Wiltshire Council
Where everybody matters

Local Climate Impacts Profile

Summary Report

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SOUTH WEST
REGIONAL IMPROVEMENT
& EFFICIENCY PARTNERSHIP

ClimateSouthWest

Executive Summary

The Local Climate Impacts Profile (hereby referred to as LCLIP) is an established method of **assessing the current vulnerabilities** of local authorities and has been successfully implemented in around 100 councils across the UK. The LCLIP contributes to achieving Level 1 of National Indicator 188 – Adapting to Climate Change; and supports the comprehensive risk assessment required for Level 2.

The LCLIP process examined the period between **Jan 2003** and **Mar 2010** for media stories of severe weather events affecting council services:
- Service delivery
- Reputation
- Financial state

A total of **203 stories** describing **421 impacts** of **78 weather events** were found. The major weather event types, in order of frequency, were, **flooding** (extensive property damage, infrastructure disruption), **snow** (infrastructure damage and disruption, health concerns for vulnerable groups), **wind** (property damage and infrastructure disruption), **heat waves** (infrastructure damage and disruption, significant health concerns for vulnerable groups).

Business Continuity plans and risk registers were reviewed at service, corporate and community levels. Interviews with staff from affected services were carried out to confirm, build on and add to existing information.

This report identified the most frequent weather events and those services that have been most affected by recent severe weather events directly and indirectly. The major weather event types, in order of frequency are:

- Excessive rainfall / flooding (43.6% of total events)
- Frost / snow / ice (20.5% of total events)
- Wind (19.2% of total events)
- High temperature / heat wave (11.5% of total events)

The most frequent impacts of these events were infrastructure disruption which had a direct impact on frontline service delivery as well as indirectly impacting all services through access to offices or workplaces.

The services most affected by severe or extreme weather events were, in order of severity:
- Public Protection Service
  - Plays a significant role in recovery / mitigation efforts.
  - Infrastructure disruption prevents travel, inhibiting service delivery.
  - Many services delivered have significant environmental components.
- Neighbourhood Services
  - Highway infrastructure is vulnerable to disruption or damage from every major weather type.
  - Winter maintenance costs.
  - Many services are frontline and require extensive travel, vulnerable to disruption.

- Strategic Services
    - Infrastructure disruption impacts service through transport issues as well as disrupting traffic management.
    - Asset damage or management issues.
- Waste Management Services
    - Missed collections lead to service disruption long after event has passed.
    - Significant reputational costs when waste is not collected.
- Adult Care – Operations
    - Access to vulnerable adults and groups can be hindered.
    - Additional resources required to provide vital services.
- Schools & Learning
    - Closure of schools leads to large hidden costs.
    - Significant reputational costs when schools cannot open.

These services are prepared for the impacts of severe weather events and made use of business continuity measures and institutional knowledge to effectively react to severe weather events, most recently the Jan 2010 snow event. Current measures are predominantly **reactive** with little or no emphasis on adaptation; through NI 188 it will be possible to both raise the awareness of the issues surrounding severe weather events and climate change as well as embed **adaptive** behaviour and processes into council operations.

It is recommended that the council raise awareness of the existing documents providing detailed information on severe weather impacts, for example the Strategic Flood Risk Assessment; and also to incorporate upcoming NI 188 work with existing Business Continuity practices to maximise the benefits while maintaining the current system and workload. By increasing the **usability**, **utility** and **accessibility** of existing information within the council and regional partners it will be possible to improve the adaptive capacity of the county and enhance **resilient communities**.

1. Introduction

Definitions

Event: Any date with 2 or more impacts within 1 day of the initial date. An event ended when there were no more impacts within 1 day of the last impact.
Weather vulnerability: Aspect of service that could be negatively affected by weather impacts.
Weather impact: The effect of a weather event on a service through service delivery, financial cost or reputational damage.
Weather event: A period of time where one or more weather types were in effect.
Major weather event: A weather event where its events were recognised by national organisations as significant.
Weather event type: A description of weather events with similar properties: eg Excessive rainfall / flooding, Snow / frost / ice.
Major weather event type: The most frequent weather event types recorded through the LCLIP process.
SFRA: Strategic Flood Risk Assessment.
LRF: Local Resilience Forum.
CCA: Civil Contingencies Act (2004).
UKCP09: United Kingdom Climate Projections 2009.
IPCC: Intergovernmental Panel on Climate Change
LCLIP: Local Climate Impacts Profile
UKCIP: United Kingdom Climate Impacts Programme

There is natural variability in Earth's climate but the current climate change is very unusual as it is not exclusively part of a natural cycle. There is an underlying warming trend, which the United Nations Intergovernmental Panel on Climate Change (IPCC) has concluded that it is 'very likely' (more than 90%) to be caused by human activities.

To understand climate change, it's important to recognise the difference between weather and climate. Weather is the temperature, precipitation and wind at a given location and time. Climate is the average weather experienced over a 30 year period (or more). Therefore the cold weather experienced in the UK during January 2010 is part of the normal regional variations that take place in the winter season. It doesn't tell us anything about climate change, which has to be looked at in a global context and over longer periods of time.

But records already show our climate is already changing. The Met Office report that Central England temperatures have increased by 1°Cs since the 1970s, total summer rainfall has decreased in most parts of the UK and the UK has experienced 9 of the 10 warmest years on record since 1990. The UK Climate Projections 2009 (UKCP09) provide the best scientific picture of how global climate change is likely to affect the south west region of England. The projections suggest that the south west region will experience hotter drier summers, warmer wetter winders, more extreme events and sea level rise. UKCP09 therefore provides a scientific starting point to discuss the future impacts, vulnerability and decisions required to adapt to a changing climate. Wiltshire Council has already completed an assessment of the UKCP09 data.

The Local Climate Impacts Profile (LCLIP) is a tool that has been designed by the UK Climate Impacts Programme (UKCIP) to assess the current weather vulnerabilities of local authorities and other organisations across the UK. It has currently been adopted by around 100 local authorities and contributes to achieving Level 1 of National Indicator 188 – Adapting to climate change. The LCLIP can also be used as background information to inform and support Level 2 of NI 188: a comprehensive risk assessment of council services.

This Local Climate Impacts Profile has been undertaken as part of a regionally coordinated programme managed by Climate SouthWest. The project was funded by the SW Regional Improvement and Efficiency Programme (SWRIEP), and delivered in partnership with Studentforce for Sustainability and Wiltshire Council

Currently Wiltshire Council has achieved Level 1 of NI188 through existing work across council services and has a clear roadmap to Level 3. NI 188 is a Local Area Agreement target for Wiltshire Council – to achieve Level 3 by March 2011. There is a plan in place for achieving this within the Climate Change team in Economy & Enterprise which involves using this LCLIP report to contribute to Level 1 and then inform and support the comprehensive risk assessment required for Level 2.

The aim of this report is to produce an overview of the impacts of severe weather events in terms of service delivery, financial and reputational costs. These impacts will be summarized at service level based on an established LCLIP methodology: keyword searching of online media archives supported by existing documentation and officer interviews where these are available.

The main outputs from this project are:
- LCLIP Summary Report.
- Completed database of weather impacts and existing council data.
- PowerPoint presentation for external communications.
- Short summary report for external communications.

2.   Methodology

The initial approach for the LCLIP involved using a scientific method to interrogate low quality data. As a result the amount that can be inferred from the LCLIP spreadsheet information is limited, however this is not an issue provided it is recognised. The purpose of this stage of the project was to identify distinct weather events as well as weather types that have an impact on the council. This was then used to inform the interviews and provide direction for the collection of existing data / documents.

The initial approach was a keyword search of online media archives, two local media sources were used for this stage: The Wiltshire Times and The Salisbury Journal, together these two publications cover the majority of the county. The keywords used were those contained in guidance documents provided by UKCIP. Archives were searched for relevant articles over an 8 year time period from 1 January 2003 until 31 March 2010. As relevant articles were found these were recorded in a standardised spreadsheet table developed by UKCIP covering Weather Type, Impacts, Consequences, Responsible Unit(s) and Location. Any additional information was recorded in a separate spreadsheet.

Having identified weather types and events, meetings were arranged with members of the Emergency Planning service to compile a list of key officers for interview throughout the council as they administer Business Continuity Planning. Following the Wiltshire Council plan for NI188 progression, this stage of the project incorporated existing departmental risk leads and representatives into the process: each was asked to review the list of key officers in their department and prioritise or add to it. Officers for interview were prioritised using this information in conjunction with the media trawl and team input.

Due to the recent unification process the structure of Wiltshire Council is still subject to change, as a result the service areas described within this report adhere to the April 2010 corporate structure chart.

Interviewing council officers used a simple template focusing on the four major weather types:
- Excessive rainfall / flooding.
- Snow / frost / ice.
- Wind.
- High temperatures / heat waves.

Case studies events for each of these types of each of these events, excluding wind, were used as prompts during these interviews. A copy of these case studies and interview template can be found in Appendix 1.

In total, 23 officers were interviewed and asked if there were any existing documents which were relevant or could be of use to this project in determining the impacts of severe weather events in terms of service delivery or financial / reputational cost.

Finally the findings of the above stages were collated at service level. The same case study events used in the interviews were then risk assessed for each

service; using Wiltshire Council Risk Guidance to quantify data obtained through the media trawl, interviews and collection information.

It is important to note however these case studies are not necessarily equally severe, for example the infrastructure disruption caused in the Jan 10 snow event was far greater than that in the Aug 03 heat wave event. This needs to be taken into account as these assessments of severity are **subjective** and care should be taken not to apply each value to every weather event in the corresponding weather type.

3. Results

This section contains details of the consequences of severe weather events at a strategic level within the council.

A note on interpretation of results

It is important that the following data is used appropriately and with an understanding of its limits.

Firstly as the timeline of weather events was collected from online media archives it is **subjective**. Moreover the data was collected using a standard methodology: keyword searches and subsequent reporting. This report recognizes the subjective quality of its initial source and attempts to systematically manage error to reduce its effect on the results.

Secondly this report does not assign any **significance** to the events described using only the media trawl – any reference to significant events is based upon information from established sources such as the Met Office, Environment Agency, NHS, council documentation or officer interview. It is at the discretion of the reader to apply the data and contextual information within the report to their own situation.

Thirdly, due to the time constraints involved in this project not all services are equally represented through interviews (see Appendix). As a result the description of impacts and consequences for each department and service may not be complete.

The media trawl was combined with property and motor insurance claims to identify **208 stories** describing **421 impacts** of **78 weather events**. Some events involved multiple weather types; in these cases both weather types were recorded for the weather event.
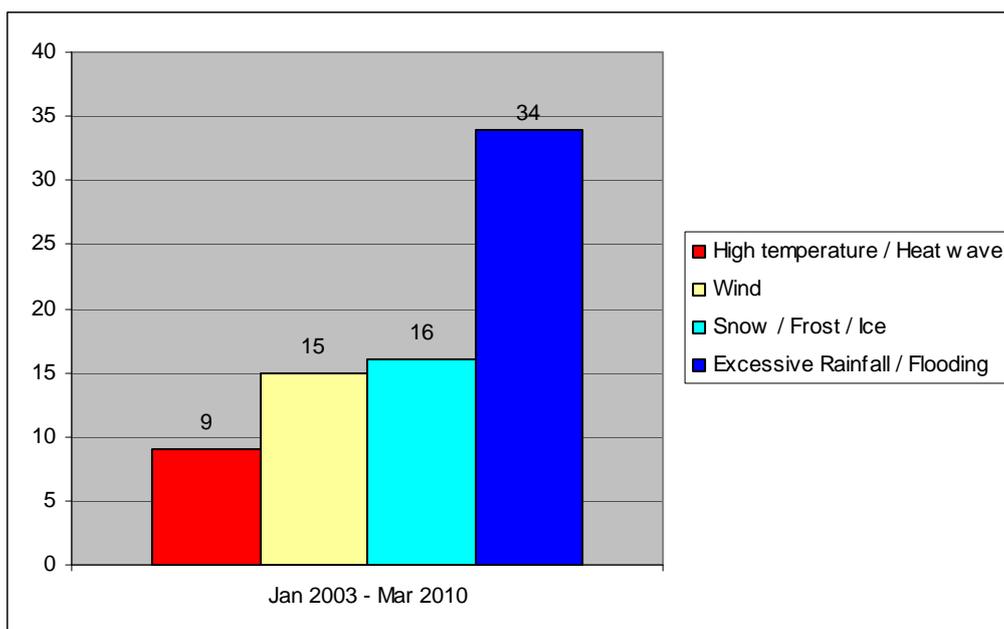

Figure 3.1: Frequency of major weather events by type over the sample period.

Whilst this report does not assign significance to all individual events there are several events that took place in this sample period that have been widely recognised as being highly significant:

- August 2003. High temperature / Heat wave.
    - Heat placed strains on water and energy utilities as well as disrupting road and rail infrastructure.
    - Damage to both rail and road is significant, disruption result of increased tourist interest.
    - National increase in excess deaths as a result of the temperature, danger to vulnerable groups is significant.
- July 2006. High temperature / Heat wave.
    - Heat placed strains on water and energy utilities as well as disrupting road and rail infrastructure.
    - Road infrastructure damage is significant.
    - Danger to vulnerable groups as temperature is high, potential excess deaths – not as severe as 2003.
- July 2007. Excessive rainfall / Flooding.
    - Properties in several towns across Wiltshire are flooded. Health and safety worries along with significant damage and costs.
    - Infrastructure is disrupted at areas across the county.
    - Services whose premises or normal operations are affected can only provide normal service delivery with additional resources.
- January 2008. Excessive rainfall / Flooding.
    - Road and rail infrastructure are disrupted at areas across the county.
    - Properties in several towns across Wiltshire are flooded – similar to July 07 floods but to a lesser extent.
    - As July 07 floods, not all services can provide normal service delivery without additional resources.
- February 2009. Frost / Snow / Ice.
    - Caused national infrastructure disruption, damage to infrastructure resulted.
    - Services which involve travel found normal service delivery difficult or impossible without employing additional resources.
- January 2010. Frost / Snow / Ice.
    - Caused national infrastructure disruption, significant damage to infrastructure resulted.
    - Highways direct maintenance cost.
    - Services which involve travel found normal service delivery difficult or impossible without employing additional resources.

Every service has to varying degrees the following Risk Management and Business Continuity measures in place:

- An up to date Active Risk Register
- Business Continuity Plan (BCP) on component teams
- Undertaken Business Impact Analyses (BIA) on component teams

BCP's and BIA's are carried out at a team level, consequently not every team in every service may have produced these documents. The majority of teams have completed these documents.

*Table 3.1: Summary table of recorded **impacts** of severe weather events on council services*

Service	Jul 07 Flood	Jan 10 Snow	Aug 03 Heat	Wind
Department of Resources	IMPACT			
Finance & Procurement	3	3	1	1
Shared Services Team & Customer Care	2	3	1	1
Human Resources & Organisational Development	1	2	1	1
Business Transformation & ICT & IM	1	3	1	1
Legal & Democratic Services	2	2	1	1
Strategic Property Services	2	2	2	2
Performance & Risk	1	2	1	1
Department of Children & Education	IMPACT			
Children & Families	2	3	1	1
Schools & Learning	2	4	2	2
Targeted Services	2	2	1	1
Commissioning & Performance	1	2	1	1
Department of Community Services	IMPACT			
Adult Care - Operations	3	4	2	1
Adult Care - Strategy & Commissioning	2	2	1	1
Community, Libraries, Heritage & Arts	2	3	2	1
Department of Neighbourhood & Planning	IMPACT			
Economy & Enterprise	1	2	1	1
Housing	2	2	2	2
Development Services	2	2	1	1
Neighbourhood Services	4	4	2	2
Strategic Services	4	4	2	2
Waste Management Services	3	4	3	1
Department of Public Health & Well-Being	IMPACT			
Public Protection & Community Safety	4	4	2	2
Department of the Chief Executive	IMPACT			
Policy, Research & Communications	2	2	1	1

1 = Insignificant Impact 2 = Minor Impact   3 = Moderate Impact   4 = Significant Impact

3.1 Department of Resources

3.1.1 Finance & Procurement

The role of this service is to provide management of financial issues for the council and ensure that the provision of these services is efficient and effective.

Vulnerability							
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact							
Jul 07 Flood	**3**	**Jan 10 Snow**	**3**	**Aug 03 Heat**	**1**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload of this service will increase due to the increased pressure from the public for information and increased costs relevant to the event in question. The Jan 10 snow event caused a significant increase in the number of public liability claims costing ~£210k in total and resulting in increased workload. The Jul 07 flooding event involved one claim for £700k.						
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work						
Utility	This service is vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind / flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.						

The Jan 10 snow event leads to an increase in insurance claims, this leads to increased costs for the council and workload for this service. The figure below shows the increase in the number and cost of claims over the winter period.
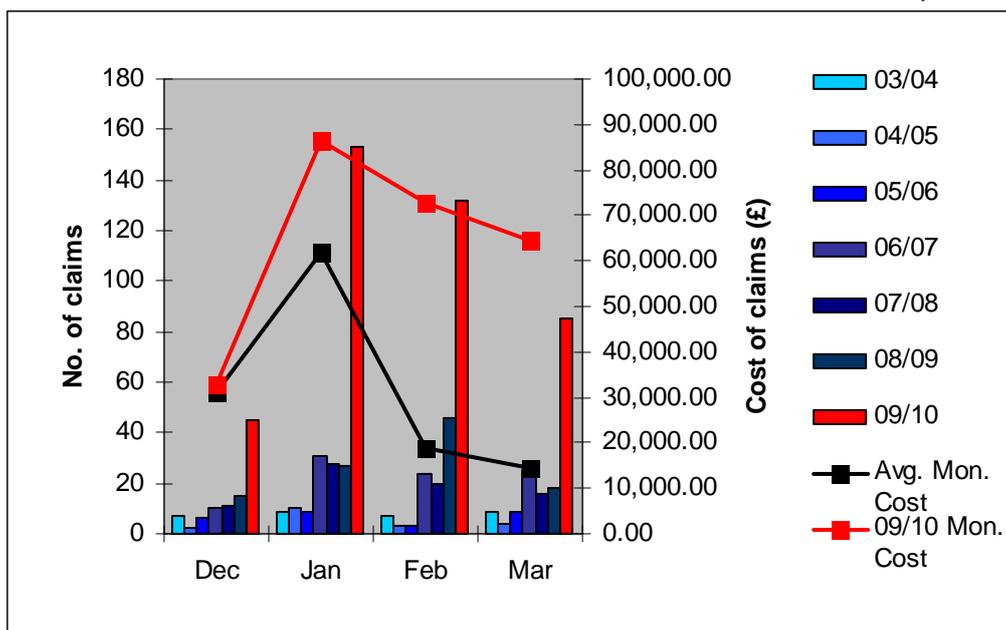

Figure 3.2: Public liability claims and costs relating to highways defects for the Nov-Feb period.

Flooding can also lead to increased claims and subsequent costs, a single public liability claim in the July 07 floods cost £700,000.

3.1.2 Shared Services Team & Customer Care

The role of this service is to provide and maintain business solutions. The customer services team is also responsible for communicating up to date information to the public and plays a key role in severe weather events.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**2**	**Jan 10 Snow**	**3**	**Aug 03 Heat**	**1**	**Wind**	**1**
Workload	During the Jan 10 snow event the workload for this service increased as the number of enquiries from members of the public requesting information increased. This was prioritised and required additional measures to cope with the influx of calls. Similarly during the Jul 07 flooding event there was an increase in calls to the Clarence highways defect hotline – operators of this line require specialist training. During any major weather event it is likely that the workload of this service will increase as demand from members of the public and information requests from staff rise accordingly.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work.					
Utility	This service is vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind / flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

The figure overleaf shows the number of calls received on the Clarence line from the public reporting problems, asking questions etc. There is an increase in the total number of calls received in 2007/08 where there were two significant flooding events; one in July 07 and another in Jan 08.

It cannot be certain what the cause of these increases is due to the small size of the annual dataset, it could be due to the flooding events in 07/08 or increased public awareness of Clarence following severe weather events. The media trawl found multiple stories where the Clarence hotline was publicised and the public were encouraged to provide feedback and information through it.
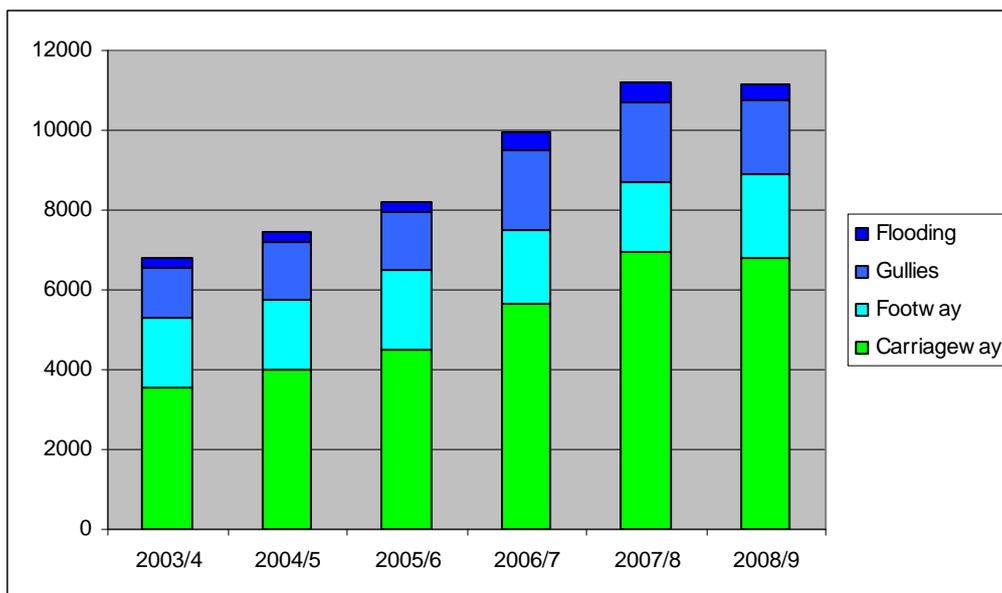
Figure 3.3: Calls received by Clarence by type over the sample period.

3.1.3 Human Resources & Organisational Development

The role of this service is to provide advice and support to managers and employees as well as providing a range of specialist services to the council.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact			3 = Moderate Impact		4 = Significant Impact	
Jul 07 Flood	**1**	**Jan 10 Snow**	**2**	**Aug 03 Heat**	**1**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload of this service will increase due to the increased pressure from the public for information and queries from other officers for policies and guidance relevant to the event in question. In the Jan 10 snow event there was a moderate effect on this service as a result of the factors outlined above.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

3.1.4 Business Transformation & ICT & Information Management

The role of this service is to ensure that the flow of information through the council and to customers is up to date and of a high quality. Data must be usable, accessible and resilient.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**1**	**Jan 10 Snow**	**3**	**Aug 03 Heat**	**1**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload of this service will increase due to the increased pressure from the public and officers for information relevant to the event in question. The Jan 10 snow event required ICT services to be constantly available and able to provide up to date updates to affected services and members of the public through several mediums such as telephones and websites.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

Currently many key ICT services are outsourced to Steria, in the winter debrief from the 2010 snow event Steria came under heavy criticism as it failed to respond satisfactorily to the demands of the situation. The contract with Steria is due to end at the end of April 2011 at which point outsourced services will be managed and maintained internally. As a result the issues that this service faces at this point may be subject to change.

3.1.5 Legal & Democratic Services

The role of this service is to ensure that the council is within its legal obligations. It is also responsible for constitutional, staffing, property and contractual matters as well as the recruitment and training of councillors.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact			3 = Moderate Impact		4 = Significant Impact	
Jul 07 Flood	**2**	**Jan 10 Snow**	**2**	**Aug 03 Heat**	**1**	**Wind**
Workload	In the Jan 10 snow event there were fears of legal action should statutory obligations not be fulfilled due to infrastructure problems, as a result the service made use of 4x4 vehicles that were made available through corporate business continuity measures. Similarly during the Jul 07 floods there was an issue with access to sites and similar legal issues.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

Site access has been incorporated into 'Approved Venue' assessments used by the Registration team.

As can be seen in the figure opposite, in all years there is an increase in recorded deaths in January and in general throughout the winter period, the winter of 2008-09 has the greatest recorded deaths in this sample and correlates with the severe weather event that occurred during that month.

Looking at the 2009-10 snow event there is still an increase in deaths over the winter period however there is no spike as in the last year. It is possible that due to the severity of the previous winter, additional provisions were made to both raise awareness and provide critical services to vulnerable groups.
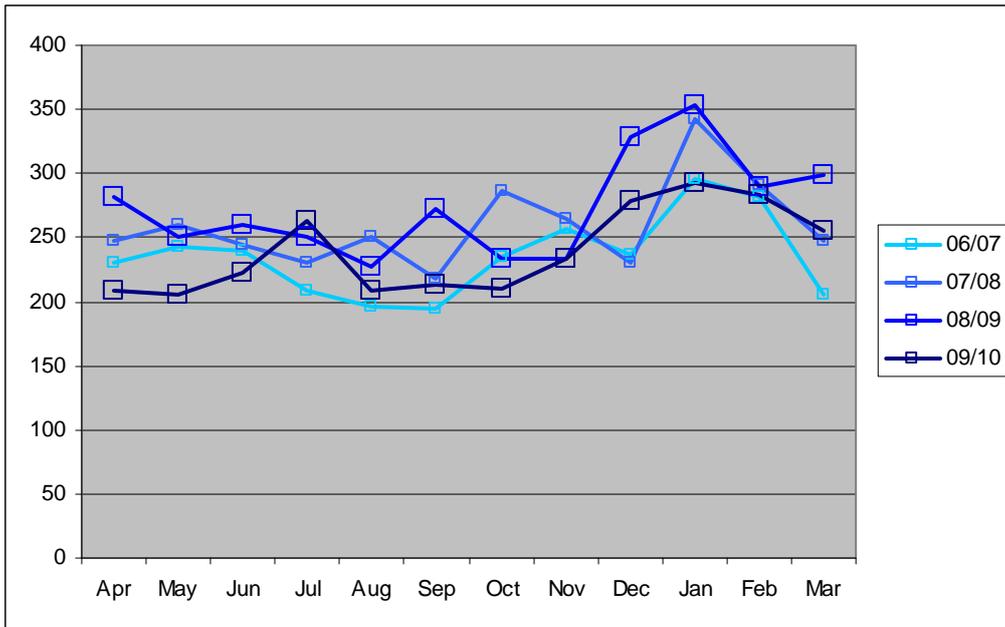
Figure 3.4: Recorded deaths in the county between 2006-10.

3.1.6 Strategic Property Services

The role of this service is to manage and maintain council properties to ensure that the council meets its corporate and operational objectives.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**2**	**Jan 10 Snow**	**2**	**Aug 03 Heat**	**2**	**Wind** **2**
Workload	During any severe weather event the workload of this service will increase due to the impacts of the event upon specific council buildings. Heat wave and cold events can lead to potential health and safety concerns while flooding and wind can lead to severe structural damage.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

The service operates reactively to severe weather events – buildings are not regularly affected by severe weather events.

3.1.7 Performance & Risk

The role of this service is to support the improvement of council performance and delivery through strategic performance and risk planning at the corporate level as well as the maintaining links with relevant services.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**1**	**Jan 10 Snow**	**2**	**Aug 03 Heat**	**1**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload of this service will increase due to the increased pressure from the public for information and queries from other officers for information or guidance relevant to the event in question.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

3.2 Department for Children & Education

3.2.1 Children & Families

The role of this service is to support and maintain child social care across the county. It also contains children in care, fostering and adoption, and placement services.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**2**	**Jan 10 Snow**	**3**	**Aug 03 Heat**	**1**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload of this service will increase due to the importance of safeguarding children and providing child social care. In these conditions it will become important that the service is prepared to act quickly should the need arise.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work. During the Jan 10 snow event the extensive disruption meant that travelling to vulnerable individuals or groups was not easy. While not as severe as Adult Care due to service differences it was still a significant risk and required additional measures to manage (use of 4x4 vehicles). Similar access issues to a lesser extent during Jul 07 floods.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

3.2.2 Schools & Learning

The role of this service is to develop and improve education in Wiltshire through a range of support services for schools, early years settings, extracurricular activities and public support. Schools in Wiltshire are self-governing and control over their budgets and day to day operations.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**2**	**Jan 10 Snow**	**4**	**Aug 03 Heat**	**2**	**Wind**	**2**
Workload	During the Jan 10 snow event over a period of 5 days there were a total of 642 school days were lost due to school closures. On the 6th and 7th over 85% of schools were closed (205 and 215 respectively out of 234 schools). During any severe weather event the workload of this service will increase as there will be inquiries from parents and relevant parties on whether schools are open or closed. The service has provided all head teachers with guidance material (Emergency Conditions Booklet) suitable for major weather event types. Wind speeds of >80mph force prefabricated buildings to be evacuated due to safety concerns.						
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work. This would also affect schools staff and pupils were it severe enough which may in turn lead to an increase in workload for the service.						
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.						

One major issue exposed in the Jan 10 snow event was that some schools were physically unable to clear snow/ice from their premises as they had opted out of a scheme offered by the Highways Service for salting and gritting provisions, and had not made alternative local/individual arrangements.

There are 234 schools in Wiltshire, the table below details the total number of closures in the 2009 and 2010 snow events. Over 1000 days were lost over the two events – on 07/01/10 the vast majority of schools in Wiltshire were closed.

The knock on effects of this disruption will be extensive, for example care will need to be provided for the children not attending school. If childcare cannot be arranged in time or due to access reasons, as may be the case given the infrastructure disruption in these two instances, then parents may not be able to work as they need to care for their children.

Table 3.3: School closures during the Feb 09 and Jan 10 snow events

Date	School Closures	% Closed
02/02/2009	44	19
03/02/2009	76	32
04/02/2009	38	16
05/02/2009	111	47
06/02/2009	162	69
2009 Total	431	
06/01/2010	203	87
07/01/2010	215	92
08/01/2010	57	24
13/01/2010	165	71
14/01/2010	2	1
2010 Total	642	

3.2.3 Targeted Services

The role of this service is to support young people through the provision and maintenance of opportunities, counselling and advice centres. It is also responsible for some aspects of teenage social care.

Vulnerability						
1 = Insignificant Impact	2 = Minor Impact		3 = Moderate Impact		4 = Significant Impact	
Jul 07 Flood	**2**	**Jan 10 Snow**	**2**	**Aug 03 Heat**	**1**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload for this service will increase, or require more resources to provide normal service delivery. This will be due to complications resulting from the severe / extreme weather event.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work. This will also mean that service delivery will be affected in these events – as staff will not be able to travel as easily. Members of the public will also be unable to gain access to advice centres etc. This level of infrastructure disruption is predominantly the result of snow and flood events.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

3.2.4 Children's Commissioning & Performance

The role of this service focuses on strategic planning, commissioning, contracting and performance, in partnership with the PCT. It also contains business support, performance & data management and workforce development.

Vulnerability 1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**1**	**Jan 10 Snow**	**2**	**Aug 03 Heat**	**1**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload of this service will increase due to the increased pressure from the public for information and queries from other officers for information relevant to the event in question.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

3.3 Department of Community Services

3.3.1 Adult Care - Operations

The role of this service is to care for vulnerable adults through direct assistance through residential care, day care and other social work. The service also runs residential homes and other forms of specialist accommodation as well as making use of those in the voluntary and private sectors.

Vulnerability 1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**3**	**Jan 10 Snow**	**4**	**Aug 03 Heat**	**2**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload for this service will increase, in particular wherever access is limited or compromised additional resources will be required to provide normal service delivery. Health concerns also surround heat waves as many vulnerable adults may not be able to adapt their behaviour or conditions to remain cool.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work. During the Jan 10 snow event this service required access to a 4x4 vehicle pool in order to deliver vital services. Similar issues occur in flooding events as access to certain areas may be limited or compromised.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). Loss of communications would severely impact the delivery of this service as it may be difficult to determine when vulnerable adults are in need without established systems.					

Changes in temperature have been linked to increased excess deaths, heat wave events and snow events both increase the risk to vulnerable groups who may not be able to regulate their temperature effectively. Also see figure 3.4 in **Legal & Democratic Service** which shows the recorded deaths in the county.

3.3.2 Adult Care – Strategy & Commissioning

The role of this service is to care for vulnerable adults through direct assistance through residential care, day care and other social work. The service also runs residential homes and other forms of specialist accommodation as well as making use of those in the voluntary and private sectors.

Vulnerability 1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**2**	**Jan 10 Snow**	**3**	**Aug 03 Heat**	**2**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload of this service will increase due to the increased pressure from the public for information and queries from other officers for information relevant to the event in question. During extreme heat and cold events health concerns are raised as vulnerable adults may not be able to control their temperature adequately. As a result additional resources must be invested to ensure their safety.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work. Resupplying care homes may prove difficult in severe weather events – alternative solutions may be required in prolonged instances.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

3.3.3 Community, Libraries, Heritage & Arts

The role of this service is to promote reading, libraries, digital citizenship and community/civic values. This is done through a network of 31 libraries, a mobile library travelling the county and online services.

Vulnerability 1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**2**	**Jan 10 Snow**	**3**	**Aug 03 Heat**	**2**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload of this service will increase or to provide normal service delivery will require additional resources. In the Jan 10 snow event access to libraries was have been compromised, in order to provide this service resources would need to be invested in the clearance of sites.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work. It is also likely that there will be issues with the mobile library service during extreme snow events, and to a lesser extent in flooding events. Gritting was an issue in the Jan 10 snow event – areas around libraries would only have been cleared as much as would be possible which would increase the risk of injury for staff and the public.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

3.4 Department of Neighbourhood & Planning

3.4.1 Economy & Enterprise

The role of this service is to provide county wide land-use planning, regeneration services and climate change strategy as well as to identify economic opportunities.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**1**	**Jan 10 Snow**	**2**	**Aug 03 Heat**	**1**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload of this service will increase due to the increased pressure from the public for information and queries from other officers for information relevant to the event in question.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

3.4.2 Housing

The role of this service is to manage council housing and ensure its quality, to ensure that private sector housing meets required standards. The service also supports vulnerable groups and has to cover any and additional issues such as mobile homes, travellers sites and temporary accommodation.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact			3 = Moderate Impact		4 = Significant Impact	
Jul 07 Flood	**2**	**Jan 10 Snow**	**2**	**Aug 03 Heat**	**2**	**Wind**	**2**
Workload	It is likely that during any severe weather event the workload of this service will increase due to the increased pressure from the public for information and queries from other officers for information relevant to the event in question. During severe or extreme weather events that render people homeless or potentially homeless it is the statutory obligation of this service to provide advice and/or accommodation. Following severe weather events buildings must be safe and conform to the appropriate standards for habitation.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work. Travel to carry out normal service delivery will also be difficult or require additional resources, additionally members of the public may be unable to travel or make use of offered services.					
Utility	The loss of ICT, power or telephony would impact effective communication within the council and would lead to extended delays in service delivery. The loss of power or telephony would disrupt the ability of the service to provide advice to customers. Coordination across the county would also be impacted, as this service involves both frontline and strategic services normal service delivery would be disrupted and require additional resources.					

The Wiltshire & Swindon LRF Flood Plan identified a total of approximately 4000 properties at risk of Flood Zone 2 (FZ2) fluvial flooding (1 in 1000 year event) with a further 1900 of those at risk of Flood Zone 3 (FZ3) fluvial flooding (1 in 100 year event). Of these only around 1500 are signed up to Floodline Warning Direct (FWD) which is run by the Environment Agency as a scheme to alert those who are at risk in times of flooding.

3.4.3 Development Services

The role of this service is to manage and control development in the county, as such is enforces planning and land matters. It also deals with building control, construction standards etc, and polices heritage and listed buildings.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**2**	**Jan 10 Snow**	**2**	**Aug 03 Heat**	**1**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload of this service will increase due to the increased pressure from the public for information and queries from other officers for information relevant to the event in question.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work.					
Utility	The loss of ICT, power or telephony would impact effective communication within the council and would lead to extended delays in service delivery. The loss of power or telephony would disrupt the ability of the service to provide advice to customers. Coordination across the county would also be impacted, as this service involves both frontline and strategic services normal service delivery would be disrupted and required additional resources.					

3.4.4 Neighbourhood Services

This service is responsible for several key frontline services: all issues relating to street scene, amenity area maintenance, leisure centres and fleet services.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**4**	**Jan 10 Snow**	**4**	**Aug 03 Heat**	**2**	**Wind**	**2**
Workload	One liability claim was filed in the Jul 07 flood event related to damage caused by a blocked culvert. The Jan 10 snow event lead to severe disruption of service delivery and resource shortages (grit, fuel). Estimated cost of the Jan 10 snow event is around £3 million in addition to normal costs. During the Jan 10 snow event salt stocks ran low, salt was loaned from nearby councils. During hot weather roads require sand to provide grip, this is carried out with specialist gritting vehicles and increases workload. Wind events also lead to increased workload through vegetation damage and its corresponding removal.					
Travel	In order to perform winter maintenance it is important that the roads can be safely travelled by gritters – in the Jan 10 snow event this was sometimes not the case. Due to the prevalence of highways and related teams within this service road infrastructure and travel are always a primary concern in severe weather events. During hot weather roads may melt and require sand to ensure grip, similarly in high winds vegetation damage can reduce access.					
Utility	The loss of ICT, power or telephony would impact effective communication within the council and would lead to extended delays in service delivery. While communication would be an issue it is likely that frontline services would be carried out in this event although coordination across the council and county would be more difficult.					

See figure 3.2 and 3.3 in **Resources**, under **Finance & Procurement** and **Shared Services Team & Customer Care** respectively, which details the effects of the recent Jan 10 snow event on highway infrastructure. The figure only shows the costs of public liability claims and infers that the repair costs may be significant.

Figure 3.5 overleaf details the total expenditure for the weather emergency budget – this has doubled from £1.5 million in 2003 to £3 million in 2010. This is in line with the policy of providing increased maintenance to ensure good service delivery.
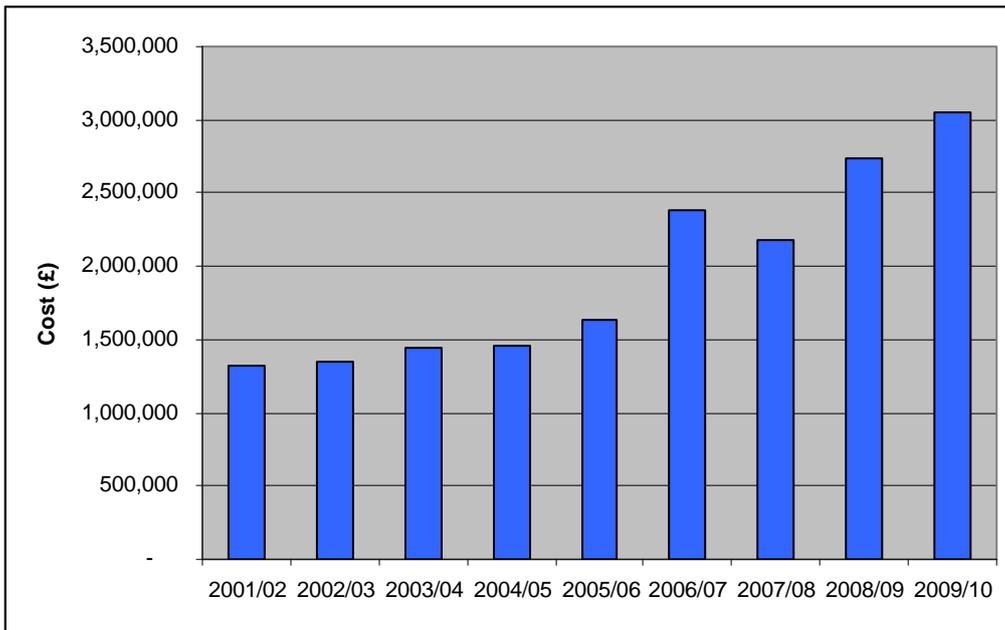
Figure 3.5: Weather emergency budget expenditure by financial year.

The increase in gritting run costs highlights the severity of recent snow events (Jan 10 and Feb 09) and their significant financial implications.
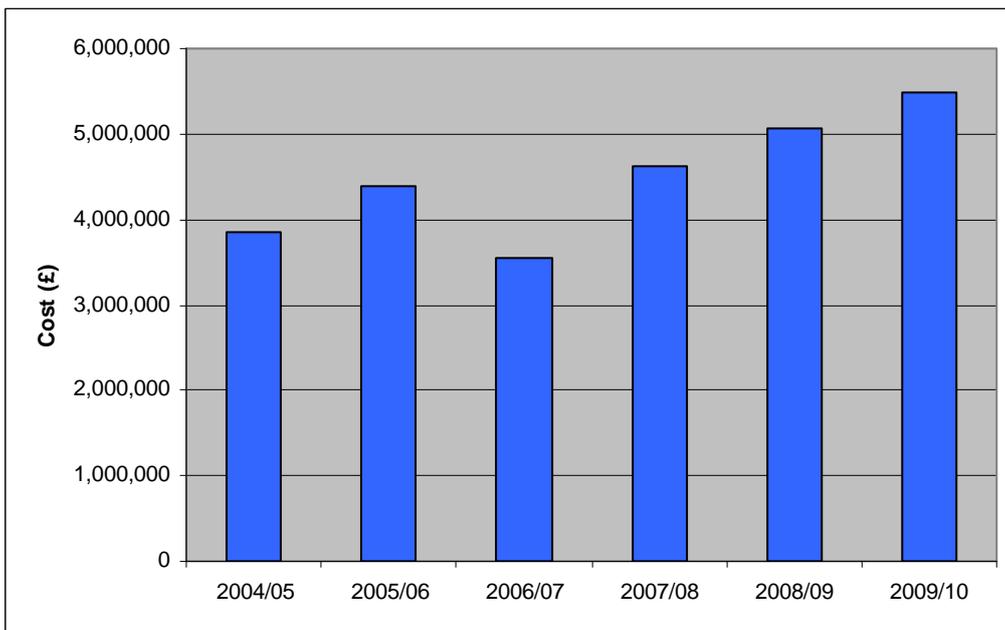

Figure 3.6: Routine Maintenance expenditure by financial year.

The above figure shows the total routine maintenance budget expenditure by financial year, there appears to be a trend towards increasing expenditure which is also expected as the current policy is to provide increased maintenance for highways infrastructure.

3.4.5 Strategic Services

This service is responsible for traffic and network management, asset management and commissioning as well as passenger and sustainable transport.

Vulnerability						
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**4**	**Jan 10 Snow**	**4**	**Aug 03 Heat**	**2**	**Wind**	**2**
Workload	One liability claim was filed in the Jul 07 flood event related to damage caused by a blocked culvert. The Jan 10 snow event lead to severe disruption of service delivery and resource shortages (grit, fuel). Estimated cost of the Jan 10 snow event is around £3 million in addition to normal costs.					
Travel	In order to perform winter maintenance it is important that the roads can be safely travelled by gritters – in the Jan 10 snow event this was sometimes not the case. Due to the prevalence of highways and related teams within this service road infrastructure and travel are always a primary concern in severe weather events. During hot weather roads may melt and require sand to ensure grip, similarly in high winds vegetation damage can reduce access.					
Utility	The loss of ICT, power or telephony would impact effective communication within the council and would lead to extended delays in service delivery. While communication would be an issue it is likely that frontline services would be carried out in this event although coordination across the council and county would be more difficult.					

See figure 3.2 and 3.3 in **Resources**, under **Finance & Procurement** and **Shared Services Team & Customer Care** respectively, and also figure 3.5 and 3.6 on the previous page.

3.4.6 Waste Management Services

The role of this service is to deliver and manage domestic, recyclable and green waste collections across the county. It is also responsible for promoting recycling and ensuring the compliance of council and contract services. The disposal of this waste is also managed by this service.

Vulnerability							
1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact							
Jul 07 Flood	**3**	**Jan 10 Snow**	**4**	**Aug 03 Heat**	**3**	**Wind**	**1**
Workload	It is likely that during heat wave events the workload of this service will increase due to increased public demand as a result of potential health and safety concerns. During snow or flooding events it may lead to a displacement of workload where teams are unable to collect or dispose of waste, this leads to a backlog which can disrupt normal service delivery for a significant length of time after the initial event has ended. Wind events are similarly capable of disruption but tend to be local instances and difficult to predict.						
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is both directly and indirectly vulnerable as it relies upon infrastructure to deliver all of its key, frontline services. If the infrastructure providing access to disposal sites is disrupted then it is not possible to provide normal service delivery for the duration of the disruption; similarly if certain areas are inaccessible then collections cannot operate in those areas. Additionally there many be issues during these events (snow and flooding in particular) where staff cannot make it to their place of work.						
Utility	The loss of ICT, power or telephony would impact effective communication within the council and would lead to extended delays in service delivery. However it is likely that the service would still be able to operate without ICT facilities available.						

Due to the unitary nature of the new council body it was possible for workers from this service to carry out other duties, such as winter maintenance in Neighbourhood Services, when they could not carry out their normal duties during the Jan 10 snow event. This can also be extended to those staff working for contractors who are in a similar situation in such weather events. There is feeling within the service that this is a resource which could be made use of in the future.

3.5 Department of Public Health & Well Being

3.5.1 Public Protection & Community Safety

The role of this service is to deliver and enforce environmental protection and licensing duties, environmental heath standards, health and safety as well as providing consumer protection and business support. This service is also involved with community safety and contains the emergency planning team.

Vulnerability 1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**4**	**Jan 10 Snow**	**4**	**Aug 03 Heat**	**2**	**Wind**	**2**
Workload	It is likely that during any severe weather event the workload of this service will increase as it plays a key role in the recovery and mitigation operations. Heat wave events are likely to lead to increase noise and air pollution as well as an increase in opportunistic crime. Flooding events will cause immediate physical damage and may potentially contaminate properties and businesses. Snow events can lead to widespread infrastructure disruption and require special measures to ensure vital services can still be delivered (4x4 vehicle availability).					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work. As teams in this service can involve site visits for example infrastructure disruption can directly affect their service delivery.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). While the delivery of this service is not wholly through ICT, the loss of this technology would have a significant effect on service delivery and effective communication with other council departments.					

3.6 Department of the Chief Executive

3.6.1 Policy, Research & Communications

The role of this service is to deliver and manage effective communication both within the council and with members of the public and the media. It is also responsible for consulting with the public and stakeholders on issues such as customer satisfaction which can be used to inform decision making within the council.

Vulnerability 1 = Insignificant Impact 2 = Minor Impact 3 = Moderate Impact 4 = Significant Impact						
Jul 07 Flood	**2**	**Jan 10 Snow**	**2**	**Aug 03 Heat**	**1**	**Wind**	**1**
Workload	It is likely that during any severe weather event the workload of this service will increase due to the increase pressure from the public for information and queries from officers about how to provide this information appropriately.					
Travel	Any of the major weather event types can disrupt infrastructure, therefore this service is indirectly vulnerable as there may be issues with staff being unable to attend work.					
Utility	This service is also vulnerable to loss of power, ICT or telephony which may be the result of overheating (heat waves) or physical damage (wind, flooding). However unless weather events do affect the provision of these utilities it is likely that normal service delivery could be maintained through existing business continuity measures.					

4. Conclusions

There has been an effective and comprehensive uptake of business continuity measures across the council, pioneered by Emergency Planning. This means that awareness throughout the council of vulnerability to business continuity events, which include severe or extreme weather events, has already been raised and understood. Given the extent of business continuity documentation within the council it is fair to say that most service areas would be able to operate reactively to severe weather events. The next step from a risk management and adaptation perspective is to move to preventative measures and behaviours in those service areas which are most affected by severe weather events, and indeed this approach could be applied to every service for potential business continuity issues.

Level 3 of NI188 involves the construction of an adaptation plan to address future issues surrounding climate change and weather events. There is a clear roadmap within the council to achieve this by March 2011 which would provide effective adaptive and preventative measures across all council services. Before this can be carried out however it necessary to conduct a comprehensive risk assessment of the council at a team level (for comparison this report has been written at a service level).

Subsidence is an issue which has not been covered in any of these risk assessments as it was difficult to attribute these impacts to specific events. However it worth noting that the impacts of subsidence can result in significant damage to property and can be the result of high temperatures and corresponding changes in the moisture content of the soil or growth of vegetation. Those services whose responsibilities require a significant amount of travel are especially vulnerable to infrastructure disruption that can result from severe weather events as normal service delivery will require additional resources to be completed.

The results show that the most severe of the weather events risk assessed was the recent Jan 10 snow event. The reason that this event was so significant was the scale and duration of infrastructure disruption across the county, this stifled the flow of staff from all businesses in the area not just the council and stopped or delayed normal service delivery for its duration and created a workload for others that would take weeks or months to manage. However it is important to note that the Jan 10 snow event was the only major weather event to have been encountered by the council since it became a unitary organisation. This has also meant that it has been difficult to find information on major weather events that occurred prior to unification that is at the same level of detail as the recent snow event. Indeed it is likely the case that the responses detailed will be completely different given the current structure of the council.

There is a significant amount of risk assessment work and mitigation documentation already present within the council. There are detailed plans at a regional level which have been initiated by the Wiltshire & Swindon Local Resilience Forum (LRF) in the form of a Community Risk Register, Flood Plan and Emergency Weather Protocol. These provide guidance for category 1 responders as defined under the Civil Contingencies Act 2004 and direction in the event of extreme weather events with additional detail on flooding. The

Emergency Weather Protocol in particular provides useful guidance on severe or extreme weather events and should be referred to as it provides detail on the impacts and consequences of major weather types.

There is also documentation in progress or existing within the council in the form of a Strategic Flood Risk Assessment – Level 1 document which identifies flood zones as well as specific instances of flooding in the county. Awareness of this document should be more widely publicised due to its high level of detail and corresponding high degree of usability for council services. There is another document, currently in progress, by the drainage and highways support team – it is likely that the level of detail of this piece of work will be similar to that of the SFRA however it has been compiled through the Area Boards by providing each parish with questionnaires on flood risk in addition to identifying ownership of drainage infrastructure.

The Jan 10 snow event also saw a number of business continuity measures, devised after the Feb 09 snow event, put into practice. These included making 4x4 vehicles available to services which required them to perform vital services in otherwise inaccessible areas, however this was provided on an ad-hoc basis and is not going to be a permanent situation. Another policy was that of flexible office working, using the principle of hot-desking it allows for employees to work from any office which has desks and internet access – if employees could not get to their regular office they were instead instructed to make their way to their nearest if it was possible. This, in addition to other Ways of Working such as working from home means staff are able to continue working when faced with many business continuity issues.

5. Recommendations

Business Continuity Plans currently provide a comprehensive structure for service heads and directors to follow during an incident as well as the procedures that should be followed in normal operations. These documents focus on reacting to events and do not offer guidance for specific events, only specific consequences, with the exception of fire and bomb hazards. As part of Level 3 of NI 188, Adapting to Climate Change, consideration of the impacts of severe weather events should be embedded into council operations. By incorporating Climate Change impacts into upcoming business continuity guidance material, such as links to the LRF Extreme weather protocol or a short section on severe weather events. This way it would both meet the requirements of NI 188 Level 3 and also enhance existing response capability. Further work on this will be carried out as a result of the NI 188 target.

Promoting the existing information that is available in the council across the council would go a significant way in both raising awareness and, potentially, adaptive capacity. For example services that find themselves affected by flooding could potentially make use of the Strategic Flood Risk Assessment or the upcoming Highways Drainage document. This type of work has already been pioneered by Emergency Planning through the existing Business Continuity work which provides a standard template for assessing risks, managing risks and reacting to severe events. By raising awareness further, and through NI 188, it may be possible to compliment these current measures with adaptive or preventative behaviours and planning.

By increasing the usability, utility and accessibility of existing information within the council and regional partners it will be possible to improve the adaptive capacity of the county and provide resilient communities.

Appendix 1 – Key Documents

Local, regional and national documents have been researched as part of this report. These include the following, and where possible digital copies of these reports have been saved within the Climate Change shared folder – direct enquiries to the Climate Change team for further details:

Strategic Flood Risk Assessment – Level 1
Strategic Flood Risk Assessment – High Level Executive Summary
> The strategic flood risk assessment can be found through the link above or by searching 'strategic flood risk assessment' on the Wiltshire Council website.

Wiltshire & Swindon LRF Community Risk Register
Wiltshire & Swindon LRF Flood Plan
Wiltshire & Swindon LRF Weather Emergency Protocol
> All LRF documentation can be found through the links above or by searching 'wiltshire swindon community risk register' on any search engine and following the link to the Wiltshire Police website.

Pitt Review Full Final Report
> The Pitt review can be found through the link above or through searching 'pitt review' on any search engine and following the link to the Cabinet Office website.

Gloucester LCLIP Final Report
> Other LCLIP reports can be found through the links above or by searching their respective council's websites. Additional reports can also be accessed through the UKCIP or LCLIP websites.

Wiltshire Council Active Risk Registers
Wiltshire Council Service Business Impact Analyses
Wiltshire Council Service Business Continuity Plans
Wiltshire Council Corporate Business Continuity Plan
> Business Continuity documents can be found internally through SharePoint or by contacting the Climate Change team or Janine Rohwer.

Wiltshire Council Winter 01/2010 Debrief Report
Wiltshire Council (Schools & Learning) Emergency Conditions Booklet
Wiltshire Council Risk Process Guidance Notes 2008
> These reports are not provided online through the Wiltshire Council website however the risk guidance notes are available on the council intranet.

Appendix 2 – Interviews

Table 6.1: Officers interviewed sorted by service and department.

Department	Service	Title	Name
Children & Education	Children's Commissioning & Performance	Senior Administrative Officer	Nicola McCann
Community Services	Business Change	Head of Business Change	Iain Kirby
Neighbourhood & Planning	Business Support	Head of Business Support	Helen Knight
	Neighbourhood Services	Head of Local Highways & Streetscene Central	Bill Parks
		Highways Maintenance Engineer	Diane Ware
		Head of Local Highways & Streetscene South	Graeme Hay
		Head of Amenity & Countryside	Ian Brown
	Strategic Services	Drainage Engineer	Daniel Everett
		Passenger Transport Coordinating Manager	Ian White
		Head of Highways Asset Management	Peter Binley
		Bus Network Manager	Phil Groocock
		Project Officer	Renate Malton
	Waste Management Services	Head of Waste Management	Andy Conn
		Waste Contracts & Development Manager	Martin Litherland
Public Health & Well-Being	Public Protection & Community Safety	Deputy County Emergency Planning Officer	John Edwards
		Emergency Planning Officer	Janine Rohwer
Resources	Strategic Property Services	Corporate Maintenance & Facilities Manager	Phil Durston
	Finance & Procurement	Covering Principal Accountant - Highways	Jon Pittard
	Performance & Risk	Business Performance Manager	Venita King
		Head of Business Arrangements	Eden Speller
	Shared Services Team & Customer Care	Customer Services Operations Manager	Frank Coleman
		Insurance & Risk Manager	Julian Goacher
		Business Support Manager	Jocelyn James

Interview Case Studies

Flooding / Rainfall: July 2007. Severe flooding event.

Duration: Initial impacts fairly short term but long term damage.

Impacts: Infrastructure disruption.
            Workload?
            Staff absence.
        Property damage
            Schools
            Land (£700000 public liability claim)
            Repair costs?
        Utilities affected?

Snow / Frost / Ice: Jan – Feb 2009. Jan – Feb 2010. Severe snow events.

Duration: Fairly long term events in both instances with continuous impacts, however predictable which allows for more preparation.

Impacts: Infrastructure disruption.
            Workload?
            Staff absence
            Vehicle safety / damage (~£150000 public liability claims)
        Property damage
            Burst pipes?
        Vulnerable groups
        Utilities affected / demand changes?
            Heating is more significant
        Service delivery disruption
            See infrastructure disruption
            Working conditions?

Heat wave: Aug 2003. Severe heat wave event. July 2006. Heat wave event.

Duration: Fairly long term events due to the weather system that produces such an event. Predictable event.

Impacts: Crime increase
            Opportunistic
        Vulnerable groups
        Utilities affected / demand changes
            Electricity for fans
            Increased water consumption + Reduced supply
        Service delivery disruption
            Workload?
            Staff absence
            Working conditions

Wind: No distinct event.

Duration: Short term events, generally unpredictable. Often in conjunction
               with rain.

Impacts: Property damage.
                       Schools?
                       Private property?
               Infrastructure disruption
                       Uprooted trees
                       Debris

Additional Information:

Appendix 3 – External Weather Summary

High temperature / heat wave
- Health risks. Vulnerable groups are those who are unable 'to adapt behaviour to keep cool' or require assistance to maintain this behaviour. Can result in deaths.
- Infrastructure disruption. Tarmac melts in high temperatures, increased road risk. Rails can buckle: increasing rail journey time. Vehicles can also overheat: adds to disruption. Can lead to new vulnerable groups.
- Infrastructure damage. See above.
- Property damage. Increased levels of accidental, spontaneous and criminal fires during summer months and around heatwaves.
- Crime increase. Warmer weather leads to an increase in opportunistic crime as property security falls to facilitate cooling.

Wind
- Health risks. Direct dangers from dislodged materials or vegetation damage.
- Infrastructure disruption. Treacherous road conditions, effects tend to be equally severe as other weather types but far more localised.
- Infrastructure damage. Highly variable with wind speed and construction of infrastructure.
- Property damage. Damage varies with wind speed, temporary structures most at risk. Can lead to homelessness or relocation.

Snow / frost / ice
- Health risks. Similar to heat wave, those unable 'to adapt their behaviour' to keep warm or require assistance to maintain it at risk. Can result in deaths. Additional hazards as a result of disrupted infrastructure.
- Infrastructure disruption. Treacherous road conditions increase risk to road users. Potential road closures. Pedestrian infrastructure affected. Can lead to new vulnerable groups.
- Infrastructure damage. Conditions that cause disruption lead to road damage.
- Property damage. Increase in frequency of burst pipes. Additional wear and tear on building materials.

Excessive rainfall / flooding
- Health risks. Direct dangers from flood water, increased risk for vulnerable groups. Additional danger from contamination of premises and water supplies.
- Infrastructure disruption. Treacherous road conditions increase risk to road users. Potential road closures. Pedestrian infrastructure affected. Can lead to new vulnerable groups.
- Infrastructure damage. Roads can be displaced or suffer from subsidence. Debris can block drains, gullies, roads etc.
- Property damage. Immediate damage and long term damage to buildings requiring extensive repair work. Can lead to homelessness or relocation.

These risks incorporate the findings of the media trawl and officer interviews into the existing Extreme Weather Protocol provided by the Wiltshire & Swindon Local Resilience Forum. It is recommended that this document is used as a

reference on the impacts of weather events for future pieces of work as it provides a comprehensive overview of weather types as well as impacts that are common to a variety of organisations.
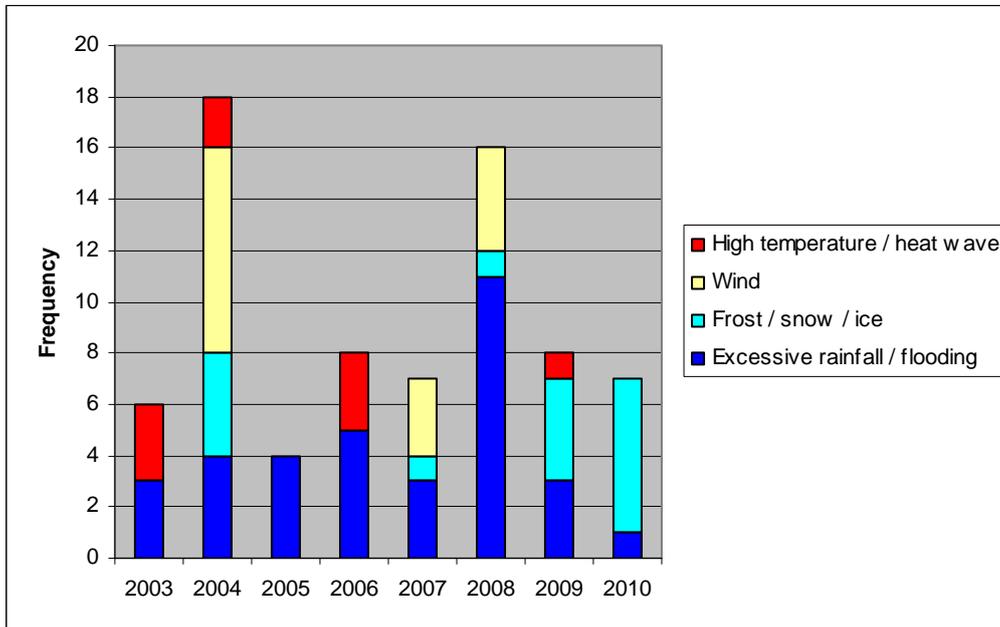

Figure 6.1: Major weather events by year over the sample period.

The above figure breaks down major weather events by year over the sample period, severity is any of these events beyond those which have been risk assessed as part of the main body of the report. The figure below displays the major weather events by month over the sample period, this highlights trends in major weather event types. Snow and heat events are where they would be expected to be; flooding is present year round and occurs with greater frequency over late autumn and winter, there is however also a significant spike in July which may be the result of flash flooding. Wind events appear to be
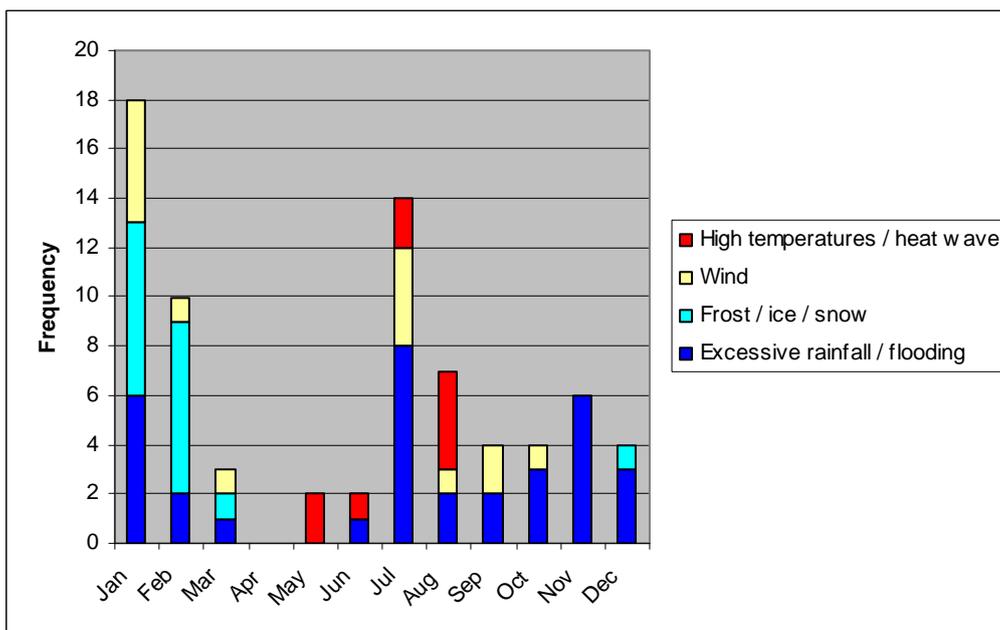

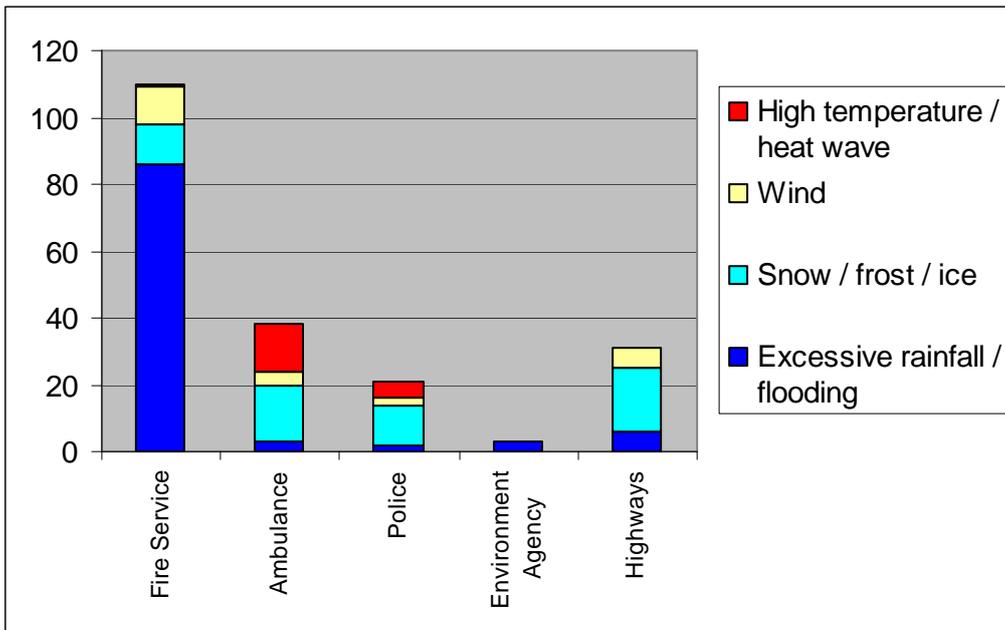*Figure 6.2: Total major weather events by month over the sample period.*

Figure 6.3: Response to major weather impacts by organisation over the sample period.

The above figure shows how each of these key services are involved in the dealing with the impacts of severe weather events. This information is going to be at a fairly low resolution how it does provide an indication of workload for these partners.

The purpose of this document is to provide a brief overview of the four weather types which have been identified as the most frequent and most costly by the Local Climate Impacts Profile carried out by Wiltshire Council. This information is intended to provide strategic partners and other organisations with either a starting point for their own risk assessments or to initiate dialogue on severe weather events and result in increased awareness of the associated risks.