



A summary of the Local Climate Impacts Profile for Derbyshire

Understanding the local impacts of extreme weather events on public services, places and people, helping us to prepare for future climate change

°Climate east midlands



DERBYSHIRE
County Council
Improving life for local people

Introduction



The Local Climate Impacts Profile (LCLIP) for Derbyshire was undertaken in order to increase our understanding of the county's vulnerability to severe weather events. It helps inform us about how these events affect the County Council's assets, infrastructure and capacity to deliver services. It also informs us about the impacts on other public service providers and local communities.

The LCLIP covers the period 2000-2010 and was carried out in three phases.

- **Phase 1** used interviews with County Council officers and analysis of media reports to understand the impacts of severe weather on the County Council and the county area as a whole.
- **Phase 2** analysed the impacts for each of Derbyshire's eight district councils.
- **Phase 3** looked at the understanding of and approach to severe weather in Local Strategic Partnerships (LSPs) through interviews with key members of staff.

How will the climate change in the East Midlands?

UK Climate Projections 2009 data for the East Midlands suggests that, under a medium emissions scenario, by the 2050s the region may see:

- An increase in summer mean temperature of around 2.5°C, and of winter temperatures of around 2.2°C;
- A 14% increase in winter mean precipitation;
- A 16% decrease in summer mean precipitation.

(Source: UKCP09 - <http://ukclimateprojections.defra.gov.uk>)

The LCLIP and climate change

Climate change is expected to increase the frequency and intensity of some of the extreme weather events which we already experience, such as heat waves, flooding and drought, though it may reduce the occurrence of severe winter cold spells. By helping us to understand our current vulnerability to severe weather, the LCLIP acts as a starting point for understanding our vulnerability to climate change.

It is for this reason that each of the city and county councils in the East Midlands has developed an LCLIP as part of the first stage of the regional 'Well Adapting East Midlands' project on resilience to climate change.

Undertaking the LCLIP allowed all of the authorities to achieve Level 1 of the previous government's performance framework for local authority action on resilience to climate change, National Indicator 188.

The UK government continues to place high importance on local authority action on

resilience to climate change and will publish a national risk assessment in 2012 and National Adaptation Programme in 2013.

As described in the final sections of this document the Derbyshire authorities have used the results of the LCLIP as a basis for further work to increase their preparedness, working collaboratively and sharing information with the other East Midlands authorities through the regional project. The East Midlands Improvement and Efficiency Partnership has resourced this by providing funding for ongoing Project Officer support on adaptation to each of the upper-tier Authorities.

Key Findings

Key Weather Events and Impacts

A search of local media sources for articles about severe weather events between January 2000 and June 2008 with the inclusion of the 2009/2010 snowfall found 275 articles on weather impacts on Derbyshire, 93 of which related to individual weather events. Heavy rainfall and consequent flooding was identified as the weather type impacting most frequently on Derbyshire since January 2000, accounting for 54% of all identified impacts. In addition, two weather events gained significantly more media attention than any others in the research period – the floods of November 2000 and June 2007.

The council services that were most frequently affected by the weather events identified in the LCLIP were (with the most affected first):

- Highways
- Property Services
- Risk and Insurance
- Children and Young Adults
- Emergency Planning
- Countryside Service, Consultancy and Planning, Adult Care

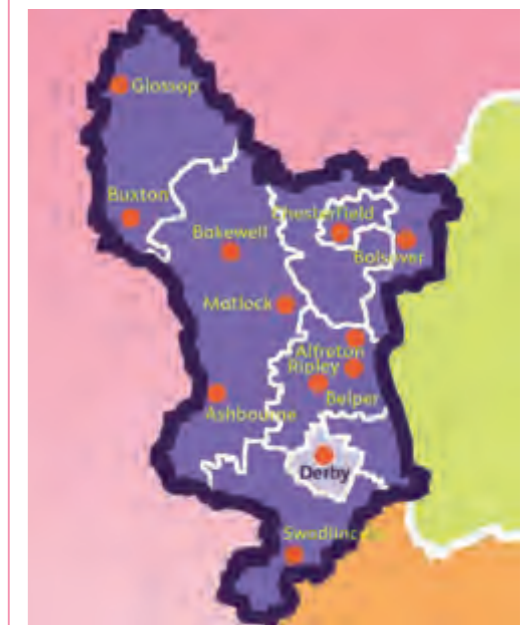
In terms of other partners the most frequently affected were:

- Derbyshire Fire & Rescue Service
- Primary Care Trusts
- Derbyshire Constabulary
- District and town councils
- Utility companies
- Network Rail and train operating companies
- The Environment Agency

The county of Derbyshire runs across the centre of England with the Northern parts of its 225 mile boundary reaching Greater Manchester and Yorkshire, whilst sharing its Southern borders with Leicestershire and Staffordshire. The population of Derbyshire is 763,700 (2010) including thirty towns with populations of 10,000-100,000.

Derbyshire has a varied geography that includes the Peak District National Park and the Pennines in the North and the National Forest in the south. Derbyshire has vast amounts of sparsely populated agricultural and protected land with 74% of the population living within 25% of the area. Derbyshire has a strong socio-economic link with the industrial revolution and much of the built environment and economy is still connected with industry and manufacturing.

The range of topography and land use means that Derbyshire is affected by a wide range of climate related events, with individual authorities facing varying challenges to each locality.



Key Findings

A range of impacts and consequences were experienced by the County Council, LSPs and the District Councils over the period studied:



2007 flood in Ambergate causing disruption to the railway station and road network.
Credit: Richard Buckby.



2007 floods submerged Chesterfield retail park causing damage to the stores and car park.
Credit: Jon Bradbury.



Damaged cars in a Derby car park after a tornado strikes in 2006, ripping apart trees in its path.
Credit: Dexter Mixwitb.

Heavy Rainfall/Flooding

- A Corporate Finance analysis showed that the costs incurred by Derbyshire County Council as a result of the 2007 floods totalled £986,000.
- The A617 leading into and out of Horns Bridge roundabout in Chesterfield flooded during the November 2000 and June 2007 floods. This delayed staff from local authorities distributing sandbags and other resources to people across Chesterfield and the district of North East Derbyshire.
- Staff working at Walton Hospital, Chesterfield had difficulty using access roads to the site during the June 2007 floods. Day staff were unable to get out of the hospital and night staff were unable to get in for several hours.
- A landslip on the A6 near Belper during the June 2007 floods caused significant commuter disruption. The landslip resulted in the route being reduced to travel on one lane only for almost eighteen months whilst remedial work was carried out by Derbyshire County Council.
- Derbyshire County Council's Consultancy and Contracting Division had to facilitate sixty-two work orders stemming from the November 2000 floods as a result of damage to bridges, footpaths and landslips across the county.

High Winds

- During strong winds on 27th October 2003, electricity pylons in Derbyshire were damaged, with resulting power failures affecting approximately 30,000 homes.

- Derbyshire County Council had to fund and complete repair work for thirty-eight separate incidents of property damage caused by the 18th January 2007 storm. The council's insurance excess is £25,000 and didn't cover most of the damage caused to council buildings by this storm.
- Various markets around the region have been cancelled due to high winds.

Heat waves and drought

- The Derbyshire Fire and Rescue Service identified severe moorland fires as incidents which place the greatest strain upon its resources. Of particular concern is locating adequate water sources to put fires out on the moorlands.
- During heat waves, providing resources to 'fire-watch', to close areas of the Peak District National Park and to fight fires can place considerable demands on the Peak District National Park Authority.
- During the heat wave of August 2003, the number of burglaries reported to Derbyshire Constabulary increased, partly as a result of more windows and doors being left open or unlocked.
- Estate managers at several local authorities have received increased numbers of complaints during heat waves, from staff who feel temperatures are too high in their respective workplaces.
- Visitor numbers to the Peak District National Park can increase significantly during high temperatures and dry summer weather.
- Derby City Council's Tourist Information Centre experienced a 20% rise in visitor numbers during the August 2003 heat wave.

Snow

- County Council winter maintenance costs exceeding winter maintenance budgets, April 2000 – March 2010 totalled £4,769,000
- During the heavy snowfall of 2-6 February 2009, Call Derbyshire received over 1500 calls specifically related to gritting compared to the following week, when there were less than 200.
- Hundreds of schools across Derbyshire were closed for at least one day during the heavy snowfall of January 2010. This not only impacted upon the education of the county's children, but

also meant that many local authority staff had to take time off work at short notice to look after their children.

- Several local authorities across Derbyshire had to cancel or suspend their refuse collection services on 5th February 2009, during severe snowfall. Particular disruption is caused in rural areas where roads are not gritted, making them inaccessible for refuse collections to be carried out, sometimes for two – three weeks at a time.



A car receives help from passers by as it struggles to get up a steep hill in Matlock during the 2010 winter snowfall.
Credit: Matlock-Photo.

County Council awareness and approach

The LCLIP survey of the County Council indicated that there is widespread preparedness across departments and their services to deal with the impacts of severe weather. With all County Council departments having robust procedures in place to deal with severe weather events, complemented by the support and lead provided by the Emergency Planning Division, County Council services have coped well with the consequences of severe weather to date.

County Council reputation

The County Council's reputation has benefited on occasions during major weather events largely as a result of the direct action taken by the Emergency Planning Division, and the support they have had from departments such as Adult Care in staffing rest centres, most notably during the June 2007 floods. It is recognised that media reporting has a tendency to castigate rather than praise the County Council. Actions taken by the council to deal effectively with weather events are seen as an expected duty, whereas the council is often criticised for school closures despite those decisions being made by head teachers directly.



Dried up reservoir in the Derwent Valley during August 2010.
Credit: Philippa Willitts.



A bus stuck in flood water near Queens Park, Chesterfield.
Credit: Sean Sabin-Farrel.

Key Findings

Impacts on District Councils



Cromford Railway Station in January 2010.
Credit: Nick Barfield.



Exposed peat at Bleaklow following a fire in April 2003.
Credit: Peak District National Park Authority.

Weather events have been found to elicit a variety of impacts on district authorities' services and estates. The most common impacts were those causing delays and damage to the road networks caused by the effects of fluvial and pluvial flooding, snow and ice. Although severe storms and strong winds were relatively infrequent, when they did occur significant localized damage was experienced.

The severity of the impacts was found to differ between districts due to local variation in geography, built environment and preparedness. Based on the frequency and severity of impacts the following were identified as priority risks within the districts:

- Flash flooding on the road network caused by heavy rain events (Derbyshire Dales and High Peak)
- Watercourse flooding causing damage to infrastructure and property (Amber Valley, Bolsover, Chesterfield, Erewash, North East Derbyshire, South Derbyshire)

Heavy snowfall can cause disruption to services across the whole county for several consecutive days. Severe snowfall can impact more upon county-wide service providers than flooding, which can be more localised. Whilst Northern districts experienced more frequent heavier snowfall, the experience that these organisations have in dealing with snow enables them to cope with its consequences.

Incidents of high temperatures and heat waves have to date been fairly rare events, and had only minor impacts in comparison to other weather types on service provision.

Other Local Strategic Partnerships' awareness and approach

Levels of preparedness for the impacts of extreme weather events varied amongst partners included in the study.

- Emergency services including Derbyshire Fire and Rescue Service and Derbyshire Constabulary are active in emergency planning and continuity planning for extreme events. They also work with other LSPs through the Local Resilience Forum.
- The most vulnerable sector to extreme weather events are SMEs. Considerations for climate change adaptation and business continuity planning is often considered a low priority by these groups. However groups such as the Local Resilience Forum are working towards addressing this.



Flash flooding at Chatsworth Hall, Matlock after prolonged periods of rainfall in 2008.
Credit: Derbyshire Dales District Council.

Using the LCLIP findings

Actions taken and next steps

Following the completion of the Local Climate Impact Profile exercise Derbyshire County Council has (as of July 2011) completed or is working towards the following actions:

- Used the LCLIP to raise awareness of climate change adaptation issues within the council.
- Carried out comprehensive risk assessments of all service areas against future UK climate projections to identify the risks posed to them by climate change and the actions required to reduce them.
- Produced an adaptation action plan outlining the main risks and actions to Derbyshire County Council services.
- Embedded the risks and actions within the council's service planning processes. This means that council services will be prompted to review the risks and the actions they can implement to reduce them every year when they produce their annual plans.
- Increased the number of Call Derbyshire staff by 12.5%. It is anticipated that this will help the service deal more efficiently with periods of high caller demand in future.
- Included adaptation considerations in the Derbyshire Local Transport Plan to increase the resilience of the transport network in a changing climate.
- Taken forward work on flood management as a result of its statutory responsibilities outlined in the Flood and Water Management Act.
- Supported Derbyshire District Councils in identifying climate related risks and adaptation measures.
- Provided adaptation training for operational managers on climate change adaptation for services, including the use of natural interventions.
- Provided continued support to LSPs and built resilience in local communities.
- Continued active engagement with the Derbyshire Strategic Flood Board and the Derbyshire Local Resilience Forum, maintaining an effective working relationship with other emergency responders.



Tourists enjoy the Gardens of Chatsworth House during the peak summer season. Increasing summer temperatures are projected to have a huge impact on tourists visiting Derbyshire and the Peak District.
Credit: UGardener.

Flash flooding in Glossop.
Credit: High Peak District Council.



Contact

LCLIP project coordinated by Climate East Midlands, advised by UK Climate Impacts Programme and part funded by East Midlands Improvement and Efficiency Partnership.

Derbyshire project work carried out by Maggie Bishop, Chris Hope and Rajni Sisodiya.

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For further information on Derbyshire County Council's work on climate change see its webpages:

www.derbyshire.gov.uk/climatechange

Or contact

Nick Pigula

Climate Change Project Officer

E: climatechange@derbyshire.gov.uk

T: 01629 538 304

For information on the regional 'Well Adapting East Midlands' project visit the Climate East Midlands website:

www.climate-em.org.uk

Or contact

Adaptation Advisor

Climate East Midlands

E: info@climate-em.org.uk

T: 0116 502 620

