



Craven District Council

# Craven District Council Climate Change Comprehensive Risk Assessment 2011



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## **1. Executive Summary**

Services throughout Craven District Council will be affected in the future by episodes of weather extremes and Regional Improvement and Efficiency Partnership (RIEP) funded two local government officers to come into North Yorkshire Authorities to interview key council department representatives to understand what can be done at a service level to adapt each individual Authority against future disruption which will cost time and money.

A weather extreme assessment examining the past five years was carried in 2010 by AECOM to understand past weather extreme events in Craven. This report indicates that the majority of impacts are caused snow and blizzards (60%) and excessive rainfall leading to flooding (29%).

Extreme weather events in Harrogate borough have impacts on service delivery and affect different services in both positive and negative ways. The challenge now is to proactively work to find solutions to enable services to run continually throughout the year and overall to consider climate change adaptation in the decision making process.

During the interview process several positive actions were generated (please refer to the Adaptation Action Plan on page 11) by the individual services which indicates how Craven District Council can progress the weather extreme adaptation agenda in the near future to reduce the risk on business continuity and the time and cost constraints associated with a reduce or postponed service.

### **Disclaimer**

All information and content provided in this report has been collected from services representatives of Craven

District Council as part of the RIEP funded work. All actions/ risks stated in the action plan were suggested by the service representative and are written only as a guide or suggestions of the types of actions that could be taken and therefore no liability is held with the author/s of this report.

## **2. Methodology**

The sustainability officers group for York and North Yorkshire has drawn on Regional Improvement and Efficiency Partnership (RIEP) funding to employ two climate risk assessment project offices to undertake climate risk assessment work in the local authorities of York and North Yorkshire. The major risks and suggested actions required to address the risks have been assessed from interviews and discussions with Council staff across its key services whilst giving regard to the predicted future climatic conditions.

Interviews were conducted with representatives of key council departments that delivered services or that managed areas which were likely to be impacted by climate change. The officers were reminded of the key conclusion of the Local Climate Impact Profile (LCLIP) which showed current vulnerability – see table below. The officers were then taken through the likely changes in climate as identified from the regional Climate Change study and the United Kingdom Climate Impacts Programme (UKCIP) model – UKCP09 as highlighted in the Table below and discussions took place on the likely impacts on their services and work.

<b>Future Climatic condition</b>	<b>2020</b>	<b>2050</b>	<b>2080</b>
Increased summer temperature	+ 1.3°C	+ 2.3°C	+ 3.3°C
Decreased summer rainfall	- 8%	- 19%	- 23%
Increased winter temperature	+ 1.3°C	+ 1.9°C	+ 2.9°C
Increased winter rainfall	+ 4%	+ 11%	+ 15%
Increased storminess	Increase overtime		
Increased rainfall intensity	Increase overtime		
Rising sea level	22cm by 2050, 36cm by 2080*		

Table 1. Predicted climate change.

Source: Weathering the storm: Yorkshire and Humber regional adaptation study, 2009. \* UKClimate Change Projections 2009.

For each service area the key risks were identified and the actions needed to deal with these risks were recorded – these might be changes to service plans, gathering further evidence or better working with partners.

The facilitator used the officer's comments on the likelihood and severity of the impact on their services and budget, to rank the risk according to the methodology as listed below. The risks and actions were those identified by officers being interviewed or provided in workshops and do not represent the views of the facilitator. The detailed methodology used on the day can be seen at Appendix 1 below.

### **3. Key Risks to Craven District from a Changing Climate**

Key climate change risks are drawn from the previously produced LCLIP and from the UKCP09 predictions.

### **4. LCLIP Evidence for Craven District**

The LCLIP completed by AECOM provides evidence of how extreme weather has impacted on council services in Craven. The key findings of the LCLIP for Craven are listed below:

The most common weather events are snow and blizzards and flooding.

No media reports related to drought or landslides were recorded over the 5 years. Skipton suffered the most impacts at a single location. The majority of impacts occurred in rural locations.

Smaller communities and rural areas suffered the majority of impacts. Roads have been closed by floods and snow leading to reductions in services.

Of the services provided for by the District Council, Leisure & Culture suffered the most impacts, followed by Environmental Health and refuse collection.

The media database indicates that the majority of impacts are caused by snow and blizzards (60%) and excessive rainfall leading to flooding (29%).

Snow and blizzards are regular winter events and have disrupted Council services in each of the last 3 years. Over 90% of the impacts from snow were in rural areas.

Excessive rainfall leading to flooding has resulted in significant impacts for the District. Flooding events have been recorded in each of the last 3 years. The impacts are commonly of moderate severity and in most cases have not led to long term

damage to infrastructure or buildings. Over 75% of the impacts flooding were in rural areas.

Storms and high winds have resulted in the death of a truck driver. This extreme weather caused vehicles to crash and a number of trees were blown over.

A single period of increased temperature has been recorded in July 2006. Temperatures exceeded 32°C which increased the number of call outs made by the Ambulance service and increased the Fire Severity Index, with Fire and Rescue services called to a moorland fire near Grassington.

## 5. UKCP09 Predictions for Craven District

UKCIP conducted a piece of work in 2009 to project how the climate may change in 2020, 2050 and 2080 and below shows how they project the weather could change over the next 70 years in Craven.

### 2020 Yorkshire and Humber Climate Projections

The estimate of increase in **winter mean temperature** is 1.3°C.

The estimate of increase in **summer mean temperature** is between 1.3 – 1.4°C.

The estimate of increase in **summer mean daily maximum temperature** is 1.7 – 1.8°C.

The estimate of increase in **summer mean daily minimum temperature** is 1.5°C.

The estimate of change in **winter mean precipitation** is 5%.

The estimate of change in **summer mean precipitation** is 6% - 5%.

### 2050 Yorkshire and Humber Climate Projections

The estimate of increase in **winter mean temperature** is 1.9°C – 2.5°C.

The estimate of increase in **summer mean temperature** is 2.2°C – 2.6°C.

The estimate of increase in **summer mean daily maximum temperature** is 2.9°C – 3.5°C.

The estimate of increase in **summer mean daily minimum temperature** is 2.4°C – 2.9°C.

The estimate of change in **winter mean precipitation** is 9% - 12%.

The estimate of change in **summer mean precipitation** is –15% -18%.

### 2080 Yorkshire and Humber Climate Projections

The estimate of increase in **winter mean temperature** is 2.5°C – 3.6°C.

The estimate of increase in **summer mean temperature** is 2.5°C – 4.2°C.

The estimate of increase in **summer mean daily maximum temperature** is 3.4°C – 5.6°C.

The estimate of increase in **summer mean daily minimum temperature** is 2.8°C – 4.7°C.

The estimate of change in **winter mean precipitation** is 12% - 20%.

The estimate of change in **summer mean precipitation** is –17% -28%.

## 6. Summary of key risks to Craven District Council from a changing climate

Regional and local climate data has been collated to provide likely scenarios for key services (receptors) and is presented in table 2 below.

Severity and likelihood of incidents was scored by service representatives during the interviews and workshops and these have been multiplied to give the colour-coded level of risk. The table gives the service type, the likely impact and consequences of future climatic conditions and a risk rating for now, 2020, 2040 and 2080.

The risk of negative issues is quantified as follows:

1-9 = low (green)

10-15 = medium (amber)

16-25 = high (red)

The opportunity for positive outcomes is indicated as follows:

Pale blue indicates a low level of opportunity

Dark blue indicates a high level of opportunity

RECEPTOR	FUTURE CLIMATIC CONDITION	IMPACT	CONSEQUENCE	level of risk = severity x likelihood (see Appx 1 for explanation of scoring)			
				Now	2020	2040	2080
Built Infrastructure – all types of property	Increased winter rainfall	Flooding	buildings on low-lying areas at risk of flooding, increased property damage, threat to properties un aware of being in a flood risk zone due to surface water flooding	8	12	20	25
Transport	Increased winter rainfall	Flooding	Serious flooding of highway network leading to road closure and impacts accessibility for service delivery	8	12	20	25
Natural Environment	Hotter/Drier summers and increased rainfall intensity	Summer flash Flooding	Unpredictability of flood zones due to localised weather events leading to disruptions in service delivery.	4	9	12	20
Built Infrastructure – all types of property	Increased summer temperatures	Overheating	Reduced comfort in buildings for occupants – increased need for climate controlled environments. Impacts on the health, safety	6	9	16	20

			and wellbeing of the workforce and residents.				
Tourism and Economic Development	Increased winter rainfall, Increased rainfall intensity, increased storminess	Winter and summer flooding, storms	Loss of key outdoor events and attraction to the area.	4	9	16	25
Tourism	Increased summer temperature, increased winter temperature, decreased summer rainfall	Longer tourist season	Increased number of tourists leading to potential income opportunities for businesses.	1	4	9	16
Road network	Increased summer temperature/ decreased summer rainfall	Heatwaves – increased risk of melting road surfaces and damaged road structures	Restrictions to the road network and vehicle usage.	15	15	25	25

Table 2. Key risks to Craven District Council from a changing climate



## 7. Craven District Council Service Based Comprehensive Risk Assessment

Service representatives were interviewed in June 2011 using the methodology given in appendix 1. The following are the findings of this work and include descriptions of climate adaptation work already being undertaken and suggested actions which have gone forward into the action plan (Table 3).

### Environmental Health Service

The Environmental Health Service acts as the land drainage authority for minor river systems and is a member of the North Yorkshire Resilience Forum. As part of the Craven Multi Agency Flood Plan it is a Category 1 and 2 responder.

In terms of snow and icy conditions Craven District Council has been setting up local grit stores for parish councils etc to utilise. This method has also been adopted for sandbags in some areas of the district.

#### **ACTIONS:**

- Conduct an annual check of flood defences at BVM to reduce the risk to energy security.
- Collect flood records and use LCLIP to prioritise areas for introducing flood prevention where practicable.
- Every year conduct a pest (e.g. rat) survey to indicate trends and act on any results.
- Annually contact Yorkshire Water to understand/ update Craven District Council's records on a variety of issues (e.g. diversion of water supply, list of vulnerable people, priority areas, and bottled water – distribution network).
- Check SDC's single rest centre's annual plan and contact the centre for any updated information.
- Review all severe weather extremes at least bi-annually and add to the district level risk register.
- Add winter conditions and extreme temperatures to the district level risk register.

### Property and Car Parks/ Markets Service

In severe cold spells the health and safety of the customers is a risk and there is also a risk to income as customers do not use pay and display car parks during snow and icy periods. In 2010 approximately £50,000 was lost in car park income due to the extreme cold period over the winter season. The projections indicate that the weather is slowly ameliorating and this should encourage customers to visit and park in Pay and Display Car Parks.

The winter maintenance programmes in Skipton to be focussed to keep the car parks open to customers.

#### **ACTIONS:**

- Annually install warning signs in car parks to advise members of the public of the risk of untreated icy ground.
- Set up and maintain a drainage inspection regime.
- Annually conduct a risk assessment / inspection of all properties for health and safety and damage from extreme weather.
- Annually review the need for onsite generation at Craven District Council assets.
- Develop and maintain a set of thresholds in weather extremes for market traders and close markets stalls if these thresholds are exceeded.

### Planning Service

Main areas for concern in planning policy are all types of flooding. Therefore planning officers are keen to consult with the Environment Agency and identify, using flood maps and zones, where property/ development could cause a higher risk to flooding in Craven in the future. This means changing maps etc when an application comes in, as well as assessing a potential site in the Local Development Framework (LDF) site selection process to ensure future issues of flooding are minimised.

**ACTIONS:**

- Change the planning technician procedure on assessing flood risk properties to a half mile radius of any planned development.
- Add climate change constraints to LDF site selection process.
- Place Sustainable Urban drainage Schemes (SUDS) in the LDF policies and state an implementation threshold for property developers to adhere to.

**Human Resources, Health and Safety Service**

The waste operatives in the Council have a dress code appropriate for summer and winter to suit the weather conditions and sun block is provided during the summer months.

Toolbox talks are also done covering heat related illnesses.

In terms of employee's business mileage and commuter mileage little guidance is given on safe techniques of driving.

Asset management needs to be improved regarding regular inspections and risk assessments of council assets, including land, to look for damaged infrastructure and others items like damaged trees.

**ACTIONS:**

- Annually review external employees working conditions and investigate any adaptations required (e.g. clothing, water bottles, drink coolers etc).
- Regularly raise awareness of working in extreme weather conditions. (E.g. toolbox talks on heat stress, dehydration etc).
- Provide guidance on working in hot offices and how to adapt to these situations.
- Produce drivers' guidance which includes snow/ ice and flood driving, vehicle maintenance etc.
- Set up and review standby and call out procedures for officers. (E.g. IT officers).

**Housing Service**

Main responsibility is the maintenance of the CDC hostel in Skipton. The main risks to the property are flooding from the canal and storminess. Currently there are no issues with heating or cooling the property.

**ACTION:**

- Annual inspect the hostel to take into account extreme weather (including extreme heat and cold, snow and ice and flooding).

**IT service**

Current IT has disaster recovery plan and if the air conditioning could not cope with reducing excessive hot temperatures some of the equipment could work without it for periods of time.

**ACTION:**

- None.

## **8. Craven District Council Climate Adaptation Action Plan**

The actions from the interviews have been tabulated to give a 2011 climate adaptation action plan (Table 3).

**Table 3 – Craven DC Climate Adaptation Action Plan 2011**

<b>D</b>	<b>Action</b>	<b>Service</b>	<b>Action Plan</b>	<b>Service Plan</b>	<b>Risk Register</b>
1	Conduct an annual check of flood defences at BVM to reduce the risk to energy security.	Environmental Health	X		
2	Collect flood records and use LCLIP to prioritise areas for introducing flood prevention where practicable.	Environmental Health	X		
3	Every year conduct a pest (e.g. rat) survey to indicate trends and adapt on any results.	Environmental Health	X		
4	Annually contact Yorkshire Water to understand/ update Craven District Council's records on a variety of issues (e.g. diversion of water supply, list of vulnerable people, priority areas, and bottled water – distribution network).	Environmental Health	X		
5	Annually check the rest centre plan and contact the centre for any updated information.	Environmental Health	X		
6	Review all severe weather extremes at least bi annually to inform the district level risk register.	Environmental Health	X		
7	Add winter ice conditions and extreme temperatures to the district level risk register	Environmental Health	X		
8	Annually install warning signs in car parks to advise members of the public of the risk of untreated icy conditions.	Asset Management	X		
9	Set up and maintain a drainage inspection regime.	Asset Management	X		

10	Annually conduct a risk assessment / inspection of all properties for health and safety and damage from extreme weather.	Asset Management	X		
11	Annually review the need for on-site power generation at Craven District Council assets.	Asset Management	X		
12	Develop and maintain a set of thresholds in weather extremes for market traders and close markets stalls if these thresholds are exceeded.	Asset Management	X		
13	Change the planning technician procedure on assessing flood risk properties to a ½ a mile radius of any planned development.	Planning	X		
14	Add climate change constraints to LDF site selection process.	Planning	X		
15	Place SUDS in the LDF policies and state an implementation threshold for property developers to adhere to.	Planning	X		
16	Annually review external employees' working conditions and investigate any adaptations required (e.g. clothing, water bottles, drink coolers etc).	Health and Safety	X		
17	Regularly raise awareness of working in extreme weather conditions. (E.g. toolbox talks on heat stress, dehydration etc).	Health and Safety	X		
18	Provide guidance on working in hot offices and how to adapt to these situations.	Health and Safety	X		

19	Produce driving guidance which includes snow/ ice and flood driving and vehicle maintenance	Health and Safety	X		
20	Set up and review stand by and call out procedures for officers. (E.g. IT officers).	Health and Safety	X		
21	Annual inspect the hostel to take into account extreme weather (including extreme heat and cold, snow and ice and flooding).	Housing	X		

## 9. Conclusion

This piece of work was funded by RIEP and the intention is for the Craven DC sustainable development officer to work across the service areas to implement the results and in particular the action plan. Action at an early stage is likely to save considerable resources in the future as the climate changes and climate adaptation measures are needed.

## APPENDIX 1 – Detailed Methodology

The risk assessment was conducted by meeting with individuals or groups of staff and following the method outlined below.

### Key activities at risk:

Please consider the key activities that your service/work area currently have responsibility for and consider the major impacts that a changing climate might have on your work. A matrix has already been partly completed by pulling out actions from a similar exercise in West Yorkshire and based on the work City of York Council did at the Tackling Climate event in 2009 and through the local impact assessment for York 2010.

### Future climatic conditions affecting activities:

Please use the menu below to select the individual climatic condition relevant to the chosen activity. The table below outlines these future climatic conditions:

<b>Future Climatic condition</b>	<b>2020</b>	<b>2050</b>	<b>2080</b>
Increased summer temperature	+ 1.3°C	+ 2.3°C	+ 3.3°C
Decreased summer rainfall	- 8%	- 19%	- 23%
Increased winter temperature	+ 1.3°C	+ 1.9°C	+ 2.9°C
Increased winter rainfall	+ 4%	+ 11%	+ 15%
Increased storminess	Increase overtime		
Increased rainfall intensity	Increase overtime		

Table 4. Future climatic conditions. Source: Weathering the storm: Yorkshire and Humber regional adaptation study, 2009

### Impact:

Please list the key impacts that the different climatic conditions (above) would have on the activities e.g. flooding or heatwave.

### Consequence:

What are the results of the impacts? Who or what is impacted? Please list positive & negative consequences e.g.: Increased tourism (+) or road closed (-). If the consequence is positive, then highlight in blue.

### How severe is the impact:

Please rank using the following scores:

- 1 = Insignificant
- 2 = Minor
- 3 = Moderate
- 4 = Major
- 5 = Catastrophic

### How likely is the risk:

Please rank using the following scores:

- 1 = Low
- 2 = Fairly low
- 3 = Medium
- 4 = Fairly high
- 5 = High

### Level of risk:

This is an automatic calculation (severity x likelihood = risk).

We have followed normal risks assessment protocol by selected scores of:

1-9 to be green  
10-15 to be amber  
16+ to be red

Taking each red risk

Please list any actions that are currently in place or will soon be out in place to address the risk. If there are none, please propose what would be necessary to deal with the risk. Each action should be colour-coded to represent whether the action is needed, planned or done.

Red = needed  
Amber = planned  
Green = done

Cost of action

Score low, medium or high. Monetary values were not used as the cost will be relative to each service or sector and should not be used as a comparable measure.

## APPENDIX 2 - **Acknowledgements**

The Regional Improvement and Efficiency Programme would like to thank the following individuals and organisations in their support in the creation of this document.

West Yorkshire Comprehensive Risk Assessment

East Midlands Comprehensive Risk Assessment

And the following Craven District Council Officers;

Carbon Reduction Officer

Risk Manager

Health and Safety Officer

Planning Policy Officer

Head of Housing

IT Manager

Head of Environmental Health

Property Manager

Car Parks and Markets Manager