

[Action Plan]

# [Climate Resilience Plan ]

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Contact: [ Assistant Sustainability Officer]

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## **Introduction**

### **Background**

Man-made greenhouse gas emissions are influencing the climate system and will continue to do so over the coming decades. Even if we cease production of man-made emissions tomorrow, we would still need to prepare for the impacts a changing climate is likely to have on the environment, society and our economy. It is now widely accepted that we need to build a resilience to the impacts of climate and the resulting severe weather events as well as continue to reduce our greenhouse gas emissions to limit the effect we have on the environment.

Over recent years, weather events have had considerable impacts on parts of the UK resulting in disruption to services and transport as well as damages to infrastructure. This results in a knock on effect to our local communities. For example; in December 2010, snowfall and freezing condition led to an estimated £20 million loss in Christmas trade across Herefordshire and Worcestershire through travel disruption putting people off visiting shopping areas.

### **National action**

The issue of climate change is now being taken seriously at a national and international level. The starting point for this was the Rio Earth summit in 1992 where World leaders agreed that action needed to be taken to solve economic and environmental issues such as poverty and climate change. Since then, further discussions have taken place and agreements made to take action on climate change by reducing man made greenhouse gas emissions. Although efforts are being made to reduce the impact human activity has on the environment, it is important to consider how a changing climate may impact on human activity. Over the last few years, annual international conferences have been held in an attempt to form an agreement to reduce CO<sub>2</sub> emissions. The latest conference, Cancun 2010 also made plans for supporting developing countries in dealing with the impacts of climate change as well as developing a more low carbon society.

The potential costs and risks of climate change to the economy have been documented by The Stern Review which highlighted that unabated climate change could cost the world at least 5% of global GDP per year and that severe weather events could reduce global GDP by up to 1%.

The passing of the UK Climate Change Act 2008 has further highlighted the importance of assessing the risks posed by climate change and the need to plan adaptive measures through the setting up of the Adaptation Reporting Power for public bodies and statutory undertakers. The Act also places a requirement on the UK government to publish a UK Climate Change Risk Assessment by January 2012 which will inform a National Adaptation Programme to be developed throughout 2012.

### Worcestershire County Council; building resilience

Until December 2010, Worcestershire County Council were required to report to DEFRA on their plans to adapt to climate change via National Indicator 188. This indicator set out a process for assessing the impacts of severe weather and the future risks posed to services as the climate changes. The final stages are to address these risks to limit disruption from future events and review this on a regular basis. As a formal reporting mechanism no longer exists, Worcestershire County Council will provide feedback to the Worcestershire Partnership Climate Change Task group on progress on adaptation to a changing climate on an annual basis with a 6 monthly progress update.

To get to a point where we could produce this action plan it was necessary for us to assess our current vulnerability to severe weather and climate change. For this a Local Climate Impacts Profile (LCLIP) was produced. The LCLIP highlighted that, since 1997, over half of the severe weather events to have affected Worcestershire were flood/heavy rainfall related. These are also some of the most costly events, with summer flooding in 2007 thought to have cost Worcestershire around £6.4 million per week. The document highlights the impact these weather events have had on Worcestershire County Council service delivery and pinpoints a number of key costs and risks to vulnerable members of the community. This document will be continually updated as and when severe weather events occur to maintain a record of impacts.

Once Worcestershire's current vulnerability to severe weather had been established, the next stage was to assess the risks the predominant severe weather types pose to the county. These risks were assessed using the standard risk matrix and process used by the authority, this allowed for severe weather and climate change to be taken in context of other operational risks. Having identified key risks and threats to services this document was developed to help plan to manage the identified risks. The Climate Resilience Plan consists of two parts, the first being a risk assessment and the second this action plan. This document considers the following severe weather;

High temperatures (30°C+)

Fluvial and surface water flooding or heavy snowfall

Extreme cold

These severe weather hazards and associated implications have been considered by each Worcestershire County Council directorate for their service areas taking into account adaptive measures that may already have been taken.

**High temperature 30C+**  
**Adult and Community Services**  
**Service area: all**

<b>Hazard</b>	Increased risk of high temperatures (30°C +)
<b>Implications</b>	Major risk is heat stress for vulnerable adults e.g. in residential homes or in their own homes
<b>Risk Level</b>	High
<b>Actions to date</b>	<ul style="list-style-type: none"> <li>Heat wave planning guidance issued annually by Department of Health used as annual check of operational protocols in establishments</li> <li>Physical arrangements in individual social care establishments reviewed and solar film provided for windows/overhead skylights as appropriate</li> </ul>

Additional actions

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirement</b>	<b>Date for review</b>
ACS01	Annual property inspection (audit) to include review of physical measures in place to reduce risk of heat stress	A&R Coordinator Operational Support	Annual	Within existing resources	Mar 2012
ACS02	Ensure design specifications for future builds take account of heat stress issues	A&R Coordinator Operational Support	As required	Included in Capital build costs	Mar 2012
ACS03	Review operational protocols in provider services annually at beginning of Summer in light of DH heatwave guidance, make any adjustments as needed and brief staff	Provider Manager	Annual	Within existing resources	Mar 2012

**Environmental Services**  
**Service Area: Directorate wide**

<b>Hazard</b>	Increased risk of high temperature (30°C+)	
<b>Implications</b>	Staff discomfort	12
	Loss of utilities – water, power, communications	14
<b>Risk Level</b>	Medium - 14	
<b>Actions to date</b>	Water coolers in place Air conditioning at depots Air cooling system at County hall	

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
CC01	Working hours/ flexible working. Relaxed dress code. Add reflective film to windows to keep heat out. Obtain portable air conditioning units. Ensure availability of cold drinks.	All units	Ongoing	Within current resources  Reflective Film would have to be arranged with Property Services  Air con in depots, County hall has chilled air system. Water Coolers	January 2012
CC05	Backup generators, review mobile communications.	All units	Ongoing	Within current resources Generators at tele exchanges and with IBS. Emergency Lighting at Gritting depots but no generators available. County Hall, Warndon Depot &	January 2012

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				Countryside Centres no provision for generators	
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**Environmental Services**  
**Service area: Integrated Transportation**

<b>Hazard</b>	Increased risk of high temperatures (30°C+)	
<b>Implications and risk</b>	Discomfort to passengers	12
	Damage to infrastructure – roads	19
	Damage to bridges	12
	Fires – countryside and gypsy sites	17
	Fires – highway verges	17
	Leakage of canals/reservoirs	10
	Air quality	11
<b>Overall Risk Level</b>	High 19	
<b>Actions to date</b>	<p>12 vehicles delivered in accordance with planned action.</p> <p>Fire breaks in place. Regular inspections in place to ensure combustible material on Countryside and Gypsy Sites kept to a minimum.</p> <p>Improved co-ordination and planning of cutting schedules, reducing our carbon footprint.</p> <p>Schemes being evaluated ready for commencement of LTP3.</p>	

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
CC03	Look at design specification of roads in conjunction with partners/suppliers	Asset and Engineering	Ongoing	Within current resources	Jan 2012
CC04	Look at design specification of	Asset and Engineering	Ongoing	Within current resources. Interface	Jan 2012

	bridges in conjunction with partners/suppliers			with partners to draw conclusions together.	
CC12	Implementation of improved air quality through LTP3 and public communications. Planning control. Liaison with district councils – Air Quality Management Areas.	Sustainable Transport	End of LTP3 2026	Funding required from Worcestershire Partnership via LTP3 bidding process on a business case basis.	Feb 2012

**Environmental Services****Service area: Waste Services and Scientific Services**

<b>Hazard</b>	Increased risk of high temperatures (30°C+)	
<b>Implications</b>	Cracking of cap on closed landfills	19
	Increase in vermin and pests associated with uncollected waste.	12
<b>Risk Level</b>	High 19	
<b>Actions to date</b>	Monitoring of landfill sites	

## Additional actions

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
CC07	Research Leachate irrigation system, working with Environment Agency	Waste Services	Ongoing	Research within current resources. Additional funding required to implement	Jan 2012
CC13	Work with district and other partners on waste collections	Waste Services	Ongoing	Within current resources	Jan 2012

**Resources Directorate**  
**Service area: IBS**

<b>Hazard</b>	Increased Risk of high temperatures (30°C +)
<b>Implications</b>	<ul style="list-style-type: none"> <li>• May result in office temperature being above what is expected for staff to work in.</li> <li>• Computer environmentals become unable to cope with demands for cooling of server / computer equipment (especially in computer room environments). Servers may become overheated and will shut-down, causing loss of applications.</li> <li>• People may not be able to travel to work safely using own transport, or public transport may become intermittent or unreliable.</li> <li>• Loss of external services, such as network capacity provided outside of WCC; utilities (power, water).</li> <li>• Longer term - Will affect equipment in server and comms. rooms by overheating and failure of electronic equipment. Servers will attempt to deal with excess heat by using internal fans, but may be inadequate. (Rise in power usage as fans kick-in).</li> </ul>
<b>Risk Level</b>	Medium
<b>Action to date</b>	<ul style="list-style-type: none"> <li>• Action plan to monitor condition of IBS teams and take action in conjunction with HR / Facilities. May result in having to inform staff to go home.</li> <li>• Define and have agreed minimum staffing levels within the office environment if, by taking staff away from the office, will result in lowering of office temperature.</li> <li>• Treat as loss of environmentals, to increase capacity for air conditioning (likely to have competition for such a commodity from other organisations in the same position).</li> <li>• If unable to obtain an upgrade to air conditioning, open doorways/windows, reducing security, but will need manual intervention to compensate.</li> <li>• Consider switching off non-critical servers or other equipment (back-up devices, printers, monitors) in an attempt to decrease heat output.</li> <li>• Improvements to systems infrastructure has taken place in a systematic and coordinated way to ensure that the only the appropriate services are provided within the computer room.</li> <li>• Physical arrangements for various types of heat reducing technologies provided by use of new server hardware.</li> <li>• Reduction in the number of servers housed in the main server room. First phase of server rationalisation</li> </ul>

	<p>has completed. During 2010-11 power consumption of servers in the computer room now lower than 2009/2010.</p> <ul style="list-style-type: none"> <li>Air conditioning improved in the server room at Wildwood.</li> </ul>
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### Additional actions

Action no.	Description of action	Service area (including responsible officer)	To be completed by	Resource requirements	Date for review
CS01	Action to take for longer term seasonal variance will fall to Property/Facilities for Office accommodation.	IBS Support Services Manager	Ongoing	Within current resources	March 2012
CS02	Will plan for monitoring of temperature in server and comms. rooms. Deal with rising temperatures using greater capacity air conditioning.	IBS Technical Development Manager	Ongoing	Within current resources	March 2012
CS03	Increasing power consumption is the main cause of temperature increase. Continue to remove redundant	Technical Services Manager	March 2013	Within existing resources	March 2012

	servers, and develop virtual server technology. During 2011/12 virtualisation of servers will increase, reducing power consumption and lowering cooling requirement				
CS04	Develop contained air conditioning facilities for the main server room at County Hall. New Air conditioning system planned for main server room, sized and agreed with Property Services. Currently waiting for planning consent.	Head of IBS/Head of Property Services	March 2012	Capital bid	September 2011
CS05	Provide advice and guidance through Intranet, Internet, and Hub services when heat wave conditions manifest.	Web Manager/Head of Hub services	Ongoing	Existing resources	March 2012

**Planning, Economy and Performance**  
**Service area: Communications Unit**

<b>Hazard</b>	Increased risk of high temperatures(30°C +)
<b>Implications</b>	Potential heat stress among staff leading to fewer staff available for work Increased need for communication of messages/updates relating to the weather event to the public and to staff
<b>Risk level</b>	Medium
<b>Actions to date</b>	Communicating emergencies is included within the communications plan All staff have the ability to work remotely and access the email system Emergency strategic command keeps the flow of information from directors to communication units during severe weather events. Worked with district council and LRF contacts during emergency exercises for 2010/11 Dealing with resilience has been flagged up in the Marketing and Communication Review. Promoted Business Continuity Awareness Week and Climate Week (22 <sup>nd</sup> -27 <sup>th</sup> March 2011)

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
PEP04	Increase working links with District Council and LRF communication teams for sharing services	Marketing and Communications Manager	Ongoing	Within current resources	March 2012
PEP05	Embed the use of teleconferencing facilities for remote working	Marketing and Communications Manager	Ongoing	Within current resources	March 2012
PEP06	Directorate account holders to communicate adaptation action plan and business continuity	Marketing and Communications Manager, Risk Manager and	Ongoing	Within current resources	March 2012

	reminders to staff	Assistant Sustainability Officer			
PEP08	Action 24 hour operation of communication service (shifts for current staff) if needed for severe weather response	Marketing and Communications manager	Ongoing	Within current resources	March 2012

**Planning, Economy and Performance**  
**Service area: Property Services**

<b>Hazard</b>	Increased risk of high temperatures (30°C+)
<b>Implication</b>	<p>Uncomfortable working conditions leading to complaints from staff</p> <p>Disruption to learning due to heat</p> <p>Increased need for cooling of buildings- increased energy demand if air conditioning units are required</p> <p>Potential power cuts if energy demand is too high</p> <p>Increased use of desk fans leading to increased demand for energy</p> <p>Design specifications include overheating performance criteria. For schools, Building Bulletin 101 defines 3 criteria and the need to pass 2. Generally aim for less than 120 hours above 28°C and 32°C incidental maximum. Increased IT usage as well as climate change create a challenge to school design.</p>
<b>Risk level</b>	Medium
<b>Actions to date</b>	<p>Climate Change Scrutiny report recommends that all new building designs should consider inclusion of adaptive measures.</p> <p>IES modelling software used to investigate building performance over the next five years</p> <p>Aim for BREEAM 'very good' standard for Building Schools for the Future programme. National programme specifies minimum life of a building of 25 years. Although adaptation to climate change is not specified, some design solutions will aid adaptation (rainwater harvesting etc.).</p> <p>Ensure that adaptation measures do not increase energy use and CO<sub>2</sub> emissions (alternatives to mechanical cooling and air conditioning in existing buildings and natural ventilation included in new designs).</p> <p>Use of the UKCIP Adaptation Wizard and climate change checklists for design process.</p> <p>UKCIP involved in assessing adaptation measures for the Worcester Library and History Centre designs</p>

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
CS07	Investigate evaporative cooling systems for cooling school IT servers- new buildings	Property Services (Chief engineer)	Ongoing	Within current resources	March 2012
CS08	Ensure design specifications for future builds take account of heat stress issues	Head of property Services	As required	Included in Capital build costs	March 2012
CS09	Use IES modelling software with future climate projections to assess performance	Property Services (Chief engineer)	Ongoing	Currently within resources of Design for Future Climate Project.	March 2012
CS10	Investigate overnight evaporative cooling options for school buildings to cool the fabric of the building when little relief from high temperatures at night	Property Services (Chief engineer)	Ongoing	Within current resources	March 2012

**Planning, Economy and Performance**  
**Service area: Property Services- Client Support Unit**

<b>Hazard</b>	Increased risk of high temperatures (30°C+)
<b>Implications</b>	High temperatures within buildings leading to requests for cooling from the site users Heat exhaustion leading to a reduction in available staff
<b>Risk Level</b>	Low
<b>Actions to date</b>	Business continuity plans When building stock is changed, aim to improve on existing thermal comfort conditions

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service are (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
CS06	Review business continuity plans	Client Support Unit (Client Support Unit Manager)	Annually	Within current resources	March 2012

**Planning, Economy and Performance**  
**Service area: Biodiversity**

<b>Hazard</b>	Increased risk of high temperatures (30°C +)
<b>Implications</b>	Changes to competitive advantages between species and changes in timing of seasonal events (hatching birds etc.) leading to declines in some populations and possible local extinctions Changes in land use and management resulting in further loss of natural habitat as more marginal areas are improved for food production Increased risk of wild fires on heathland and other drier habitats
<b>Risk level</b>	High
<b>Actions to date</b>	Climate change is a key driver behind the Worcestershire Biodiversity Action Plan Local Opportunity Mapping has identified eleven landscape areas with long-term opportunities (to 2026) for habitat restoration and improved landscape function and five landscape areas in which to focus short-term priorities (to 2015)

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
PEP01	Review of opportunity and priority landscape areas and success / progress in project delivery	Biodiversity Action Plan Manager, Environmental Policy team	annual	Biodiversity Partnership management and co-ordination groups	March 2012
PEP02	Monitoring of species declines and increases and changes in range	Biodiversity Action Plan Manager, Environmental Policy team	5-yearly	NBN; WBRC	March 2015
PEP03	Monitoring of contraction and expansion of key habitats	Biodiversity Action Plan Manager, Environmental Policy team	5-yearly	National, regional and local habitat inventories	March 2015

**Planning, Economy and Performance**  
**Service area: Emergency Planning Unit**

<b>Hazard</b>	Increased risk of high temperatures (30°C +)
<b>Implications</b>	Risk of heat stress and increased hospital admissions, increased fire risk
<b>Risk level</b>	Medium
<b>Actions to date</b>	Follow NHS national heat wave guidance

Additional actions

<b>Action no.</b>	<b>Description of action</b>	<b>Service area(including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
PEP09	Continued link with severe weather group to identify response triggers	Emergency planning manager	Ongoing	Currently within existing resources	March 2012
PEP10	Annual review of plans- Particularly for priority areas (vulnerable persons)	Emergency planning manager, PEP / Hospitals manager ACS	Annual	Currently within existing resources	Financial year

**Planning, Economy and Performance**  
**Service area: Sustainability and Learning for Sustainability**

<b>Hazard</b>	Increased risk of high temperatures (30°C +)
<b>Implications</b>	Uncomfortable working conditions may lead to increased electricity use for cooling Risk of heat stress
<b>Risk level</b>	Medium
<b>Actions to date</b>	Adaptation workshop provided at Beacon open day event Completed a Local Climate Impact Profile (2007) and Impacts of Climate Change on Worcestershire document (2004) Local Climate Impact Profile workshop provided at Beacon Open day Encouraged partners to consider adaptation through the Climate Change Task group Consideration of severe weather risk included in officer in charge training Climate Change adaptation included within Sustainability Policy

<b>Action no.</b>	<b>Description of action</b>	<b>Service area(including responsible office)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
PEP13	Assess the link between adaptation, health and wellbeing and mitigation	Learning for Sustainability team- Learning for Sustainability Officer	Annual planning sessions	Within current resources	March 2012
PEP14	Work with members of the Worcestershire Partnership to encourage consideration of climate risk and adaptation	Sustainability team- Principal Sustainability Manager	March 2012	Support from Risk manager	March 2012
PEP49	Heatwave research looking at mortality rates.	Sustainability Team- Principal Sustainability Manager	June 2011	Support from Public Health, Research and Intelligence and University of Birmingham	March 2012
PEP52	Raise the profile of adaptation as a key response to climate	Sustainability Team- Learning for	Ongoing	Within current resources	March 2012

	<p>change with schools</p> <ul style="list-style-type: none"><li>• Identify specific projects schools could engage with e.g. linked to flooding, heatwaves etc.</li><li>• Support implementation of projects identified</li><li>• Assess and evaluate impact of the projects</li></ul>	Sustainability Officer			
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**Fluvial and surface water flooding and heavy snowfall****Adult and Community Services**

Service area: All

<b>Hazard</b>	Increased risk of fluvial and surface water flooding or heavy snowfall
<b>Implications</b>	<p>Main risks are:</p> <ul style="list-style-type: none"> <li>• Travel disruption – ie staff unable to get to work/unable to get to service user homes</li> <li>• Damage to/loss of buildings from which services are provided</li> <li>• Damage to/loss of assets held by services</li> </ul>
<b>Risk Level</b>	High
<b>Actions to date</b>	<ul style="list-style-type: none"> <li>• Business continuity plans in place for critical services (eg social care) covering these hazards</li> <li>• Disaster recovery plans in place for Cultural services re service assets (eg Record office)</li> <li>• Awareness raising sessions with independent sector social care providers</li> <li>• Work on existing buildings – e.g. improvements to drainage arrangements</li> <li>• Business continuity planning has been introduced as a contractual requirement for external social care providers</li> </ul>

**Additional actions**

<b>Action no.</b>	<b>Description of Action</b>	<b>Service Area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
ACS04	Annual property inspection to include review of physical measures in place to reduce risk of flooding/mitigate impact	A&R Coordinator Operational Support	Annual	Within existing resources	Mar 2012
ACS05	Ensure design specifications for future builds take account of flooding issues	A&R Coordinator Operational Support	As required	Included in Capital build costs	Mar 2012

ACS06	Coordinate formal annual review of business continuity plans within Directorate to ensure they continue to be fit for purpose	ACS linked Emergency Planning Officer	Annual	Within existing resources	Mar 2012
ACS07	Keep business continuity plans in critical services under continual review and update as needed	Critical Services Managers	As required	Within existing resources	Mar 2012

**Environmental Services**  
**Service area: Integrated transportation**

<b>Hazard</b>	Increased risk of fluvial and surface water flooding	
<b>Implications</b>	Damage to highway infrastructure	18
	Bridge closures	17
	Bus services diverted	18
	Providing transport for affected	23
	Closure of schools	16
	Flooded fords	23
	Flooding of residential Gypsy Sites	23
	Damage to Public Rights of Way	16
<b>Risk Level</b>	High - 23	
<b>Actions to date</b>	Flooding timetables available for the most affected bus routes. Fleet used to access isolated communities. Business continuity plans in place for critical services	

**Additional actions**

Action no.	Description of action	Service area (including responsible officer)	To be completed by	Resource requirements	Date for review
CC23	Research specification for different forms of construction for the highway. Design specification for major highway schemes. Contingency plan.	Asset and Engineering	Ongoing	Research within current resources. Additional funding required to implement.	Jan 2012
CC24	Contingency plan, including rerouting and signage for	Asset and Engineering	Ongoing	Within current resources. Draw on	Jan 2012

	closed bridges.			previous (possibly emergency) experience.	
CC25	Roll out flooding timetable route across affected bus routes	Sustainable Transport	Ongoing	Within current resources	Feb 2012
CC29	Contingency plans by contractor for collecting pupils from closed schools, working in partnership with ChS. Review contract with transport contract.	Sustainable Transport	Ongoing	Within current resources	Feb 2012
CC30	Ensure drainage infrastructure properly designed and maintained on Gypsy Sites.	Countryside Service	Ongoing	Existing resources	
CC31	Ensure new Public Rights of Way infrastructure properly designed installed and maintained.	Countryside Service	Ongoing	Existing resources.	

**Environmental Services**  
**Service area: Waste Services and Scientific Services**

<b>Hazard</b>	Increased risk of fluvial and surface water flooding	
<b>Implications</b>	Extra Waste from flooded properties	16
	Closure of household waste sites and other disposal points	16
<b>Risk Level</b>	High – 16	
<b>Actions to date</b>	Business continuity plans in place for critical services	

Additional actions

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
CC22	Work with the waste contractor. Instigate contingency plans.	Waste Services	Ongoing	Within current resources	Jan 2012
CC28	Create contingency plans with waste contractor for the closure of HWS. Re-siting of vulnerable sites.	Waste Services	Ongoing	Within current resources. Additional funding required if sites need to be re-sited.	Jan 2012

**Planning Economy and Performance**  
**Service area: Biodiversity**

<b>Hazard</b>	Increased risk of flooding or heavy snowfall
<b>Implications</b>	Changes to competitive advantages between species and changes in timing of seasonal events (hatching birds etc.) leading to declines in some populations and possible local extinctions Changes in land use and management resulting in further loss of natural habitat as more marginal areas are improved for food production Increased risk to ground nesting birds and mammals during unseasonable flooding
<b>Risk level</b>	High
<b>Actions to date</b>	Climate change is a key driver behind the Worcestershire Biodiversity Action Plan. Local Opportunity Mapping has identified eleven landscape areas with long-term opportunities (to 2026) for habitat restoration and improved landscape function and five landscape areas in which to focus short-term priorities (to 2015). Two priority landscape areas and two long-term opportunity areas have been chosen by the Biodiversity Partnership as a focus for wetland restoration and water quality improvement projects.

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
PEP22	Review of opportunity and priority landscape areas and success / progress in project delivery	Biodiversity Action Plan Manager, Environmental Policy team	annual	Biodiversity Partnership management and co-ordination groups	March 2011
PEP23	Monitoring of species declines and increases and changes in range	Biodiversity Action Plan Manager, Environmental Policy team	5-yearly	NBN; WBRC	March 2015
PEP24	Monitoring of contraction and expansion of key habitats	Biodiversity Action Plan Manager, Environmental Policy team	5-yearly	National, regional and local habitat inventories	March 2015

**Planning, Economy and Performance**  
**Service area: Communications unit**

<b>Hazard</b>	Increased risk of fluvial and surface water flooding or heavy snowfall
<b>Implications</b>	Increased need for communication of messages/updates relating to the weather event to the public and to staff Staff unable to get to County Hall due to road conditions
<b>Risk level</b>	Medium
<b>Actions to date</b>	Communicating emergencies is included within the communications plan All staff have the ability to work remotely and access the email system Emergency strategic command keeps the flow of information from directors to communication units during severe weather events. Worked with district council and LRF contacts during emergency exercises for 2010/11 Used teleconference facilities during snow in December 2010 for meeting updates. Dealing with resilience has been flagged up in the Marketing and Communication Review. Promoted Business Continuity Awareness Week and Climate Week (22 <sup>nd</sup> -27 <sup>th</sup> March 2011)

Additional actions

<b>Action no.</b>	<b>Description of action</b>	<b>Service area</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
PEP04	Increase working links with District Council and LRF communication teams for sharing services	Marketing and Communications Manager	Ongoing	Within current resources	March 2012
PEP05	Embed the use of teleconferencing facilities for remote working	Marketing and Communications Manager	Ongoing	Within current resources	March 2012
PEP06	Directorate account holders to communicate adaptation action plan and business continuity	Marketing and Communications Manager, Risk Manager and	Ongoing	Within current resources	March 2012

	reminders to staff	Assistant Sustainability Officer			
PEP08	Action 24 hour operation of communication service (shifts for current staff) if needed for severe weather response	Marketing and Communications manager	Ongoing	Within current resources	March 2012

**Planning, Economy and Performance**  
**Service area: Economic Development**

<b>Hazard</b>	Increased risk of flooding
<b>Implications</b>	Travel disruption Loss of or serious damage to premises Business premises may be unaffected but they could suffer because of infrastructure road closures, broadband/telephone exchange damage Lack of suitable alternative premises for some businesses Need for development of local recovery plan
<b>Risk level</b>	Low (in terms of Unit disruption) High impact on local businesses affected
<b>Actions to date</b>	Partnership working for flood recovery to secure external funds Work has begun to identify key businesses (SME's) for business continuity promotion (response of businesses will depend on current economic position) Improving resilience to the impacts of climate change is included in the 2010 revision of the Worcestershire Economic Strategy

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible office)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
PEP30	Consider adaptation/business continuity in the economic strategy revision for 2010	Head of Economic Development and Sustainability Unit	Completed 2010	To be determined, but may be achieved with current resources	2018

**Planning, Economy and Performance**  
**Service area: Emergency Planning**

<b>Hazard</b>	Increased risk of flooding or heavy snowfall
<b>Implications</b>	Widespread disruption to transport network leaving access restricted to some areas in Worcestershire, activation of internal and multiagency response plan
<b>Risk level</b>	Medium
<b>Actions to date</b>	<ul style="list-style-type: none"> <li>• Facility for conference calling enabled to allow for internal / external communication between response Directorates /authorities</li> <li>• Flood mapping to aid adaptation response via Multi Agency Flood plans</li> <li>• Flood and vulnerability data mapping to highlight where vulnerable groups may be at risk of flooding via E-map project <ul style="list-style-type: none"> <li>• NB Worcs Strategic Flood Management Group and Worcs Land Drainage Partnership oversee strategic and operational flood risk response across county</li> </ul> </li> <li>• Worcestershire County Council took part in the national Watermark exercise to test flood plans.</li> </ul>

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area(including responsible office)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
PEP31	Continued link with severe weather group to identify response triggers for strategic and local level response	Emergency Planning Manager	Ongoing	Currently within existing resources	March 2010
PEP32	Annual review of emergency plans	Emergency Planning Manager	Annual	Within existing resources	Financial year
PEP33	Warning and informing- target resources for community resilience actions.	Emergency Planning Manager	Ongoing	TBC	Financial year
PEP34	Flood risk strategic management	ES (multi Directorate and agency)	Ongoing		
PEP35	Flood risk operational management	ES (multi Directorate and agency)	Ongoing		

**Planning, Economy and Performance**  
**Service area: Planning**

<b>Hazard</b>	Increased risk of flooding
<b>Implications</b>	Flooding of potential sites for development Wide spread flooding affecting Worcestershire Subsidence risk at sites
<b>Risk level</b>	Medium
<b>Actions to date</b>	<ul style="list-style-type: none"> <li>• Follow national and regional planning guidance</li> <li>• The Waste Core Strategy Background paper "Climate Change and Waste Management in Worcestershire" considers how climate change could impact on waste management facilities and practices in the future and what needs to be taken account of in future planning for waste management in Worcestershire , including site vulnerability to flooding</li> <li>• Validation Checklist consultation includes climate change/environmental issues for consideration when making an application</li> <li>• Waste Core Strategy includes policy to address issues of climate change.</li> <li>• Planning applications should be accompanied by a flood risk assessment (national policy PPS 25), if this is not present an explanation must be given before the application can be validated</li> <li>• Adaptation to climate change is considered within the 'planning for climate change in Worcestershire' technical research paper and within 'planning for water in Worcestershire' technical research paper and in the Waste Core Strategy Background paper "Climate Change and Waste Management in Worcestershire" <ul style="list-style-type: none"> <li>• Preparation of a Green Infrastructure Framework with partners to guide green infrastructure planning as part of a multifunctional landscape recognising climate change adaptation and mitigation benefits i.e. flood risk management, ecosystem services, carbon sink.</li> <li>• Preparation of a 'Planning for Soils' technical research paper that considers the issue of subsidence and the role of soils in climate change. Preparation of Emerging Waste Core Strategy, public consultation on "Emerging Preferred Options", (November 2009 – February 2010) specifically refers to climate change and flooding issues.</li> </ul> </li> </ul>

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area(including responsible office)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
PEP36	Adopt the validation checklist following successful consultation	Planning- Development Control	Ongoing	Within current resources	March 2012
PEP37	Assist local biodiversity by complying with PPS9, (biodiversity and geological enhancement and conservation)	Planning- Development Control and Minerals and Waste Planning policy	Ongoing	Within current resources	March 2012
PEP39	Consideration to a risk assessment and register of vulnerabilities of infrastructure and locations within the county.	Strategic Planning	ongoing	Resources for using UKCP09 tool would be required.	March 2012
PEP40	Review of technical research papers to include relevant updates	Strategic Planning  Minerals and Waste Planning Policy to record any such through Minerals and Waste Local Development Scheme Annual Monitoring Report (AMR)	Annual  AMR submission to SoS annually in December	Within current resources	March 2012
PEP41	Preparation of Worcestershire Sub Regional Green Infrastructure Framework and strategy for future implementation Plan guided by Worcestershire steering group	Worcestershire steering group – WCC input includes Strategic Planning & Environmental Policy, Historic Environment, Countryside Services	Ongoing	Has utilised current resources however will require future funding for an intervention plan for future delivery	Ongoing work

		and Transport.			
PEP51	Worcestershire pilot study for climate change adaptation consideration in Infrastructure Planning.	Strategic Planning, SWM	September 2011	Funding from DEFRA via West Midlands Climate Change Adaptation Partnership	March 2012

**Planning, Economy and Performance**  
**Service area: Property Services**

<b>Hazard</b>	Increased risk of fluvial and surface water flooding or heavy snowfall
<b>Implication</b>	<p>Flooding of sites          Damage to property          Potential for flood water to affect electrical equipment within flooded properties          Temporary closure of a site. Potential for longer closure dependant on damage to property and timing of weather event          Potential loss of information at sites          Transport and travel disruption for staff          Risk of burst water pipes during colder weather          Heavy rain finds gaps in the building fabric leading to an increase in water leaks          Site flood risk assessment now required as part of the planning process</p>
<b>Risk level</b>	Medium
<b>Action to date</b>	<p>Climate Change Scrutiny report recommended that climate change adaptation measures be considered in all new building design.          Relocation of Bengeworth School to a new site away from flood risk          Higher capacity drainage systems for new design buildings (wider guttering, overflow outlets)          Storage for excess water (Sustainable Urban Drainage systems) included at a number of sites. This system was tested by the 2007 summer flooding and held water preventing flooding of the site and caretakers property.          Use of the UKCIP Adaptation Wizard and climate change checklists in the design process.          UKCIP involved in assessing adaptation measures for the Worcester Library and History Centre designs          Flood risk assessments are required as part of the planning process</p>

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
CS21	Ensure design specifications for future builds (small projects and refurbishments) take account for flooding issues. Sustainable drainage to be inline with national standards	Head of Property Services	As required	Included in Capital build costs	March 2012

**Planning, Economy and Performance**  
**Service area: Property Services**

<b>Hazard</b>	Increased risk of fluvial and surface water flooding or heavy snowfall
<b>Implication</b>	<p>Flooding of sites</p> <p>Damage to property</p> <p>Potential for flood water to affect electrical equipment within flooded properties</p> <p>Temporary closure of a site. Potential for longer closure dependant on damage to property and timing of weather event</p> <p>Potential loss of information at sites</p> <p>Transport and travel disruption for staff</p> <p>Risk of burst water pipes during colder weather</p> <p>Heavy rain finds gaps in the building fabric leading to an increase in water leaks</p> <p>Site flood risk assessment now required as part of the planning process</p>
<b>Risk level</b>	Medium
<b>Action to date</b>	<p>Climate Change Scrutiny report recommended that climate change adaptation measures be considered in all new building design.</p> <p>Relocation of Bengeworth School to a new site away from flood risk</p> <p>Higher capacity drainage systems for new design buildings (wider guttering, overflow outlets)</p> <p>Storage for excess water (Sustainable Urban Drainage systems) included at a number of sites. This system was tested by the 2007 summer flooding and held water preventing flooding of the site and caretakers property.</p> <p>Use of the UKCIP Adaptation Wizard and climate change checklists in the design process.</p> <p>UKCIP involved in assessing adaptation measures for the Worcester Library and History Centre designs</p> <p>Flood risk assessments are required as part of the planning process</p>

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
CS21	Ensure design specifications for future builds (small projects and refurbishments) take account for flooding issues. Sustainable drainage to be inline with national standards	Head of Property Services	As required	Included in Capital build costs	March 2012

**Planning, Economy and Performance**  
**Service area: Sustainability and Learning for Sustainability**

<b>Hazard</b>	Increased risk of flooding or heavy snowfall
<b>Implications</b>	Travel disruption- staff work from remote locations Confusion around the terms climate change and severe weather (one event can not prove or disprove climate change)
<b>Risk level</b>	Medium
<b>Actions to date</b>	Adaptation workshop provided at Beacon open day event (January 2009). This was attended by partners and other Local Authorities Developed Local Climate Impacts Profile (LCLIP) in 2007. The document is updated as and when severe weather events occur. Local Climate Impact Profile (LCLIP) workshop provided at Beacon Open day Encouraged partners to consider adaptation through the Climate Change Task group Consideration of severe weather risk included in officer in charge training Climate Change adaptation included within Sustainability Policy Seminar for local businesses on severe weather risk Option to work from an alternative venue i.e. Work from home or at touch points across the County Promotion of the flood risk workshops for schools organised by the Environment Agency and The Duckworth Trust via the Learning for Sustainability newsletter

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area(including responsible office)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
PEP44	Work with members of the Worcestershire Partnership to encourage consideration of climate risk and adaptation	Sustainability Team-Principal Sustainability Manager	March 2011	Support from Risk Manager	March 2012
PEP48	Provide support for businesses on severe weather risk	Sustainability Team	March 2012	Support from Risk Manager	March 2012
PEP50	Use UKCP09 climate data to inform infrastructure and Green Infrastructure planning.	Sustainability Team-Principal Sustainability Manager	September 2011	Within current resources	March 2012

PEP52	Raise the profile of adaptation as a key response to climate change with schools <ul style="list-style-type: none"><li>• Identify specific projects schools could engage with e.g. linked to flooding, heatwaves etc.</li><li>• Support implementation of projects identified</li><li>• Assess and evaluate impact of the projects</li></ul>	Sustainability Team- Learning for Sustainability Officer	Ongoing	Within current resources	March 2012
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**Resources Directorate****Service area: Financial- insurance (own property)**

<b>Hazard</b>	Increased risk of fluvial and surface water flooding or heavy snowfall
<b>Implications</b>	Increased number of claims leading to potential for dwindling council reserves Potential increase in premiums or excess for in house scheme for schools to keep sufficient level of funds (particularly is there are a number of substantial claims) More damage if property had not been correctly maintained. This could result in an increased excess.
<b>Risk level</b>	Medium
<b>Actions to date</b>	Worked with property services to identify the practical actions possible for schools to reduce risk

**Additional actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
FS01	Revision of claim form to include measures taken to reduce the risk	Insurance	March 2012	Within current resources	March 2012
FS02	Revision of conditions for maintenance	Insurance	March 2012	Within current resources	March 2012
FS03	Consideration to be given to offering equipment storage advice to schools	Insurance	March 2012	Within current resources	March 2012

**Resources Directorate****Service area: Financial- insurance (liability for others)**

<b>Hazard</b>	Increased risk of fluvial and surface water flooding or heavy snowfall
<b>Implications</b>	Increased number of claims mainly as a result of freeze-thaw on highways Excess water run off from highways in to nearby property Claims for vehicle damage from drivers driving into floodwater Vehicle skid on ice leading to accident Pedestrian slip on ice causing injury Media coverage is likely to influence the number of claims. The more prolonged the incident the greater number of claims can be expected
<b>Risk level</b>	Medium
<b>Actions to date</b>	Produced a leaflet outlining procedure and legal position which is sent out with claim forms to ensure the claimant has all the information. Snow and ice policy revision for County Hall in 2008/2009 to outline priority areas for treatment. This can help to defend claims. Work with district councils during heavy snow/ice to divert refuse workers to gritting town centres

**Additional Actions**

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
FS04	Snow and ice policy to be set up at all other County Council sites	Insurance and all other directorates	October 2011	Within current resources	March 2012

**Resources Directorate**  
**Service area: IBS**

<b>Hazard</b>	Increased risk of fluvial and surface water flooding
<b>Implications</b>	<ul style="list-style-type: none"> <li>• Potential loss of staff through travel problems.</li> <li>• Effects on other service providers or utilities (power), water.</li> <li>• Flooding of Council premises (especially if this results in lost accommodation for staff, or computer room facilities) with resultant damage to or loss of associated assets.</li> <li>• Hygiene and contamination risk</li> </ul>
<b>Risk Level</b>	Medium
<b>Action to date</b>	<ul style="list-style-type: none"> <li>• Build disaster recovery plans for loss of key locations and (ICT) assets. Business continuity plans in place for critical services</li> <li>• Plan for loss of individual</li> <li>• Provide facilities for key staff to work from home.</li> <li>• For hygiene and contamination escalated to Property/Facilities for containment and instruction.</li> </ul>

Additional actions

<b>Action no.</b>	<b>Description of action</b>	<b>Service Area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
CS15	Action to take for longer term seasonal variance will fall to Property/Facilities for Office accommodation. Liaise with containment put in place by these teams.	IBS Support Services Manager	ongoing	Within current resources	March 2012

**Resources Directorate**  
**Service area: IBS**

<b>Hazard</b>	Increased Risk of Heavy Snowfall
<b>Implications</b>	<ul style="list-style-type: none"> <li>• Likely to affect transport for staff getting into work, and for journeys undertaken in normal duties.</li> <li>• May affect externally provided services and utilities, especially power and water.</li> <li>• Extreme cold in offices.</li> </ul>
<b>Risk Level</b>	Medium
<b>Action to date</b>	<ul style="list-style-type: none"> <li>• Build disaster recovery plans for loss of key locations and (ICT) assets. Business continuity plans in place.</li> <li>• Plan for loss of individual</li> <li>• Provide facilities for key staff to work from home.</li> <li>• Provide network tools to allow for remote support of user PCs.</li> <li>• For loss of water supply, liaise with Facilities / Property to judge availability of containment using other locations or services.</li> <li>• Longer term - Will affect integrity of equipment, especially that sited externally (network) or in unmanned locations not otherwise heated.</li> </ul>

Additional actions

Action no.	Description of action	Service Area (including responsible officer)	To be completed by	Resource requirements	Date for review
CS16	Action to take for longer term seasonal variance will fall to Property/Facilities for Office accommodation. Liaise with containment put in place by these teams.	IBS Support Services Manager	ongoing	Within current resources	March 2012
CS17	Will plan for monitoring of temperature in server and	IBS Technical	ongoing	Within current resources	March 2012

	comms. rooms. Deal with extreme cold via temporary heating.	Development Manager			
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**Extreme Cold****Environmental Services****Service area: Directorate wide**

<b>Hazard</b>	Extreme Cold	
<b>Implications</b>	Staff availability	12
	Staff discomfort	12
	Energy Demands/ Failure	18
<b>Risk Level</b>	High – 18	
<b>Actions to date</b>	<p>Business continuity plans in place for critical services</p> <p>Home/Flexible working now embedded as part of working patterns. Systems are in place to coordinate staff working from home, in order to ensure the service is maintained. PPE provided.</p> <p>Generators at tele exchanges and with IBS. Emergency Lighting at Gritting depots but no generators available. County Hall, Warndon Depot &amp; Countryside Centres no provision for generators</p>	

## Additional actions

Action no.	Description of action	Service area (including responsible officer)	To be completed by	Resource requirements	Date for review
CC14	Home/flexible working to enable staff to work when unable to travel to the office	All Units – All Unit Managers	Ongoing	Within current resources	Feb 2012
CC15	Working hours/flexible working. Relax dress code. Provide relevant PPE. Obtain portable heaters. Add reflective film to windows to keep heat in. Ensure all windows are double glazed.	All Units – All Unit Managers	Ongoing	Within current resources	Feb 2012

CC19	Provide backup generators, review mobile communications	All Units	Ongoing	Within current resources Generators at tele exchanges and with IBS. Emergency Lighting at Gritting depots but no generators available. County Hall, Warndon Depot & Countryside Centres no provision for generators	January 2012
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**Environmental Services**  
**Service area: Integrated transportation**

<b>Hazard</b>	Extreme Cold	
<b>Implications</b>	Infrastructure Damage	16
	Ability to grit/salt	19
	More Road Traffic Casualties	16
	Burst pipes on residential Gypsy sites and visitor centres	16
<b>Risk Level</b>	High 19	
<b>Actions to date</b>	Business continuity plans in place for critical services	

**Additional actions**

Action no.	Description of action	Service area (including responsible officer)	To be completed by	Resource requirements	Date for review
CC16	Look at the design specification of infrastructure with partners/suppliers	Asset and Engineering	Ongoing	Within current resources	Jan 2012
CC17a	Increase salt storage capacity	Commercial and Contracts and Reactive and Cyclic	Ongoing	Within current resources	Jan 2012
CC17b	Look at specification of gritters. Adaptation of other vehicles.	Commercial and Contracts and reactive and Cyclic	Ongoing	Within current resources	Jan 2012
CC18a	More gritting	Transportation Services	Ongoing	Additional funding required.	Jan 2012
CC18b	Increase public awareness and driver training for driving in	Transportation Services	Ongoing	Within current resources	Jan 2012

	extreme cold.				
	Ensure pipes are well insulated and appropriately located.	Countryside Service	Ongoing	Current resources.	

**Environmental Services****Service area: Waste Services and Scientific Services**

<b>Hazard</b>	Extreme Cold	
	Household Waste Site Closures	16
<b>Risk Level</b>	High – 16	
<b>Actions to date</b>	Business continuity plans in place for critical services	

## Additional actions

<b>Action no.</b>	<b>Description of action</b>	<b>Service area (including responsible officer)</b>	<b>To be completed by</b>	<b>Resource requirements</b>	<b>Date for review</b>
CC21	Create contingency plans with waste contractor for the closure of HWS. Re-siting of vulnerable sites.	Waste Services	Ongoing	Within current resources. Additional funding required if sites need to be re-sited.	Jan 2012

**List of Contributors**

Adult and Community Services	Information and performance
Children's Services	Project Manager
Environmental Services	Text Processor/Clerical Assistant
Planning, Economy and Performance	Biodiversity Action Plan Manager, Principal Planner, Minerals and Waste Team Leader, Development Control Team Leader, Emergency Planning Manager, Marketing and Communications Manager, Learning for Sustainability Officer, Head of Economic Development and Sustainability, Principal Architect,
Resources Directorate	Support Services Manager IBS, Insurance Officer