



A summary of the Local Climate Impacts Profile for Nottinghamshire

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



Introduction



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>)

Front Cover:
Heavy skies over Sherwood Forest National Nature Reserve (part managed by Nottinghamshire County Council)
Credit: Nottinghamshire County Council.

The Local Climate Impacts Profile (LCLIP) for Nottinghamshire was undertaken in order to increase Nottinghamshire County Council's understanding of the county's vulnerability to severe weather events. Based on data which spans the period from 2000-2010, it aims to help inform the Council about those weather events which affect the Council's assets, infrastructure and capacity to deliver services. The LCLIP also informs the Council about the impacts on other public service providers and local communities.

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 Nottinghamshire County Council has used the results of the LCLIP as a basis for further work to increase its 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.

Nottinghamshire is a centrally located county covering 850 square miles with a varying topography and a population estimated as being 779,900 in 2010.

It is made up of seven district council areas. The main centres of population are towns, with the population split between a few urban areas, extensive suburban areas and a range of rural settlements. The county includes the prominent towns of Newark-on-Trent, Worksop, Hucknall plus Mansfield and the extensive, neighbouring areas of Kirkby and Sutton-in-Ashfield.

Due to the varying geography the county is susceptible to all the main climate change risks, excluding sea level rise.

Key Findings

Key Weather Events and Impacts

The Nottinghamshire LCLIP identifies that between November 2000 and February 2010, seven severe weather events occurred within in the county. These occasions spanned excessive rainfall, gales, heatwave plus severe snow and ice. Examples of cost in monetary terms alone were schools' costs being £2million owing to flooding, whilst the 2007 gales cost the Highways Department between £25-30,000.

The County Council services most frequently affected by the weather incidents identified in the LCLIP were:

- Highways
- Forestry
- Children & Young People (incidents relating to schools)
- Properties
- Waste Management
- Adult Social Care

In terms of other partners, those most frequently affected were:

- Nottinghamshire Fire & Rescue Service
- Utility companies (Severn Trent, electricity companies)
- Nottinghamshire Police
- District and borough councils
- The Environment Agency
- Nottinghamshire Primary Care Trust
- Network Rail and train operating companies



Key Findings



Nottinghamshire communities faced challenging road conditions during floods in early 2008.
Credit: Nottinghamshire County Council.



Flooding affects crucial access routes for the county's towns and villages.
Credit: Nottinghamshire County Council.

Properties at imminent risk of flooding.
Credit: Nottinghamshire County Council.



A range of impacts and consequences were experienced by Nottinghamshire County Council, partner organisations and the community over the period studied. Indeed, seven severe weather events since 2000 were considered to have significant impacts on Nottinghamshire County Council:

- November 2000 **flooding**
- July - August 2004 **flooding**
- July 2006 **heat wave and flooding**
- January 2007 **gales**
- June - July 2007 **flooding**
- January 2008 **flooding**
- February 2010 **severe winter – snow & ice**

Heatwaves and drought

The effects of heat waves included:

- Melting roads.
- Fires in green spaces.
- A link to an increase in anti-social behaviour (notably arson within parks which caused grass and scrub fires).

Rain/flooding and high winds

The 2007 floods were regarded as the most significant severe weather event which impacted on the Council's services. This event resulted in:

- high council expenditure, particularly for the Highways Department.
- Resident evacuation (including ill and elderly people) to rest centres.
- Disruption to infrastructure (roads damaged and/or closed).
- Over 1400 properties being flooded.
- Loss of income to affected businesses.
- Sewage contamination of flood water.
- Flood damage claims from 54 schools (the repair bill for two Nottinghamshire schools was over £1million each).

Gales

The gales experienced during 2007 equally had their impact on the Council's service delivery, including the county's transport network such as:

- Fallen or dangerous trees blocking routes and causing several traffic incidents.
- Power lines were blown down.
- Damage to council-owned buildings.
- Road network damage resulting in costs of between £25-30,000 to the Highways Department in restoration costs.

Severe winter – snow and ice

Effects of the cold snap experienced during February 2010 affected the Council service-wide, with examples of some impacts being:

- A rise in the number of insurance claims, chiefly owing to a large increase in pot-hole damage claims.
- Supply and demand plus cost issues with gritting services for Highways Services.
- Difficulties for staff in reaching their workplace; the Emergency Social Care team for Children in Newark and Bassetlaw operated from a staff member's home address owing to its usual office being closed.
- Lost working time for the landscaping team (154 hours' staff time was redirected to snow clearance during winter 2009-10).

Warmer and wetter climate issues

In addition to severe weather events, an increasingly warmer and wetter climate gives rise to issues such as:

- Extended seasons for both bird-nesting and vegetation growing, thus reducing the amount of available time for Council staff to undertake maintenance work without disturbing nesting birds.
- An increased rate of vegetation growth; resulting in access path and bridleways becoming overgrown more quickly and frequently – meaning increased demands on the Council's services to maintain access.
- A rise in the prevalence of both insects and affiliated diseases, both of which can cause substantial damage to trees.



Climate change is resulting in more maintenance work for both Nottinghamshire County Council and the district councils to keep parks and pathways safe and accessible. This extra work is owing to increased vegetation growing periods, plus a potential rise in numbers of insects and diseases affecting trees.
Credit: Mansfield District Council.



Storm damage calls upon the Council to respond in order to provide clear and safe access routes.
Credit: Nottinghamshire County Council.

County Council awareness and approach

Nottinghamshire County Council has detailed emergency procedures to follow, and these lie with its Emergency Planning staff. At present, the approach is chiefly in response to emergencies - rather than preventative or adaptive actions. Specific departmental response examples, however, to severe weather events include:

- In response to both the 2000 and 2007 flooding periods, the Emergency Planning team reviewed and altered its Flood Response Protocol
- To deal with the threat of hot weather on its Adult Social Care and Health services provision, the Council introduced a Heatwave Response Plan
- The Council's Highways Department follows the Emergency Planning team's major emergency plans
- In response to summer fires, patrols in Bestwood Country Park were increased

in order to prevent arson attempts during these hot weather periods

Weather conditions which impact on services, but which do not constitute an emergency, are in practice addressed at service level. At the time of undertaking the LCLIP, it was found that few service areas actively recorded the impacts and consequences of severe weather events upon service delivery. The need therefore to improve the recording of details, impacts and costs of weather events has been identified in order to be addressed.

The Council's Emergency Planning team has altered its Flood Response Protocol.
Credit: Nottinghamshire County Council.



Key Findings



Snowfall in January 2010 affected communities county-wide.
Credit: Mansfield District Council.

County Council reputation

The way in which Nottinghamshire County Council responds to severe weather events potentially affects its reputation. In addition, the Council's approach determines its ability to deliver services to its customers. Indeed, issues which have placed the Council under particular pressure have included:

- Repeated flooding occurring in the same area(s)
 - Some confusion on responsibility for drain management and maintenance
 - Reports in the media covering arson attacks in Country Parks
 - The length of time taken to repair services to a useable standard
- On a positive note, an example of press coverage was recognition of the Council effectively addressing the 2000 floods, thus assisting hundreds of people and communities.

Impacts on the district councils

Weather events have caused a variety of impacts on Nottinghamshire's district councils' operations. The most common were those causing damage and delays to the road network. Although their severity differed between districts, these impacts were chiefly the effects of flooding, snow and ice plus high winds and storms affecting buildings and producing tree debris.



Nottinghamshire County Council, along with partner organisations, were faced with storm damage during 2007 - and with the task of keeping Nottinghamshire's roads both safe and clear for pedestrians, cyclists and motorists
Credit: Nottinghamshire County Council.

Examples of weather events and their impact on a selection of the county's district councils:

- Flooding causing maintenance disruption resulting in the repair of up to 34 streets during 2008-9 being hindered (Broxtowe)
- The gales of January 2007 caused structural damage to council-owned buildings (Broxtowe and Newark & Sherwood)
- Flooding and consequential disruption owing to the rise in level of the River Ryton in central Worksop during winter 2010-11 (Bassetlaw)
- The 2006 heatwave resulted in melting roads, fires in green spaces plus and an increase in anti-social behaviour linked to these (Broxtowe).
- The heatwave also produced uncomfortably warm temperatures for staff working in council offices (Broxtowe and Newark & Sherwood)
- Snow and ice in February 2009 and winter 2010-11 resulted in disrupted refuse bin collections (Broxtowe)
- Severe flooding from the River Trent during November 2000, which affected Council offices and a variety of service operations ranging from council vehicles breaking down in floodwater and sewage issues (Newark & Sherwood)
- Prolonged snow during February 2009 and January 2010 caused the cancellation of certain leisure service provision and delayed refuse bin collections (Rushcliffe).

Key Findings



Storm damage to trees in 2007 affecting road access.
Credit: Nottinghamshire County Council.

Local partnership organisations' awareness and approach

It was found that there were widely varying levels of preparedness amongst the partners studied.

- Organisations such as Nottinghamshire Fire and Rescue Service and Nottinghamshire Police are locally prepared and have contingency and continuity plans in place regarding severe weather. They also work in partnership on these issues through the Local Resilience Forum (LRF).
- The health organisations within the county have to contend not only with issues related to service delivery and facilities but also with health impacts on the local population relating to severe weather and climate change.
- The utility companies such as Severn Trent, E-on and BT and are well prepared, because changes in severe weather are most likely to have a large impact upon their business success.
- In general, other sectors are likely to be less prepared. This is particularly true of small businesses, where continuity planning is often not prioritised due to a lack of resources.

Using the LCLIP findings

Actions taken and next steps

Following the completion of the Local Climate Impact Profile exercise Nottinghamshire County Council has (as of October 2011) taken the following actions:

- Used the LCILP to raise awareness of climate change adaptation issues within the Council.
 - Continued to work with other East Midlands upper-tier Authorities on collaborative approaches, and to share learning as part of the regional project.
 - Carried out a Comprehensive Risk Assessment of high risk service areas to identify the risks posed to these areas by climate change - plus actions that can be taken to reduce these risks.
 - Included 'failure to plan to adapt to climate change' on the Council's corporate risk register.
 - Made good use of the extensive research and data gathered from the LCLIP exercise to inform the Council's work on strategic flood risk management, plus the preparation of the local flood risk management strategy.
 - Held workshops with LSP partners in order to communicate the latest climate change projections, help organisations further understand the risks that climate change and severe weather pose to their operations, and begin to identify adaptive actions.
- Progress on climate change adaptation continues to be made with Nottinghamshire's district councils, through support provided by Climate East Midlands.



Local Strategic Partnership organisations explore the risks posed to them by climate change at a workshop organised jointly by Nottingham City Council and Nottinghamshire County Council in February 2010.
Credit: Nottingham City 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.

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For further information on Nottinghamshire County Council's work on resilience to climate change see its webpages:

www.nottinghamshire.gov.uk/home/environment/greenissues.htm

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

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