



# Selby District Council Climate Change Comprehensive Risk Assessment 2011



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Acronym: Selby District Council – SDC

## 1. Executive Summary

The key weather related hazard to Selby District is flood risk and plans and policies are in place across the Council to deal with this. However, this risk needs to be considered against future increasing risk due to climate change. Any further information that quantifies this risk geographically can be built into future plans and policies.

Projections indicate that there are increasing risks from hotter, drier weather in the summer which needs to be built into service delivery and procurement plans, however, there is still a clear risk shown by recent winters that extreme cold winters still need to be planned for.

In a number of areas services have been contracted out and initial indications are that sufficient flexibility is in place to deal with weather events as they have occurred. Increasing risks need to be built into future contractual arrangements. In the future much expertise and technical knowledge may lay outside the Council and any nationally provided information and training needs to reach these potential providers.

## 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 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 which showed the current vulnerability – see 3.1 below. The officers were then taken through the likely changes in climate predicted by the UK Climate Projections 2009 (UKCP09) and the regional climate change study, see Table 1. discussions took place on the likely impacts on their services and work.

Table 1. Predicted future climatic conditions in the Yorkshire and Humber

<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*		

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 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 those 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 Selby district From a Changing Climate**

The major risks from Selby are often those that are already being seen from current weather conditions but which can be exacerbated by the changing climate.

The methodology used sought to quantify these risks to key service delivery areas of the Council and identify the actions needed to manage to manage these risks. It also sought to identify where further collaborative work is needed with partners within the District and more widely. It also sought to identify where opportunities might arise that the Council and the wider District could seize to ensure that they work in their favour.

Quantification of risks will be described from changing climate conditions as these often affect a range of services and there can be collaborative responses. Individual service actions will be identified and any specific risks arising. In many cases now that the risk has been identified further work is needed to provide a more geographical examination of the areas of the District that is at risk.

### **4. LCLIP evidence for Selby district**

The Local Impact Profile was carried out in 2010 and used an examination of media incidents over the previous five years to examine the impact of major weather events. The media database created indicated that for the last five years the vast majority of incidents in Selby District were caused by snow and blizzards (44%) and excessive rainfall leading to flooding (30%). There were also 13% of impacts caused by both high temperatures and storms and high winds.

Snow and blizzards were a source seasonal disruption to the Selby District. The 'big freeze' of winter (09/10) being the cause of the majority of impacts with over 90% of impacts being experienced in Selby Town. Snow and ice in urban areas resulted in an increased accident risk and higher call out rates for the emergency services. Access to Council services was reduced by snow events, with schools closures and waste collections disrupted. Excluding the responses by Emergency Planning, services, snow and blizzards had the greatest impact on the Highways Authority and Leisure and Cultural services.

Excessive rainfall leading to flooding has a regular and significant impact on the District with events being recorded in 4 of the 5 years to 2010. Flooding events had the greatest impact on rural locations with events recorded being due to both flash flooding and overflowing rivers. Flooding events primarily caused damage to buildings and led to disruption on the roads. The consequences of flooding events required response by emergency planning services and affected the operations of the Highways Authority most severely. All flooding events resulted in consequences which are subjectively regarded as of a medium or high severity.

### **5. UKCP09 predictions for Selby District**

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 Selby.

#### 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 Selby 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 took into account the current vulnerability of services and the impact of climate change projections. The project officer used the comments on the likelihood and severity of the impact on their services and budget to rank the risk according to the methodology described. These give the colour-coded level of risk.

The risks are grouped by climatic risk and not by service as often different services are impacted and collaborative action is needed. In many cases now that the risk has been better identified further work is needed to provide a more geographical examination of the areas of the District at 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				ACTIONS	PARTNERS INVOLVED	COST
				Now	20	20	20			
					20	20	20			
				Now	20	40	80			
Built Environment/ Transport	Increased winter rainfall/rising sea level in tidal rivers	Flooding from rivers and streams in winter	Damage to property/ transport disruptions to service delivery	12	16	20	25	Flood management plans in place and protection being provided to many homes at risk. Further risk from new development needs to be taken into account in planning and building control. Key infrastructure to be protected. Flexibility to deliver services from home reduces need to travel. Catchment management approach needed to manage flooding across the River Catchments that drain through Selby District. Selby DC to consider ability to protect its own properties in longer term.	Environment Agency, NYCC, Selby DC	££/£££
Built Environment/ Transport	Increased rainfall intensity after drier summer weather	Summer flash flooding due to run off	Damage to property/ transport disruptions to service delivery	12	16	20	20	Risk from Surface Water flooding being considered across North Yorkshire Protection to be put in place in areas of greatest risk, co-operative action between EA, land owners and Internal Drainage Board	Environment Agency, NYCC, Selby DC, Internal Drainage Board, Land Owners	££

Range of services	Cold winters and snow	transport disruptions	Unable to deliver services	16	12	9	6	Contracts in place to deliver services during severe weather, suitable vehicles need to be procured by SDC and contractors to be able to deliver services across differing conditions	Selby DC, Contracted Service Providers	££
Health and social care	Warmer summers/warmer winters	increasing pest and disease problem - new species	Risk to public and animal health	6	9	12	12	Regular information needed on any increasing risk of pest problems. Intelligence needed on new pest problems and support to deal them as they arise and inform businesses and the public	Selby DC, Defra, Public Health	££
Built Environment	r/sea level rise	Reduction in water supply from vulnerable aquifers/ Vulnerable people at risk from dehydration	Lack of water supplies to houses and businesses, Hot conditions threaten vulnerable population	2	6	12	20	Flood defences in place to protect against high tidal flow Review needed of protection of vulnerable aquifers, water supplied to any population at risk in dry summer, vulnerable residents provided with advice and support to remain well hydrated	Selby DC, Environment Agency	££
Natural Environment	Warmer, drier summer	Drying out of key habitats	Key wildlife areas lost and educational resources	2	6	12	16	Work with local land owners and drainage board to maintain water levels. Maintain network of habitats to allow movement of species	Selby DC, Internal Drainage Board	££



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

**KEY**

The RISKS are quantified using the methodology followed, with likelihood being multiplied by severity.

The ACTIONS identified are those: under way or planned in green; medium term over the next 5 years in amber; those needed over the next 5 to 10 years and beyond in red. Where actions are needed by partners other than Scarborough Borough Council they are named.

A relative cost has also been given, £ is low, ££ medium and £££ high, these are relative to the Departments budget and are not quantified at this stage. Where there are different costs in the short, medium and long term they are marked in same colours as the actions.

## **7. Selby District Council service based Comprehensive Risk Assessment**

Service representatives were interviewed in summer 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). The risks and actions were those identified by those being interviewed and do not represent the views of the project officer.

A further assessment is being made of services at the North Yorkshire County Council level, many of which services will also operate across Selby. To gain a full picture of the risks to the District these assessments would have to be taken together.

This assessment has been made at a time of significant change and reorganisation in the provision of public services, the impact of which was not fully understood at the time the assessment was made. As services change, the risks and actions identified need to be passed on to the organisations delivering them in the future.

Interviews with key officers.

### **7.1 HOUSING**

#### **Flooding**

The major risk faced by all types of property is that of flooding. Selby has three major rivers that pass through its borders to flow out into the Humber, the Rivers Wharfe, Ouse and Aire. The River Derwent also forms the eastern boundary of the district bringing further risk to those parts of the district. This means that rain that falls over a wide area of Yorkshire drains into the district. The other risk that will be made worse by a changing climate is sea level rise as the River Ouse is tidal through Selby District. Protection from flooding is considered under Emergency Planning below.

Selby District Council still owns social housing, with 2,300 properties under its management. Some of these properties are at flood risk and the Council is responsible for the repair of damage and cares for residents at risk. The Council is faced with increasing bills for drying properties after flooding. It needs to ensure that wherever possible properties are protected in the district. Consideration needs to be given to improving properties during maintenance and repair. Temporary flood protection can be deployed and amendments made to properties to make them more resilient. Advice can be provided to private owners and landlords to make similar changes to properties at risk.

More frequent future flooding will put some social homes more at risk than others and Selby DC may choose to abandon certain properties and relocate families to existing or new housing stock in more protected parts of the District.

#### **Other risks**

During recent cold weather there have been problems with burst pipes and some homes have been difficult to keep warm. Better insulation of housing and pipes will help with this issue, as will installing more efficient heating systems. Greater promotion of renewable energy will help with provision of affordable warmth and help some rural communities with resilience regarding power supply.

There are also future risks from hotter drier summers. Insulation of properties will help as long as ventilation is maintained. Local renewable generation of electricity can help meet extra demand in summer.

## **ACTIONS**

Joint working is needed to protect properties in Selby from flooding – see Emergency Planning and Planning below.

Selby DC can usefully review the position and vulnerability of its own stock to ensure they are protected and adapted to changing conditions. It may have to consider its continuing ownership if specific properties cannot be protected. Sharing lessons learnt would be valuable to all property owners across the district.

## **7.2 PLANNING**

The Planning team is consulting on a new Local Development Framework which will cover run until 2026, and this contains a number of policies that respond to climate change.

Flooding – the LDF has policies to map flood risk and to avoid development of new houses in flood risk areas. It also supports the development of surface water management plans and associated management means such as water storage areas. These policies need to be considered against up to date data from Defra/ Environment Agency on increased risk from flooding due to increased winter rainfall and increased intensity. There is an active North Yorkshire Flood Management Group which can help develop an overview across North Yorkshire of the issues.

Energy generation – Selby District has a large energy generating capacity from major power stations. Their protection from adverse conditions is needed for national energy security. To give greater local flexibility for energy generation the development of renewable energy sources is supported by the LDF.

Building – sustainable building is promoted which addresses a number of issues with regard to adapting to climate change, creating green infrastructure, reducing water use and creating sustainable drainage. These policies will be further supported by building control policies which are being developed.

Transport – a significant proportion of the population of Selby commute to work in Leeds and York. The LDF Core Strategy considers flooding and as a risk to transport. The Plan provides support for more localised travel which would reduce the need to travel during adverse conditions. Improved broadband, particularly in rural areas would support continued service delivery in adverse conditions when travel was reduced.

Ground water protection – the aquifers in the south of the district are used for the abstraction of drinking water. These will need to be protected from over abstraction if hot dry summers reduce water levels. There is also a risk from sea level rise which might cause contamination with saline waters. Protection of vulnerable aquifers needs to be considered alongside other flooding issues.

## **ACTIONS**

Development of the LDF, transport plans and other planning documents and the decisions made on planning applications need to take into account risks due to climate change.

Where good climate change evidence is available, such as mapping of future flood risk, this needs to be provided by the agencies involved to be used in the planning process. Support for increasing awareness of these issues for planners and elected members is available via the Climate Change Skills Fund.

### **7.3 HEALTH AND SAFETY**

Health and safety is mostly a consideration of operational issues and risks are assessed on an on-going basis to ensure they are managed correctly. This means providing training and the necessary protective equipment. As climate change impacts are experienced, training and equipment need to be reviewed.

Major impacts are considered currently and the Council has its own flooding risk assessment to ensure that Council staff themselves ensure that they are safe during flood conditions. To avoid the need for staff to be able to work flexibly from the office during adverse conditions, provision of more effective home working would prevent the need to travel. To verify flood warnings at a local level there is a need for staff to travel to potentially at risk areas and improved technology could avoid this need. The development of a reliable local community role to identification of flood risk could also provide a more rapidly updated assessment.

If there are increasingly hot and dry conditions then sun block and shade at work will need to be considered. Across different workforces there would need to be a review of working practices.

If a changing climate led to a different range of pests and diseases being introduced, the methods for cleansing and disinfection of premises and equipment would need to be reviewed to ensure that they were fit for purpose.

Much of H&S guidance arises from HSE nationally, Defra need to engage with HSE to ensure that this takes into account a changing climate.

## **ACTIONS**

Improved flood risk monitoring could improve intelligence to local communities, reliable sources from within the community may play a role.

Regular review of H&S advice nationally and locally to ensure that changing conditions are considered.

### **7.4 NATURAL ENVIRONMENT**

The key Council owned facility is Barlow Common, Local Nature Reserve. This contains a range of habitats especially ponds and reed beds which support important populations of some species. It is also an educational resource for local schools much in use as a 'green classroom'. The main climate change related risk is from

drying due to hotter, drier summers. Work would be needed with neighbouring land owners and the Internal Drainage Board to help maintain water levels, particularly in ponds at key points in the breeding cycle.

Within the district there are key nature reserves, including National Nature Reserves which are managed by other agencies, such as Natural England. Over a longer period it will be important that the District and County Council work with key agencies to provide networks of habitats to allow species to move as climatic conditions change. Such networks would include Barlow Common.

#### **ACTIONS**

Maintain water levels by working with neighbouring land owners and the Internal Drainage Board.

Work with partners to develop a network of key habitats across the district to allow movement of species.

### **7.5 IT AND TELECOMS**

There is a risk of IT equipment overheating in hot conditions, especially if there is a large energy demand for cooling. IT failure would impact information governance – the security of Council data, which is governed by primary legislation. Many telecommunications systems are connected to SDC's IT and this brings risk of disruption to Council business. The Council is currently moving to new premises shared with the hospital. As part of the move, there is a change to IT delivery, with the number of servers being reduced to five - with a resulting reduction in the need for air conditioning. Back-up generator support for the system will be available. Further resilience of data is provided as the District Council is sharing IT services with other partners and back-up sets of data are being created on servers at other sites.

Work stations are generally more robust to hotter conditions as they are housed individually. Home working allows access to systems at times of transport disruption, however not all systems are available to home workers. Resilience could be improved by providing a full range of IT services to home workers.

The telecommunications for the Council are designed to be as robust as possible but the major route is through a single exchange in Selby, which is at risk from flood or other disruption. It is important that the resilience of this exchange is maintained or other options for routing are developed over time.

#### **ACTIONS**

Consider providing full range of services to clients home working, to give maximum flexibility.

Ensure the continued protection of Selby BT Exchange.

### **7.6 PROCUREMENT**

The Council is increasingly working jointly with other authorities, eg: Scarborough BC. Tenders are let using contract rules which look at best value and also most efficient providers. Environmental considerations are built in to the contract process but can be less of a priority in difficult financial times. Procurement policies need to be reviewed to take into account changing climate. For example, the Council does not currently procure four-wheel drive vehicles and relies on partners to provide these where necessary. This may have to be reviewed if flooding becomes more prevalent and whilst adverse winter weather is seen.

Selby District Council is moving to a new building shared with other users. This is resilient to some threats as it has a back up generator and is capable of being cooled using forced ventilation.

In the future the Council could look at procuring more forms of renewable energy, to take the opportunity of Feed in Tariffs and other benefits. This also allows local generation of energy to provide further security of supply. Selby DC is looking to joint large scale national agreements to get best value.

#### **ACTIONS**

Explore adding environmental concerns to deal with climate change into procurement policies. An example policy is available from North Yorkshire County Council that might be used as a model.

Investigate procuring and supporting local renewable energy generation to support local supply of energy which might be more resilient in adverse weather and could supply energy during potential future national shortages.

### **7.7 EMERGENCY PLANNING**

The major emergency risk to the district is flooding, mostly from rivers but also surface water drainage. On Emergency Planning, Selby District Council work closely through a Service Level Agreement with North Yorkshire County Council, which is the lead authority. A thorough flood risk plan has been developed for the district identifying risks and actions needed. Close working occurs with the Environment Agency who issue flood risk warnings. This is supplemented by local knowledge of risks from secondary water courses in vulnerable areas. Some of the flood response actions are with contracted services, who provide materials such as sand bags and to have flexible work force to respond to events.

Further work is on- going to examine better mapping and emergency planning on surface water flood risk. This is a risk to Selby town from the build up of water levels in low lying areas, rather than sudden run-off down slopes. Properties are at risk and there are also risks of surface water on roads. Once there is a better understanding of the risks then collaborative work can take place with Internal Drainage Boards and land owners to address them. Risks are likely to increase with high intensity rainfall at any time of the year.

The key infrastructure that needs to be protected against a range of risks have been examined and recorded as part of the Civil Emergencies Register. Planning needs to be robust to deal with risks. Key transport assets need to be protected in the district such as key bridges, although longer alternative routes are usually available.

There are risks from a changing climate, such as increases in animal pest and diseases, but these are considered at the county level with a robust plan in place.

There have also been recent examples of disruption due to ice and snow and also future risks to the population during hot, dry summers. The plans in place need to be regularly reviewed to ensure that there are relevant to the current risks.

#### **ACTIONS**

Maintain partnership working to deal with current flood risks.

Review current emergency plans against changing conditions and ensure that key risks are identified and actions suggested.

### **7.8 ENVIRONMENTAL HEALTH**

Two key risks were identified in this area - increasing risk to air quality and new pests and diseases.

The district contains a number of large industrial sites, including power stations, with others situated close by. Selby is a low lying area so problems can build up in certain atmospheric conditions. There are likely to be a greater number of hotter, drier summers in the future where a greater risk might occur. There may also be greater burning of biomass on a domestic and industrial scale. The emissions from industry are tightly regulated and controls need to take account of risk due. The potential increased risk of atmospheric pollution due to small scale generation needs to be examined.

There are already problems caused by increasing levels of rodents in the district which may become worse in milder winters. Pest control comes at a cost to the Council and this could increase if it is a free service to the public. A number of other human and animal pest and diseases could increase or new ones occur due to increasing temperatures and greater winter rainfall. The situation needs to be regularly reviewed by the service providers and intelligence provide nationally on any trends. Control methods need to be reviewed.

#### **ACTIONS**

Air quality issues in the district need to be reviewed in light of changing conditions and different types of fuel used in industrial and domestic heating. National standards need to be examined against local conditions.

Control methods for pests and diseases affecting humans, property and animals need to be reviewed regularly against the level of infestation seen and any increasing threat from new pest/disease problems.

### **7.9 WASTE**

Services in this area, as with a number of areas, are delivered by contractors with the Council managing the contract. The important issue with these contracts is that they

are sufficiently flexible to deal with changing conditions as the climate changes and that the contractors carry out their own risk assessments and build in business continuity plans.

The Waste contractors have managed to deliver services through most of the recent adverse winter conditions and have dealt flexibly with other situations that have occurred. There was an issue with hydraulic systems on vehicles not working below – minus 8°C and the solution was a changed chemical mix. Whilst adverse winter conditions occur, there needs to be joint work on providing robust systems.

The Council operates alternate weekly collection system and it is considered that within the climate changes likely to be experienced there will be no major problems with waste left for two weeks.

One issue that has arisen has been the closure of a landfill site due to high winds, which are predicted to increase in the future. There is an alternative site and in the future a single waste disposal facility will be available for York and North Yorkshire, which may be some way from the district. Plans for delivering waste to this site must be sufficiently robust to take into account increasingly adverse conditions causing transport disruption.

#### **ACTIONS**

Ensure that contractor and Council vehicles are robust to extreme conditions.

Work needs to take place with the York and North Yorkshire Waste Partnership to ensure that the future waste disposal, including infrastructure and transport are resilient.

### **7.10 STREETSCENE AND GROUNDS MAINTENANCE**

These services are contracted out. One impact noted is the longer growing season for plants leading to greater demands for cutting of grass and weed control on roads. However, hot dry summers in the future may lead to less growth which could reduce the need for grass cutting in high summer. This means contracts needed to be flexible to ensure that grounds are maintained to the required standard over the year rather than specifying a number of cuts/sprays at certain times. Standards may have to be reviewed if maintaining current levels of service becomes too expensive.

Vehicle procurement is an issue with vehicles needing to be flexible to deal with adverse weather conditions. Using quad bikes may be a suitable approach.

#### **ACTIONS**

Contracts let, need to be short or flexible enough to deal with changing conditions, including longer growing seasons. Standards of maintenance will need to be reviewed.

During procurement of vehicles, add specifications which cover a variety of conditions that might be anticipated.



## 7.11 SOCIAL CARE

Most social care risks to occur at County level and will be considered in that assessment. Selby DC provides support to the residents of its homes and to other residents. This is provided by face to face meetings or via a Call Centre. During recent disruption due to adverse flooding, sufficient Council staff were able to be deployed to maintain a level of service. Some of the services are capable of being provided by home working, but not the Call Centre provision. If this was possible it could provide extra flexibility during adverse weather.

For future potential disruption such as flooding and hot weather the Call Centre has a list of vulnerable residents so it can ensure that key messages and actions are relayed to this most vulnerable part of the population, particularly for those that might not access information on the website.

### **ACTIONS**

Consideration to be given to enabling a full provision of Council services to residents by remote working.

Information to be provided to vulnerable residents during adverse weather conditions which disrupt normal service.

## 8. Selby District Council Climate Adaptation Action Plan

The actions from the interviews have been tabulated to give a 2011 climate adaptation action plan (Table 3). Following table details the work that now needs to be carried out across Selby District Council's various departments in order to ensure Selby prepares and adapts to a changing climate.

Identified Risk	Identified Action and Reference to Report Section	Lead Department	Add to service/departmental plans	Add to SBC Risk Register
Major River and surface water flooding	<p>7.1, 7.7 Joint working is needed to protect Selby properties from flooding. Partnership working maintained to deal with the risk of flooding current at the time.</p> <p>7.5, 7.7 Ensure Selby Telephone Exchange is protected as key infrastructure.</p> <p>7.3, 7.7 Improved flood risk monitoring could improve intelligence to local communities, reliable sources from within the community may play a role.</p>	<p>Housing Emergency Planning</p> <p>Emergency Planning/IT</p> <p>Health and Safety/Emergency Planning</p>	<p>Now</p> <p>Now</p> <p>Now</p>	<p>Now</p> <p>Now</p> <p>Now</p>
Major River and surface water flooding	7.1 Selby DC can usefully review the position and vulnerability of its own stock to ensure it is protected and adapted to changing conditions. It may have to consider discontinuing ownership if specific properties cannot be protected. Sharing lessons learnt would be valuable to all property owners across the district.	Housing	Now	Now
Increased summer temperatures and decreased rainfall	7.8 Air quality issues in the district need to be reviewed in light of changing conditions and different types of fuel used in industrial and domestic heating. National standards need to be examined against local conditions.	Environmental Health	Now	2020

Increased summer temperatures and decreased rainfall	<p>7.4 Maintain water levels at Barlow Common Nature Reserve by working with neighbouring land owners and the Internal Drainage Board.</p> <p>Work with partners to develop a network of key habitats across the district to allow movement of species.</p>	Countryside Services	2020	2030
Range of climatic conditions affecting planning and policies	<p>7.2 Development of the LDF, transport plans and other planning documents and the decisions made on planning applications need to take into account risks due to climate change.</p> <p>Where good climate change evidence is available, such as mapping of future flood risk, this needs to be provided by the agencies involved to be used in the planning process. Support for increasing the awareness of planners and elected members is available via the Climate Change Skills Fund.</p>	Planning	Now	Now
Range of climatic conditions affecting planning and policies – linked to service delivery	7.7 Review current emergency plans against changing conditions and ensure that key risks are identified and actions suggested.	Emergency Planning	Now	Now
Range of climatic conditions affecting service delivery	<p>7.10, 7.6 During procurement of vehicles, add specifications which cover a variety of conditions that might be anticipated.</p> <p>Contracts let, need to be short or flexible enough to deal with changing conditions, including longer growing seasons. Standards of maintenance will need to be reviewed.</p>	Streetscene/ Procurement	Now	Now
Range of climatic conditions	7.3 Regular review of H&S advice nationally and locally to	Health and safety	Now	2020

affecting service delivery	ensure that changing conditions are considered.			
Range of climatic conditions affecting service delivery	7.5, 7.1 Consider providing full range of services to clients and service delivery from home working to give maximum flexibility during transport disruptions.  4.11 Information to be provided to vulnerable residents during weather conditions which disrupt normal service.	IT/Housing Services	Now	2020
Range of climatic conditions affecting service delivery, particularly warmer drier summers	7.6 Explore adding environmental concerns to deal with climate change into procurement policies. An example policy is available from North Yorkshire County Council that might be used as a model.  Investigate procuring and supporting local renewable energy generation to support local supply of energy which might be more resilient in adverse weather and could supply energy during potential future national shortages.	Procurement	2020	2030
Range of climatic conditions affecting service delivery	7.8 Control methods for pests and diseases affecting humans, property and animals need to be reviewed regularly against the level of infestation seen and any increasing threat from new pest/disease problems.	Environmental Health	Now	2020
Range of climatic conditions affecting service delivery	7.9 During procurement of vehicles, add specifications which cover a variety of conditions that might be anticipated.  Work needs to take place with the York and North Yorkshire Waste Partnership to ensure that the future waste disposal including infrastructure and transport are resilient.	Waste	Now	Now

Table 3. Selby DC Action Plan.

## **9. Conclusion**

This piece of work was funded by RIEP and the intention is for the Selby 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**

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West Yorkshire Comprehensive Risk Assessment

East Midlands Comprehensive Risk Assessment

The following Selby DC officers:



Name	Service/unit
Dale Casson	Procurement
Dean Richardson	Environmental Health & Emergency Planning Car Parks
Diana Adamson	Health and Safety
Drew Fussey/ Aimie	Environmental Service: - waste management/street cleansing - fleet transport - recycling and waste enforcement - grass cutting - pest control - grounds maintenance
Roger Eyre/Ian Johnson	Housing Manager
Dave Maycock	Property Services
Eileen Scothern	Economic Development & Strategic Planning & Leisure and tourism
Rob Mackin	IT Manager
Julie Claxton	Customer Services Manager

NB: These names may need to be redacted.