

What's an LCLIP?

LCLIP is an abbreviation of Local Climate Impact Profile. Essentially it's a piece of research that identifies severe weather events in an area over a particular time and looks at the impact they had on local infrastructure, businesses, residents and public organisations.

Leeds' LCLIP covers the period of 2002-2008. Researchers identified every severe weather event that occurred over this period and examined which parts of Leeds were hit, the severity of the impacts and which sectors were affected.

The resulting document provides a picture of the different ways in which Leeds is vulnerable to severe weather events. This is a very useful tool for planning our response to future weather events and gives us a good idea of where our priorities should lie.

The overall picture

The LCLIP identifies seven highly disruptive incidents. Three of these were primarily flooding events, three gales and one wintry conditions. This suggests that these types of event should be prioritised as areas that Leeds needs to make itself more resilient to. However, likely future climate change means that we should also consider heat waves and droughts.

In total, 40 events ranging from nuisance to highly disruptive were identified. The LCLIP also tells us which sectors were most affected by the severe weather events in question. Transport was by some way the most vulnerable sector, having been affected by 37 events. After this was the commercial and retail sector, with 21 events followed by the emergency services (17) and residential property (15). Leisure and utilities appeared to be relatively resilient, with leisure affected by only 10 events and utilities just three.

How does this relate to climate change?

Even if we were to drastically reduce our carbon emissions tomorrow, there is so much additional greenhouse gas already in the atmosphere that a certain amount of climate change is inevitable. Indeed, the average global temperature has been rising rapidly for a number of years already.

Modelling work has been done by meteorologists that give us a fairly good idea of how we can expect our climate to alter in Leeds over the next 70 years. The broad trends we're expecting are that winters get warmer and wetter; summers become hotter and drier and that rainfall and other precipitation becomes more intense.

The LCLIP gives us an idea of the areas we're particularly vulnerable to and how we might plan our response to this changing climate. This response doesn't just involve protecting ourselves against threats, but also preparing to exploit any opportunities that present themselves. For instance, warmer and wetter winters bring with them a

greater risk of flooding, making investment in flood defences a key priority for the city. But they also mean that the severe wintry conditions that caused so much disruption in December 2008 will become less likely in the future, freeing up resources to be spent on other priority areas.

Case studies

Wind damage and lightning strike – September 2006

Severe stormy weather affected residential property, local businesses, the transport network and emergency services in September 2006.

Some of the most severe weather occurred in East Leeds, with small tornadoes even reported in Harehills. Much of the damage to residential property was concentrated in this area, with around 200 homes requiring repair.

Three of the city's schools had to be closed as a result of the storms and the emergency services were put under strain by a record number of calls. In addition, up to 500 trees were either damaged or uprooted by the strong winds. Lightning hit signals at Leeds railway station, leading to severe delays and journey cancellations.

This weather also led to localised flooding in areas such as Weetwood, Guiseley, Wortley and Bramley, largely due to highways and sewers becoming inundated, rather than watercourses overflowing.

Flooding – June 2007

The single most severe event covered in the LCLIP is the heavy rainfall that took place in the summer of 2007. This affected all parts of Leeds, with a number of areas experiencing severe flooding. The floods were caused by three separate periods of intense rainfall, with the first two saturating the ground, meaning that when the final downpour came, there was no way for the water to drain away.

Although Leeds was less severely affected than South and East Yorkshire, the effects on homes and businesses were still devastating. Homes were flooded in Halton, Weetwood, Kippax and Wortley. Thirteen schools were closed across Leeds and Leeds railway station was closed for a day. In total more than 4,000 properties made insurance claims as a result of the floods.

The Environment Agency estimated that the national costs of the floods were £3.2 billion, whilst locally, the cost to the council alone was £1.5 million.

Wintry conditions – December 2008

Early December 2008 saw a period of heavy snow cause serious impacts across the north of England.

Transport was seriously affected. Many bus routes were restricted to main roads, commuters into Leeds reported delays of up to an hour and a half. A number of flights were either cancelled or delayed at Leeds Bradford Airport.

78 schools and nurseries were closed because of the conditions and all school buses in the city were cancelled. Waste collections were also disrupted as bin lorries were unable to access many properties across the city.