



Richmondshire District Council Climate Change Comprehensive Risk Assessment 2011



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Acronym: Richmondshire District Council – RDC

1. Executive summary

Services throughout Richmondshire 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 Richmondshire. This report indicates that the great majority of impacts in Richmondshire are caused by excessive rainfall (51%) and snow and blizzards (38%).

Extreme weather events in Richmondshire district 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 Richmondshire 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 Richmondshire 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 1 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.

Future Climatic condition	2020	2050	2080
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 Richmondshire 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 Richmondshire District Council

The media database indicates that the great majority of climate impacts are caused by excessive rainfall (65%) and snow and blizzards (26%). No events regarding heat and high temperatures or landslides were recorded.

Rainfall and flooding:

- Richmond and Catterick suffered the most impacts at single locations. Catterick's were primarily due to flooding events caused during June 2007.
- Flooding events have been recorded in each of the last 4 years.
- Flooding events are most prevalent in Eastern areas, at the edge of the Yorkshire Dales.
- The District has suffered from both winter and summer flooding.
- Fremmington and Gilling West have proved vulnerable to flooding.

Snow and blizzards:

Snow and blizzards are a source of regular seasonal disruption to the District with the severe impacts concentrated in eastern areas of the District with the majority of impacts occurring during the blizzards of December 2008.

Few consequences of storms and high winds have been reported. In one incident a tree was felled by winds and in another, lightning damaged thirty roofs and chimneys.

Smaller communities and rural areas suffered the majority of impacts, with consequences distributed over large areas affecting many small communities and very few events were recorded within the Yorkshire Dales National Park boundary.

5. UKCP09 Predictions for Richmondshire District Council

UKCIP (UK Climate Impacts Programme) 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 Richmondshire.

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 Richmondshire 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 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 Richmondshire District Council from a changing climate.

Key

The risks are quantified using the methodology followed, 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. Richmondshire 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).

Business continuity (corporate)

Business continuity plans are currently being reviewed and a standard template for all service areas is being developed. Business continuity in extreme weather is minimised due to the locally based council workforce.

Actions

- Ensure that the renewal of business continuity plans include climate change adaptation.
- Increase the general awareness of service plans and their importance during extreme weather.
- Create and maintain a corporate policy on adverse weather for continuity across service areas. Include a procedure on what line managers and officers should do in extreme weather events.

Planning Policy

Flooding is being considered as part of the Local Development framework (LDF) site selection process and local knowledge and advice from flood risk assessments is assisting in providing evidence in the site selection process.

Limited development has taken place in the last few years and the current housing stock is inefficient and not adapted to any change in future weather conditions.

Actions

- Ensure Climate Change adaptation is part of the LDF criteria for site selection.

Housing

Land that is in a flood plain will not be considered by the 'private sector household team' for development.

The main concern is with the current building stock - ensuring that it is thermally efficient during the adverse weather conditions. Many properties are heated by oil which is vulnerable to unavailability during long cold periods, due to lack of access to parts of the Richmondshire district.

One issue in winter periods is burst pipes which damage the fabric of buildings and their contents. The cause is often tenants not turning off stop taps when away from the properties for a length of time.

Three years ago a flood occurred at one housing scheme and many services and local agencies were involved to move the residents to other properties. The scheme is now

protected from floods by individual door defences. These have been deployed between 6-8 times.

A housing scheme at Reeth is heated by oil and is at risk of the delivery vehicle not being able to deliver. The Council is currently looking at alternative fuel sources for this site to ensure the centre can stay operational.

Procedures are in place in housing schemes, so that if supplies or utilities are down, centres can remain operational.

Access to housing during the winter periods is an issue, especially for out of town properties. The transport manager makes the decision whether it is safe for the fleet to be operational on a day to day basis.

Low temperatures in the past few winters have caused damage to pipework in properties and due to poor loft insulation the water tanks in loft spaces are prone to freezing. Heat guns and defrosting machines were used throughout the winter period to try and prevent freezing. A business case is being prepared to look at adaptive solutions to these issues, to prevent future damage and insurance claims.

Evidence of storm damage over the past eight years includes chimney pots and single tiles falling off the properties.

Actions

- Each year raise awareness amongst residents of issues including keeping warm in the winter and keeping hydrated at other times of the year.
- Each year, hold an extreme weather practice and encourage all agencies to join in, e.g.: a heating oil tanker cannot reach the scheme at Reeth due to icy conditions.
- Review an alternative fuel source for the Reeth Housing Scheme.
- Annual training for wardens on climate change adaptation including driving and protecting properties and tenants from weather extremes.
- As part of the rolling housing maintenance programme – alter condensing pipes to reduce risk of freezing.
- Regularly review the market for products and technologies to reduce the risk of frozen/ damaged pipes.
- Investigate creating and maintaining an agreement with the Ministry of Defence to borrow equipment in times of extreme weather.
- Regularly inform tenants of what to do during extreme weather (e.g. turning the stop tap off when away from the property for a length of time). Also raise awareness about their tenancy agreement, building and contents insurances and the reasonable precautions they can take to reduce risks.
- Update the policy for PPE required in weather extremes and put the responsibility of compliance with supervisors and managers.

Economic Development

Climate change has both negative and positive impacts on economic development. Green Businesses and green tourism can often benefit from the changing climate.

The team has capacity issues and acts as a signposting service on environmental issues. Poor and limited broadband in some areas of the district reduces the possibility of home working for businesses and increases the risk of disruption during extreme weather conditions.

Businesses in Richmondshire are interested in this area and could be encouraged by RDC adding an adaptation category to the annual, green business awards.

Actions

- Advise businesses on the risks associated with weather extremes and how to adapt their operations to reduce the impacts.
- Annually update the Richmondshire DC business pages with information on climate change adaptation.

- Develop a climate change adaptation business award.

IT service

Employees can access IT services at home reducing the reliance of being in the office in extreme weather periods. More investment is needed to improve the home working service. Richmondshire DC and Hambleton DC are linked to reduce risk and improve disaster recovery. Every night a back up is performed to ensure all files are saved.

Actions

None

Fleet Management

RDC has started training driving staff in driving in adverse weather conditions, to maximise service continuity. Every driver will go through an assessment and training (if required) annually.

70% of the current housing vehicle fleet is parked at the employee's residence overnight and these employees will pick up colleagues and transport them to offices during extreme weather to increase safety.

A safe working policy is in place to reduce risks during extreme weather conditions and it is the manager's responsibility to ensure compliance.

Road closures and other traffic issues resulting from extreme weather events are relayed to employees via the mobile phone network, to reduce the risk of employees travelling into hazardous situations.

Actions

- Ensure extreme weather driving is delivered through the training programme.
- Investigate alternatives, to reduce the reliance on mobile phones for issuing warnings and raising alarms.
- Disseminate weather warnings/ flood warnings/ road closures efficiently.
- Identify which team or officer has responsibility for vehicle movements in extreme/ adverse weather conditions.
- Investigate a procedure for informing staff and vehicle drivers of adverse weather before they depart for work.
- Review procedure for depot opening in icy and snowy conditions to reduce the risk of vehicles being parked on the highway in snow and icy conditions.

Grounds maintenance

There is a proactive move to adapt the service to provide the best service possible during extreme weather events.

Grass cutting machinery is replaced every five to six years and has been adapted to cut in wetter conditions without damaging the turf. This results in the team being able to cut the grass at regular intervals throughout the summer even on wet days.

The frequency of grass cuts varies between 12 to 16 times per annum, but it has been noted that the season is becoming longer and grass has recently needed to be cut in February, which impacts on staffing as some employees are on a six month summer contracts.

The grounds maintenance team has adapted a vehicle to ensure the car parks and other District Council assets are gritted when required, to ensure income is generated for the council through car parking fees. This team also responds to other requests to use this vehicle, thus helping other services to continue, e.g.: housing visits.

All the PPE has been adapted to meet current weather extremes and is suitable and adequate for the roles the team carries out.

The service is currently reviewing planting beds and adapting them to future weather extremes by planting adaptable species.

Actions

None

Asset Management

Currently no decision has been made to move RDC office premises, but once a decision has been made the Council will ensure that future buildings are future proofed to ensure the office based service can continue without disruption in extreme weather conditions.

Actions

- Ensure Climate Change adaptation is considered in any future Richmondshire District Council office relocation.
- Ensure a procedure is in place to ensure all Richmondshire District Council assets are heated / cooled during weather extremes.

H&S

Manual handling of the sandbags is an issue during winter periods.

The health and safety officer is not very involved in the day to day operations of the Council services.

Waste and street scene operations are expected to continue during extreme weather and during the last winter period had issues trying to keep a constant service - especially as operatives were falling over in the icy conditions.

The Council is currently reviewing several areas to adapt to climate, such as changing PPE, e.g.: sun protection and educating employees on heat related illnesses.

Actions

- Annual manual handling course for all operatives associated with winter gritting duties.
- Preparedness for wintry/ icy conditions, including getting in earlier, reviewing PPE (especially footwear), investigate procedures for changing waste collection rounds or reduced service.
- Park vehicles undercover at night to prevent damage.
- Include the risk of extreme office temperatures to Service risk assessments, to ensure the infrastructure is in place for future hot spells.
- Produce annual awareness of safely commuting to and from work in extreme conditions. For example how to drive in snowy conditions and on partially flooded road networks.

8. Richmondshire District Council Climate Adaptation Action Plan

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

ID	Action	Service	Action Plan	Service Plan	Risk Register
1	Ensure that the renewal of business continuity plans include climate change adaptation.	Corporate	X		
2	Increase the general awareness of service plans and their importance during extreme weather.	Corporate		X	
3	Create and maintain a corporate policy on adverse weather for continuity across service areas. Include a procedure on what line managers and officers should do in extreme weather events.	Corporate		X	
4	Ensure Climate Change adaptation is part of the LDF criteria for site selection.	Planning Policy		X	
5	Each year raise awareness amongst residents of issues including keeping warm in the winter and keeping hydrated at other times of the year.	Housing		X	
6	Each year, hold an extreme weather practice and encourage all agencies to join in, e.g.: a heating oil tanker cannot reach the scheme at Reeth due to icy conditions.	Housing		X	
7	Review an alternative fuel source for the Reeth Housing Scheme.	Housing	X		
8	Annual training for wardens on climate change adaptation including driving and protecting properties and tenants from weather extremes.	Housing		X	

9	As part of the rolling housing maintenance programme – alter condensing pipes to reduce risk of freezing.	Housing		X	
10	Regularly review the market for products and technologies to reduce the risk of frozen/ damaged pipes.	Housing	X		
11	Investigate creating and maintaining an agreement with the Ministry of Defence to borrow equipment in times of extreme weather.	Housing	X		
12	Regularly inform tenants of what to do during extreme weather (e.g. turning the stop tap off when away from the property for a length of time). Also raise awareness about their tenancy agreement, building and contents insurances and the reasonable precautions they can take to reduce risks.	Housing	X		
13	Update the policy for PPE required in weather extremes and put the responsibility of compliance with supervisors and managers.	Housing			X
14	Advise businesses on the risks associated with weather extremes and how to adapt their operations to reduce the impacts.	Economic Development	X		
15	Annually update the Richmondshire DC business pages with information on climate change adaptation.	Economic Development	X		
16	Develop a climate change adaptation business award.	Economic Development	X		

17	Ensure extreme weather driving is delivered through the training programme.	Fleet		X	
18	Investigate alternatives, to reduce the reliance on mobile phones for issuing warnings and raising alarms.	Fleet	X		
19	Disseminate weather warnings/ flood warnings/ road closures efficiently.	Fleet	X		
20	Identify which team or officer has responsibility for vehicle movements in extreme/ adverse weather conditions.	Fleet			X
21	Investigate a procedure for informing staff and vehicle drivers of adverse weather before they depart for work.	Fleet			X
22	Review procedure for depot opening in icy and snowy conditions to reduce the risk of vehicles being parked on the highway in snow and icy conditions.	Fleet			X
23	Ensure Climate Change adaptation is considered in any future Richmondshire District Council office relocation.	Asset Management	X		
24	Ensure a procedure is in place to ensure all Richmondshire District Council assets are heated / cooled during weather extremes.	Asset Management	X		
25	Annual manual handling course for all operatives associated with winter gritting duties.	Health and Safety			X
26	Preparedness for wintry/ icy conditions, including getting in earlier, reviewing PPE (especially footwear), investigate procedures for changing waste collection rounds or reduced service.	Health and Safety			X

27	Park vehicles undercover at night to prevent damage.	Health and Safety	X		
28	Include the risk of extreme office temperatures to Service risk assessments, to ensure the infrastructure is in place for future hot spells.	Health and Safety			X
29	Produce annual awareness of safely commuting to and from work in extreme conditions. For example how to drive in snowy conditions and on partially flooded road networks.	Health and Safety	X		

Table 3. Richmondshire DC Action Plan.

9. Conclusion

This piece of work was funded by RIEP and the intention is for the Richmondshire 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:

Future Climatic condition	2020	2050	2080
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 (RIEP) 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 Richmondshire District Council Officers:

Section	Richmondshire	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 Mepham	
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)
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Office move project		Callum McKeon Michael Dowson