YORKSHIRE AND HUMBER CLIMATE CHANGE ADAPTATION STUDY

LOCAL AREA REPORT

HAMBLETON DISTRICT

Location	
Description of District	A rural district within the North Yorkshire region, dominated by the North York Moors.
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: • A 1.4˚C increase in winter average temperature. However the average winter minimum temperature will remain below 0˚C; • Average daily temperatures during summer are projected to rise by 2.2˚C; • Dry spells are expected to become longer, although winter rainfall is set to increase by 15%; and • Annual wind speeds will fall marginally, with the greatest fall during the summer. These figures relate to the nearest modelled cell, which was Rosedale Abbey in the North York Moors.

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 Hambleton 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 rainfall leading to increasing and more frequent flood problems;
- More frequent breaching of historic defences;
- Traffic impacts on main routes affecting local and national businesses, and the co-ordination of emergency services and critical council services; and
- Increased risk to highly vulnerable caravan parks and camping sites.

Key Adaptations

- Use changes in local land management in rural areas to reduce rates of surface runoff;
- Look for more innovative sustainable flood management approaches rather then traditional flood defences to protect infrastructure and services; and
- Ensure appropriate planning regulation is undertaken for caravan and camping parks with increased tourism as sites are often adjacent to watercourses.

Business and Economy

Key Impacts

- Changing temperature and water regimes will affect woodland and forestry, with impacts on both yield and the viability of species. Damage and economic impacts to woodlands through increased storminess is also likely to be a concern;
- Increases in pest and disease spread, together with the potential for more 'exotic' species, and increased vulnerability of crops and livestock with significant effects on the district's agriculture; and
- Increased flooding in urbanised areas, combined with increasing temperatures, will increase the risk of contamination within the food and drink industries. Although standards are very high already there may be an increased demand on audit and quality control, and new processes and equipment may be required.

Key Adaptations

- Encourage ongoing research into climate impacts and adaptation in the forestry sector to ensure climate effects do not have a significant effect on the district's plantations and dependent tourism;
- Promote and circulate research developments into the likely impacts of climate change on, in particular, upland livestock management. Encourage early adoption of adaptive management strategies, including upland water storage and shelter provision, in order to build agricultural resilience to extreme weather conditions;
- There is potential for expansion of woodland areas as part of wider catchment and flood management schemes in order to ameliorate flood risks in downstream areas; and
- There will be opportunities for agricultural and woodland diversification, exploiting the ability to grown new crops and benefit from wider incentives to produce food and non-food.

Public and Voluntary Services

Key Impacts

- Heightened summer temperatures and dryer soil conditions could spark a noticeable increase in secondary, leading to primary fires; and
- With the expected increase in winter and extreme rainfall, flooding events will become increasingly frequent and intense.

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;
- Increased number of traffic delays;
- Increased demand on water resources, particularly from agriculture;
- Increased tourist and recreational use of North York Moors National Park;
- 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 programs to ensure higher melt resistance;
- Weather and travel warnings issued to users of principal roads;
- Farm-holdings to consider local winter water storage reservoirs;
- 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
- Increased awareness of inter-dependencies between critical infrastructures, leading to improved resilience planning.

Biodiversity

Key Impacts

- Low water levels and issues associated with a reduction in dissolved oxygen due to hotter drier conditions in summer. Aquatic species are likely to face increased pressures due to increased annual variability in stream and river flows; and
- An increase in bio-fuel crops is already re-intensifying agricultural production and more land is likely to be brought into production, representing further habitat loss and fragmentation.

Key Adaptations

- Wherever possible allow natural processes to continue, and therefore adaptation to change to occur naturally;
- 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 easily; 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

- Effects upon mental and physical health due to increasing temperatures; and
- Flood risk increased due to heavier rainfall events and greatly increased winter rainfall.

Key Adaptations

- Building, and enhancing existing, networks of support and healthcare services;
- Raising awareness of climate change and its impacts and encouraging flood preparedness work with vulnerable communities.