YORKSHIRE AND HUMBER CLIMATE CHANGE ADAPTATION STUDY

LOCAL AREA REPORT

CRAVEN DISTRICT

Location	
Description of District	Craven is a rural district in North Yorkshire. Approximately two thirds of the district is designated within the Yorkshire Dales National Park.
Future Climate Projections	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: • Summer average temperatures are to increase by 2.2˚C; • Extreme cold temperatures over the four seasons are expected to rise by an average of 1.7˚C; and • Extreme rainfall events are to increase in magnitude across the district. These figures relate to the nearest modelled cell, which was Askrigg (Pennines / Yorkshire Dales).

Key Impacts and Adaptation Actions

Although principally a regional / sub-regional study, there are a range of issues that are of particular relevance to Craven District. These are set out below, using the same 'sector' headings as the main report. These points are not the only issues for consideration, however, and should not be read in isolation. 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) due to faster flood flows off the Yorkshire Dales;
- Flooding affecting access along key transport routes between rural towns; and
- Caravan parks and camping sites in popular tourist rural areas will be highly vulnerable.

Key Adaptations

- Improve monitoring and flood warning for upstream areas and the limited response time available from flood warnings;
- Ensure flood management strategies are developed in line with rural nature of the area;
- Produce multi-agency response plans to co-ordinate responses during extreme events and ensure clear access routes are kept available; and
- Ensure appropriate planning regulation is undertaken for caravan and camping parks with increased tourism as sites are highly vulnerable.

Groundwater and Minewater

Key Impacts

- There is an unquantified risk of minewater outbreak from former metal mines.

Key Adaptations

- Risk is low due to areas being sparsely populated. Collation of existing water quality / hydrogeological data would assist in determining the exact nature and extent of outbreak risk.

Business and Economy

Key Impacts

- Increases in pest and disease spread, together with the potential for more 'exotic' species and increased vulnerability of upland livestock are

likely to occur; and
- Increased tourist pressure in rural areas will enhance erosion of paths and the impacts on natural habitats, with potential longer-term effects on the attractiveness of those areas to visitors.

Key Adaptations
- Promote and circulate research into the likely impacts of climate change on, in particular, upland livestock management. Encourage early adoption of adaptive management strategies, including pest management, upland water storage and shelter provision; and
- Long-term changes in the tourism industry should be built into visitor management strategies. The future needs and demands of increased numbers of tourists should be built into infrastructure and other regional plans to ensure development of the industry is sustainable and does not cause significant damage to natural environments and communities.

Public and Voluntary Services

Key Impacts
- One third of Craven District consists of the Yorkshire Dales National Park, and increased summer temperatures and drier soil conditions could result in increases in primary and secondary fires; and
- Rural Fire and Rescue Services rely heavily on retained Firefighters and elevated temperatures during fire-fighting will also put increased strain on the health of individual staff.

Key Adaptations
- Review the resourcing levels and locations available to address upland fires; and
- Emergency planning will need well developed communication links with the Armed Forces Units to prepare for supplementary resourcing when required.

Infrastructure and Utilities

Key Impacts
- Surface melt of rural road surfaces and associated knock-on effects, such as disruption to travel and welfare provision;
- Increased demand on water resources;
- Occasional deficits in volumes in individual surface water reservoirs;
- Increased tourist and recreational use of Yorkshire Dales National Park, including increased pressure on rural road networks;
- Increased blockage of drains, culverts and gullies; and
- Mechanical operations within the water distribution grid could be affected by climate-related disruption to power supplies.

Key Adaptations

- Allow additional resources for use of alternative road surfacing materials in carriageway maintenance to ensure higher melt resistance;
- Balance water supply from other local sources or from the Yorkshire Grid at times of individual reservoir deficits. Farm-holdings should consider local winter water storage reservoirs to assist with irrigation or livestock watering;
- 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; and
- Raise awareness of inter-dependencies between critical infrastructures, leading to improved resilience planning.

Biodiversity

Key Impacts

- Increased soil moisture stress as a result of increased temperatures, with heathland identified as a particularly vulnerable habitat;
- Heavy rainfall could enhance localised erosion risk to peat bogs, particularly when combined with other pressures such as recreational disturbance and extraction;
- Increasing temperature could leach more nutrients in poor free draining soils associated with grassland and favour deep rooted more drought resistant species; and
- Increased temperatures and soil nitrogen are likely to encourage the invasion of heathland into existing areas of acid grassland. Lowland wet meadow, already under threat from drainage, is likely to deteriorate further due to drought and enhanced abstraction.

Key Adaptations

- Wherever possible allow natural processes to continue, and therefore adaptation to change to occur naturally;
- Where monitoring identifies a need respond to increasing vistor pressure with appropriate management and education;
- An 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 as easily as possible; and
- Maximise the potential for different habitats and species to help sustain each other. New habitats may take on functional roles such as buffering natural hazards such as wind, flooding and drought.

Health and Welfare

Key Impacts

- Impacts upon mental and physical health due to increasing temperatures, exacerbated by an increasingly elderly population moving into rural areas.

Key Adaptations

- Building, and enhancing existing, networks of support and healthcare services to cater for an increasingly elderly population. As people live longer, increasing numbers of people can be expected to become ill and climate change will exacerbate these; and
- Raising awareness, educating and building community resilience.