



Hambleton District Council  
Climate Change Comprehensive Risk  
Assessment 2011



## Contents

	<b>Page</b>
1. Executive Summary	3
2. Methodology	3
3. Key risks to Hambleton from a changing climate	4
4. LCLIP evidence for Hambleton District	4
5. UKCP09 predictions for Hambleton District Council	4
6. Summary of key risks to Hambleton District Council from a changing Climate	5
7. Hambleton District Council Service Based Comprehensive Risk Assessment	8
8. Hambleton District Council Climate Adaptation Action Plan	11
9. Conclusion	13
Appendix 1 – Detailed Methodology	14
Appendix 2 – Acknowledgements	15

Acronym: Hambleton District Council - HDC

## **1. Executive summary**

Services throughout Hambleton 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 Hambleton. This report indicates that the great majority of impacts in Hambleton are caused by excessive rainfall (65%) and snow and blizzards (26%).

Extreme weather events in Hambleton district have impacts on service delivery and affect different services in both positive and negative ways. The challenge 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 by the individual services which indicates how Hambleton 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 Hambleton 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 over time		
Increased rainfall intensity	Increase over time		
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 Hambleton 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 Hambleton District Council**

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

The 2005-2010 media database indicates that the majority of impacts are caused by snow and blizzards (51%) and excessive rainfall leading to flooding (38%). The other weather extremes are high temperature/heat-wave (5%), drought (3%) and storms/high winds (3%).

Thirsk suffered the most impacts at a single location. These were primarily due to snow fall occurring each of the past four winters. Smaller communities and rural areas suffered the majority (67%) of impacts. Snow/ blizzards are a source of regular seasonal disruption to the District with the 'big freeze' of the 2009-10 winter the source of the majority of impacts. Snow and ice in urban areas resulted in increased accident risk and higher call out rates for the emergency services. The majority of reported snow and blizzard impacts were located across the centre of Hambleton in the area around Northallerton and Thirsk.

Excessive rainfall leading to flooding has caused the greatest impact on Hambleton District. Flooding events primarily led to reductions in the availability of Council services and damage to buildings. The consequences of most flooding events in Hambleton are subjectively considered to have either a medium or high severity.

A single period of increased temperature has been recorded in July 2006, where temperatures exceeded 31 degrees Celsius. One impact of this was trees dropping their leaves prematurely to conserve moisture.

## 5. UKCP09 Predictions for Hambleton District Council

UKCIP conducted a piece of work in 2009 to project how the climate may change by 2020, 2050 and 2080 and the data below shows the projection for the climate over the next 70 years in Hambleton.

### 2020 Yorkshire and Humber Climate Projections

Estimates are of:

Increase in **winter mean temperature** by 1.3°C.

Increase in **summer mean temperature** by between 1.3 - 1.4°C.

Increase in **summer mean daily maximum temperature** by 1.7 - 1.8°C.

Increase in **summer mean daily minimum temperature** by 1.5°C.

Change in **winter mean precipitation** of 5% (increase).

Change in **summer mean precipitation** of -6% - -5% (decrease).

### 2050 Yorkshire and Humber Climate Projections

Estimates are of:

Increase in **winter mean temperature** by 1.9°C - 2.5°C.

Increase in **summer mean temperature** by 2.2°C - 2.6°C.

Increase in **summer mean daily maximum temperature** by 2.9°C - 3.5°C.

Increase in **summer mean daily minimum temperature** by 2.4°C - 2.9°C.

Change in **winter mean precipitation** of 9% - 12% (increase).

Change in **summer mean precipitation** of -15% - -18% (decrease).

### 2080 Yorkshire and Humber Climate Projections

Estimates are of:

Increase in **winter mean temperature** by 2.5°C - 3.6°C.

Increase in **summer mean temperature** by 2.5°C - 4.2°C.

Increase in **summer mean daily maximum temperature** by 3.4°C - 5.6°C.

Increase in **summer mean daily minimum temperature** by 2.8°C - 4.7°C.

Change in **winter mean precipitation** of 12% - 20% (increase).

Change in **summer mean precipitation** of -17% - -28% (decrease).

## 6. Summary of key risks to Hambleton 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			
				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 unaware 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	6	9	16	20

			environments. Impacts on the health, safety 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 Hambleton District Council from a changing climate.

## KEY

The risks are quantified using the following methodology. Those rated 9 and above are amber, 16 and above red. The colour blue in varying shades has been used for opportunities. The actions identified are those under way or planned in green, medium term over the next 5 years and in red over the next 5 to 10 years and beyond.

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

Service representatives were interviewed in 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).

### Property Service/ Grounds Maintenance/ Markets

Flooding is a key risk in Hambleton and this team tries to mitigate and protect as much of the District as possible by working both proactively through flood risk assessments and reactively - using several methods, including monitoring flood waters via the Environment Agency website and local CCTV.

To mitigate the risk of storm damage, staff carry out a regular inspection regime of trees and other 'at risk' assets for signs of disease and/ or damage from past weather events and other natural causes.

In snowy periods a private contractor grits and clears Hambleton assets to ensure business can continue.

In the past five years the frequency of grass cutting in the summer has reduced – a contributing factor being the weather.

Two markets which are supervised by the Council take place in the District.

The Superintendent inspects how the stalls are erected during adverse weather conditions to ensure the health and safety.

Ice is a problem as the stalls are erected on cobbles, increasing risk to traders and the public. Thirsk is in a flood plain and the officers use the town's CCTV to monitor the level of the river (Cod Beck).

Adverse weather can affect the income revenue from the two market towns.

### **ACTIONS:**

- Annually update Hambleton District Council flood pages and engage local communities with flood risk information.
- Annual inspection regime of trees is documented and to adaptation solutions to be included.
- Annually check the sand and sandbag resource and the storage of sandbags and have a programme for replenishment.
- Monitor pests such as brown rats and moles and be aware of likely climate change impacts, both positive and negative, on pests.
- Improve the inspection of watercourses, utilising other Hambleton District Council services/ employees.
- Annually train the Market Superintendants on procedures to be used in extreme weather, e.g.: dealing with a flooded market place.
- Create and maintain a clear policy and procedure for market trading in extreme weather.

### Waste Services

The waste and street scene service see themselves as a reactive service, adapting on the day to the weather extremes facing the service. Some of the operatives undertake additional duties during extreme weather periods, e.g.: winter gritting.



During the summer periods no advice on sun protection is given or products provided by Hambleton District Council. If the UKCP09 projections are correct, water shortages in hotter, drier summers may become an issue for street cleansing.

Heavy snow fall puts the recycling operatives at danger. Under the current collection regime kerbside sorting is required and there is a risk of falling in icy conditions. An identified issue is the failure of vehicles during previous icy periods. This needs reviewing before the next winter period to adapt the vehicle for extreme cold periods, to keep the service operational. Vehicles should be parked under cover during none operational hours to protect them from the external conditions.

#### **ACTIONS:**

- Promote the use of and provide sun protection products for outdoor employees.
- Review health and safety issues/ risk assessments for recycling collection regimes especially for extreme weather.
- Raise awareness of medical issues related to heat stress and dehydration on an annual basis.
- Prepare an action plan for periods of water shortages.
- Prepare an action plan for refuse vehicles gaining access to landfill sites in times of flooding.
- Adapt refuse vehicles to prevent temporary cold-climate failures.

#### Health and Safety and HR

The health and safety officer advises on the day to day operations of the Council services. Manual handling of sandbags is an H&S issue during winter periods.

Waste and street scene operations are expected to continue during extreme weather and during the 2009-10 winter period had issues maintaining a service, as operatives were falling over in the icy conditions.

The Hambleton District Council fleet lost performance in icy conditions in 2009-10, with failure of certain equipment. It is expensive to modify the fleet.

The H&S team is currently reviewing how HDC can protect staff in warmer periods. For example by updating PPE requirements such as sun hats and sun cream and through educating employees on heat related illnesses.

#### **ACTIONS:**

- Annually review working conditions for indoor and outside staff based on changes to the climate.
- Annually review the extreme weather policy and demonstrate best practice.
- Review HR guidance every two years on 'travel to work' to reflect adverse weather.
- Every year provide manual handling training for all operatives associated with winter gritting duties.
- Build extreme weather adaptations into future specifications for the Hambleton District Council vehicle fleet.
- Park fleet vehicles undercover at night to prevent damage from weather conditions.
- When undertaking risk assessments for services, ensure provision of suitable infrastructure to deal with high office temperatures, e.g.: where staff work and where IT equipment is housed.
- Annually raise awareness on safe commuting in extreme weather. For example how to drive in snow and on partially flooded roads.

#### Environmental Health

With projections indicating a warmer climate, food hygiene advice will need to change, as storage of food will be affected.

A scheme called 'Scores on the doors' is being introduced which indicates how safely a food premise business is performing. Businesses need to adapt in a changing climate. The environmental health officers are multi-skilled, so that when colleagues are unable to attend certain areas of the district due to weather conditions, the service remains resilient.

**ACTIONS:**

- With the weather projected to become warmer, provide appropriate advice and guidance on food hygiene, e.g.: advise food premises and businesses on the effect of different temperatures in a working environment.
- Include climate change adaptation and mitigation as part of the 'Scores on the doors' campaign.

Leisure service

During the last winter period the leisure service estimated that HDC income was 30% down due to customers being unable to visit leisure facilities. Leisure centres suffered with damage to pipework caused by freezing temperatures. Leisure centre employees found it difficult on occasions to access centres and sometimes had to leave early due to the weather conditions. There was a near miss flooding incident at Thirsk pool and Stokesley gym, which could have led to loss in revenue and repair costs to the council.

The leisure service has noted a trend of members join at the back end of summer and then withdrawing their membership at the start of the summer period. If the summers become prolonged this would result in use and income falling.

**ACTIONS:**

- Insulate pipe-work at leisure centres to protect against extreme cold weather.
- Take a proactive approach to extreme weather, e.g.: provision of outdoor classes around the district depending on the type of weather.
- Provide appropriate training for employees, including dealing with flooding for employees at Thirsk swimming pool.
- Investigate the circumstances of every flood or near miss flood event, in order to understand ways to reduce risk in the future.

Hambleton Planning Policy

When Hambleton District Council was going through the Local development framework (LDF) process, flooding issues were considered, e.g.: for site allocation. The issue of distances travelled, e.g.: to the workplace, was considered. Infrastructure associated with major settlements needs to be adapted to reduce the risk of disruption.

**ACTIONS:**

- None

**8. Hambleton 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 – Hambleton DC Climate Adaptation Action Plan 2011

ID	Action	Service	Action Plan	Service Plan	Risk Register
1	Annually update Hambleton District Council flood pages and engage local communities with flood risk information.	Property		X	
2	Annual inspection regime of trees is documented and to adaptation solutions to be included.	Property		X	
3	Annually check the sand and sandbag resource and the storage of sandbags and have a programme for replenishment.	Property		X	
4	Monitor pests such as brown rats and moles and be aware of likely climate change impacts, both positive and negative, on pests.	Property	X		
5	Improve the inspection of watercourses, utilising other Hambleton District Council services/ employees.	Property	X		
6	Annually train the Market Superintendants on procedures to be used in extreme weather, e.g.: dealing with a flooded market place.	Property		X	
7	Create and maintain a clear policy and procedure for market trading in extreme weather	Property	X		
8	Promote the use of and provide sun protection products for outdoor employees.	Waste	X		
9	Review health and safety issues/ risk assessments for recycling collection regimes especially for extreme weather.	Waste		X	

10	Raise awareness of medical issues related to heat stress and dehydration on an annual basis.	Waste	X		
11	Prepare an action plan for periods of water shortages.	Waste	X		
12	Prepare an action plan for refuse vehicles gaining access to landfill sites in times of flooding.	Waste			X
13	Adapt refuse vehicles to prevent temporary cold-climate failures.	Waste			X
14	Annually review working conditions for indoor and outside staff based on changes to the climate.	Health and Safety			X
15	Annually review the extreme weather policy and demonstrate best practice.	Health and Safety	X		
16	Review HR guidance every two years on 'travel to work' to reflect adverse weather.	Health and Safety	X		
17	Every year provide manual handling training for all operatives associated with winter gritting duties.	Health and Safety		X	X
18	Build extreme weather adaptations into future specifications for the Hambleton District Council vehicle fleet.	Health and Safety	X		
19	Park fleet vehicles undercover at night to prevent damage from weather conditions.	Health and Safety	X		
20	When undertaking risk assessments for services, ensure provision of suitable infrastructure to deal with high office temperatures, e.g.: where staff work and where IT equipment is housed.	Health and Safety			X

21	Annually raise awareness on safe commuting in extreme weather. For example how to drive in snow and on partially flooded roads.	Health and Safety	X		
22	With the weather projected to become warmer, provide appropriate advice and guidance on food hygiene, e.g.: advise food premises and businesses on the effect of different temperatures in a working environment.	Environmental Health	X		
23	Include climate change adaptation and mitigation as part of the 'Scores on the doors' campaign.	Environmental Health	X		
24	Insulate pipe-work at leisure centres to protect against extreme cold weather.	Leisure	X		
25	Take a proactive approach to extreme weather, e.g.: provision of outdoor classes around the district depending on the type of weather.	Leisure	X		
26	Provide appropriate training for employees, including dealing with flooding for employees at Thirsk swimming pool.	Leisure	X		
27	Investigate the circumstances of every flood or near miss flood event, in order to understand ways to reduce risk in the future.	Leisure	X		

## 9. Conclusion

This piece of work was funded by RIEP and the intention is for the Hambleton 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 in City of York Council 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 CYC 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

The following Hambleton District Council Officers:

Section	Hambleton	Richmondshire
Facilities Manager	David Ashbridge	None
Maintenance Manager – Council assets, parks, buildings, markets	Chris Vincent, Steve Prentice, Clive Thornton	
Grounds Maintenance	Gary Hudson	
Economic Development Manager	Judith Turner	Colin Bailey
Sustainable Development	Bryony Wilford	
Planning Policy	Graham Banks	John Hiles
Environmental Health	Philip Mephram	
Risk Manager	Robert Stokell	Callum McKeon
Waste Manager	Paul Staines	
Transport Manager (Fleet)	Terry Thorpe	
Human Resources Manager	David Sainsbury	
Health & Safety Manager	Tim Burrows	
Performance Manager	Sue Seddon	
Housing Management & Homeless	Helen Fielding	Sarah Smith (Mgt) Gavin White (sheltered) Hugo Westoff, Graham Hutchinson, Paul Watson & 1 other (maintenance) Mark Robson (delivery)
ICT	Graeme Thistlethwaite	
Flooding issues	Clive Thornton	
Office move project		Callum McKeon Michael Dowson