



A summary of the Local Climate Impacts Profile for Leicester

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

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 summer rain in the city centre.
Credit: Leicester Mercury.

The Local Climate Impacts Profile (LCLIP) process highlights a locality's vulnerability to severe weather events and how these events affect local communities as well as local authority assets, infrastructure and capacity to deliver services.

An LCLIP is a pragmatic, and effective, starting point for a better understanding of the future. Undertaking a local climate impact profile (LCLIP) is one way for local authorities to start to look at how extreme weather events can have an impact and help us to understand how to manage them.

Leicester's LCLIP covers the period 2000 – 2008 and was carried out in 2 phases:

- **Phase 1** used the local media reports and interviews with key officers within the city council to consider impacts of severe weather events on city council services.
- **Phase 2** worked with Local Strategic partnership organisations to identify the impact that severe weather events had on their services.

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 Leicester City 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.

Key Findings

Key Weather Events and Impacts

Between 2000 and July 2008, the Leicester City area experienced a total of 102 weather events that affected council services to some extent. Annually this number can range from 7 to 18 events, each with varying severity and impacts. Storms and high winds have been the most frequent weather event.

In total, these events have cost Leicester City Council £3.56 million, and have severely impaired the council's service provision on several occasions. Weather events have also benefited the council; mainly due to increased attendance at council run events and the recent trend of reduced gritting requirements.



Heavy winds blow the fences around construction site over, halting building work.
Credit: Leicester Mercury.

Leicester is a city situated in the centre of the East Midlands region. A recent survey undertaken for the Office for National Statistics in 2010 estimated that the population stood at 306,000, and the city is one of the most diverse in the UK, with over 40 % from ethnic communities at the 2001 census. Population is growing rapidly and the population is much younger than the national average. Leicester is comprised of 22 wards.

A recent study explained that Leicester contributes £6.24 billion to the east Midlands economy. The city traditionally had a high manufacturing base which has declined over recent years. Leicester is home to a number of national businesses including Next and Walkers.

Severe weather impacts affecting transport links around Leicester could have repercussions for the local and national economy.



Key Findings

Impacts and consequences for the council



Flooding on London road after heavy rainfall.
Credit: Leicester City Council.



Heavy snowfall during the festive season slows traffic.
Credit: Leicester Mercury.

2011 had the mildest November recorded for the last 300 years!
Credit: Leicester Mercury.



Rain/flooding

Heavy rain and flash flooding has cost a total of £956,732, including:

- Almost 3,000 individual roof leak repairs (which became evident during weather events) in council buildings costing a total £783k.
- £97k in flood damage to council buildings (claimed from insurance).
- £33k in responding to flash flooding on Leicester's roads.
- Heavy rain reduced the attendance at the Abbey Park 125th anniversary in May 2007, subsequently this council event finished with a £35k deficit.
- Annually, rent subsidies for Leicester's outdoor market cost £1k due to driving rain. Prolonged wet summer periods have caused a decrease in wasp call outs and have created a deficit in the Environmental Health budget.

Storms and high winds

Storm and high wind have cost the council around £936k, including:

- £52k damage to council buildings.
- £879k in reactive costs for tree damage.
- £4k in subsidised rent when Leicester's outdoor markets have been closed twice due to severe winds.
- A single storm in October 2000 cost LCC a total of £320,000. The effects of this storm created 589 jobs for the Tree and Woodlands Department with a combined cost of £307,500.
- The council claimed £12,500 in damages to council property. This related mainly to roof damage and dislodged roof tiles and damage from flying debris.

Heatwaves and drought

There have been two heatwave periods in Leicester – August 2003 and June 2006.

- In these periods higher than average mortality rates in vulnerable people in council run care homes were recorded.
- The 2003 heatwave period caused double the number of domestic noise complaints logged by the council over the same period in 2002.
- Hot dry weather has benefited the council due to increased public attendance at events.
- Subsidence caused specifically by the roots of public trees has elicited £408k in public liability claims against the council.

Snow

There have been several snow storms and periods of low temperature since 2000 which have disrupted travel and closed several schools.

- The worst effects of snow and low temperatures were in January 2004 and caused 30 schools to close.

City Council awareness and approach

In many cases the service area's record database did not include information relating to the cause of impacts or were too ambiguous to be used. In other cases reactive work to weather carried out within normal service was not recorded. The response from different council departments is summarised below.

- Trees and Woodlands have a proactive tree maintenance procedure that identifies trees at risk from high winds and acts to reduce or remove this risk. This system is regularly reviewed and improved and this may be a factor in the reducing trend of tree damage costs since 2000.
- Building Control carries out routine checks on both council and public buildings to identify and repair any identified hazards that could be vulnerable to storm and high winds.
- Property Services has a regular maintenance procedure in place to assess and reduce the risk of future roof leak damage. However, in many cases, such as secondary school buildings, much of this responsibility has been devolved to the occupier.
- The Emergency Planning department has a procedure for weather warnings for heatwaves and flooding and has produced a corporate Flood Plan.

- Pot holes, created due to a combination of frost damage and road wear, have been the cause of £369k in public liability claims against the council for damage to private vehicle and pedestrian trips and falls.
- In the investigated period the number of annual gritting runs ranged from 56 to 26 with lower numbers in recent years over the period.



Students make their way to school after heavy snowfall over night.
Credit: Leicester City Council.

- In response to heatwave warnings, Older People's Services follow the advice and recommendations of the NHS heatwave strategy.
- The Highways Service has both a Winter Service Operational Plan to reduce the risks of low temperatures causing problems for city transport, and a Flooding Incident Plan which reduces the risks of flash flooding on the city's roads by maintaining drainage, gullies and watercourses within the city.



A snow plough improving the transport links around Leicester after heavy snowfall.
Credit: Leicester City Council.

Key Findings

City Council reputation

There have been no reported issues with the council's reputation being damaged as a result of any of the severe weather events.

Other Local Strategic Partnership (LSP) organisations' awareness and approach

Following preparation of its initial Climate Change Adaptation Action Plan in 2008, the Council drew on its experience to help other key service providers in the city start to develop their own plans:

- Risk assessment workshops were completed with partners including Leicestershire Police, Fire and Rescue Service and De Montfort University;
- Draft Adaptation Action Plans were completed for these organisations;
- Actions identified by the Police, Fire and Rescue Service, NHS and Leicester City Council are currently being combined into a draft city-wide adaptation action plan.

Of those organisations studied it was found that levels of preparedness varied widely:

- Many of the large-scale corporate organisations are prepared and are taking preventative actions.
- The Local Strategic Partnership (LSP) organisations are locally prepared and have contingency and continuity plans in place regarding severe weather.
- The utility companies such as Severn Trent, E-On and BT are extremely well prepared as changes in severe weather are most likely to have a major impact upon their business success.
- Other sectors are likely to be less prepared, particularly the 30,000 or so businesses in Leicester with less than 10 employees, where continuity planning is often not prioritised.



Flooding on Blackbird Road, due to heavy rainfall that exceeded the drainage capacity.
Credit: Leicester City Council.

Strong winds snapped a tree, which caused damage to some property in its fall.
Credit: Leicester City Council.



Using the LCLIP findings

Actions taken and next steps

Following the completion of the Local Climate Impact Profile Leicester City Council has (as of October 2011) taken the following actions:

- Created a city council Adaptation Action Plan to take forward priority actions:
 - The Council is Lead Local Flood Authority responsible for co-ordinating efforts to manage local flood risk. Key services involved in this work include Highways, Planning and Emergency Management. A Lead Local Flood Authority Board is now well established to manage the process within the Council.
 - A Surface Water Management Plan Study was commissioned and delivered the Preliminary Flood Risk Assessment required by the Flood Risk Regulations. This identified Leicester as one of 10 nationally significant "Indicative Flood Risk Areas" at risk from surface water flooding.
 - A flood plan has been produced and is managed by the Emergency Management Team. Flood risk hot spots and critical drainage areas are now being analysed in more detail. The team also intend to run workshops for residents on how to protect themselves from flooding.
 - A joint project with Nottingham and Derby city councils has developed a better understanding of the condition of highway assets and how best to manage them.
- Resilience of the Council's building stock - research is underway to map and assess our own building stock in relation to its vulnerability to climate change. This has included the use of geological information to map areas of higher risk from subsidence and heave as well as drawing up and piloting a Risk Hazard Matrix for visual assessment of buildings.
- A Climate Change Supplementary Planning document has been produced to support implementation of relevant Core Strategy policies on climate change mitigation and adaptation relating to buildings, travel and other aspects of land use.
- Improvements have been made to the winter service including installing a winter station in Leicester and a winter road forecast domain to better inform road gritting decisions. Vehicles have tracking and satellite navigation systems and a road salt conservation policy guides the use of salt in times of high demand.
- Most schools are on a winter gritting route and all key infrastructure are covered such as hospitals and bus depots.
- Work has begun with the universities to consider the Urban Heat Island effect on Leicester
- Continued work with partners through the Local Resilience Forum to plan for severe weather events.

The Riverside Festival enjoyed a high turnout due to the warmer weather.
Credit: Marketing & Brand Management Team, Leicester 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 work on Climate Change adaptation and resilience please see Leicester City Council 's webpage:

www.leicester.gov.uk/your-council-services/ep/the-environment/climate-change/adapting-to-climate-change/

Or contact
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Leicester City Council

E: environment@leicester.gov.uk
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For information on the regional 'Well Adapting East Midlands' project visit the Climate East Midlands website:

www.climate-em.org.uk

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