken. This could be implemented using voluntary organisations and through local and regional grants;
- Activity could be prioritised using the index of multiple deprivation to identify high priority areas. Community scale NI 188 assessments would help identify further priority actions.
- Planning of multifunctional accessible greenspace, and associated green infrastructure on neighbourhood level, should take full account of future impacts of climate change to influence species choice, management regimes, and future use.

## **Infrastructure and Utilities**

### *Key Impacts*

- Occasional declines in water volume in reservoirs;
- Surface melt of rural road surfaces and associated knock-on effects;
- Increased number of traffic accidents delays on major highways;
- Increased frequency of flooding from urban drainage and sewer systems in Huddersfield, especially in winter;
- Increased tourist and recreational use of Peak District National Park;
- Increased blockage of drains, culverts and gullies;
- Increased slippages in road or rail embankments or cuttings; and
- Mechanical operations within the water distribution grid could be affected by climate-related disruption to power supplies.

### *Key Adaptations*

- Balance water supply from other local sources or from the Yorkshire Grid at times of individual reservoir deficits;
- Allow additional resources for alternative road surfacing materials in carriageway maintenance programs to ensure higher melt resilience;
- Weather and travel warnings issued to users of principal road networks;
- Capital programs should consider improved sewer and drainage design capacity;
- Plan for increased visitor numbers and provide additional public transport;
- Re-evaluate resources and approaches for inspection and clearance of drain, culvert and gulley blockages;
- Increased resources for inspection and maintenance of embankments and slopes; and

- Increased awareness of inter-dependencies between critical infrastructures.

## Biodiversity

### *Key Impacts*

- It is likely that a net reduction in annual rainfall, combined with higher summer temperatures, will lead to shrinkage of blanket bog on flat upland moorland;
- Woodland is likely to face increasing pressure.

### *Key Adaptations*

- Wherever possible allow natural processes to continue, and therefore adaptation to change to occur naturally;
- Facilitate the overall expansion in habitat types currently suffering from isolation or fragmentation, to improve habitat permeability. The overall connectivity of existing and newly created habitats needs to be enhanced to enable species to migrate and disperse easily;
- Maximise the potential for different habitats and species to help sustain each other, including in woodlands. New habitats may take on functional roles such as buffering natural hazards such as wind, flooding and drought; and

## Health and Welfare

### *Key Impacts*

- Rising levels of respiratory complaints due to longer and more intense air pollution episodes as temperatures rise; and
- Heat stress impacting large numbers of employees and students across the urban area if buildings are unable to maintain a comfortable temperature in summer.

### *Key Adaptations*

- Raising awareness, educating and building community resilience to climate change and its likely impacts; and
- Revitalising urban design to minimise heat island effect as much as possible.