



Local Climate Impact Profile

Planning Services 2018



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Council



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1 Executive summary

The *Local Climate Impact Profile* (LCLIP) for West Lothian Council identifies the effects that severe weather has had on council services over almost two decades and the period 2000 - 2018. In doing so, the council can adopt strategies to adapt to potential future changes in weather and become more resilient to the impacts of climate change.

The data gathered from this report will also be used to inform a risk assessment for all the services across West Lothian and help with the preparation of the West Lothian Council Adaptation Action Plan that was proposed as part of the Council's Climate Change Strategy adopted in 2016.

From the information gathered, the council has experienced over 60 extreme weather events in the past 18 years, each with their own adverse impacts on property and services. The most recent of these weather events was the winter of 2017/18. Other significant past events include the winter of 2009/10 and the 'Big Freeze' of 2003.

It has been reported that between 2000 and 2015, the council has spent around £40 million in maintenance and repair costs as either a direct or indirect result of extreme weather events. This does not take into consideration the loss of staff time, costs due to impairment of service delivery and the damage to the council's reputation, something that cannot be valued in monetary terms.

The magnitude of these costs highlights the significance of these extreme weather events and how they affect the council's ability to deliver its services to the public. By ensuring adequately planned adaptation to the predicted increase in frequency and scale of these extreme weather events, the council will be better prepared to reduce the impacts extreme weather has on property, service delivery and the wider West Lothian community.

2 Introduction

A *Local Climate Impacts Profile* (LCLIP) is a resource that enables organisations to understand their exposure to weather and climate. By reviewing historical media coverage it is possible to provide evidence of severe weather events and how these affect individuals and communities. Such events also impact on a local authority's capacity to deliver services. Exploring the council's current ability to respond to weather incidents can help to better equip service delivery in the future and build resilience to any change.

The aims of West Lothian Council's LCLIP are to:

- provide an understanding of weather events in West Lothian in the recent past;
- assess the council's vulnerability to weather events;
- inform decision making on effectiveness of responses;
- increase knowledge and understanding of the issue amongst staff, elected members and the public, and
- contribute information that can be used to help prepare for similar events occurring in the future and build resilience to the impacts.

The information gathered will be used alongside data gathered by various council services in relation to roads and community works, emergency planning, council housing and flood prevention.

The specific objectives of the LCLIP are to:

1. assess the risks and opportunities in West Lothian caused by climatic change.
2. raise awareness of climate change throughout the staff and services of West Lothian Council.
3. encourage collaboration and better communication between services in West Lothian Council.
4. use this report as '*springboard*' to launch a risk assessment workshop so that West Lothian Council services can better understand and prepare for the risks of climate change impacts.

3 Methodology

The data for this report was collated from various sources including local newspaper articles both past and present, historical climate data from archives and also various literature on the climate history of West Lothian. The data from the media was taken from a range of newspaper articles, from various different newspapers including the “West Lothian Courier”, “The Daily Record”, “ Linlithgow Gazette”, as well as various on-line sources such as STV and BBC News. These were used to identify the major climate impacts in West Lothian. These events were then categorised by type of extreme weather event from the following list;

- drought
- excessive rainfall
- fog / mist / low cloud
- frost / ice / snow
- high temperature / heat wave
- lightning
- low temperatures / cold spell
- storms
- wind
- other

The impacts listed above were selected to address every weather possibility that could be caused by changes in climate. A questionnaire was then sent out to each key service area across the council in 2015. This was issued in order to collect anecdotal information and to compare with the information from the media review.

The questionnaire was also issued to obtain feedback on the various attitudes towards climate change in general and what is being done at the moment to mitigate the effects of severe weather impacts. It also gathered feedback on the cost to the council in both monetary terms and also staff time. The questionnaire responses are attached at Appendix 1 (NB: specific officer names have been removed for confidentiality purposes).

The questionnaire was sent to all Heads of Service and to West Lothian Council’s community planning partners including emergency responders, for example, Scottish Fire & Rescue Service and Police Scotland, and other external organisations such as West Lothian College. The questionnaire was also circulated to members of the council’s Climate Change and Sustainability Working Group, which includes the Flood Risk Manager from Operational Services and also the Emergency Planning Officer.

The responses received, coupled with research carried out into previous climate change events in West Lothian, provides an insight into the risk of climate change and the preparedness of the council for reducing these risks.



4 Project findings

More than 60 severe weather events have occurred in the past 18 years that have been recorded as having a major impact in West Lothian. With excessive rainfall, flooding, frost/ice and snow being the most frequent. The majority of incidents were recorded as being across all of West Lothian or Scotland wide.

The majority of the major impacts of these events included damage to buildings, to infrastructure and also disruption of processes such as traffic problems and disruption to the transport network. There have been a number of incidents where damage has been caused to council owned properties, primarily due to flooding which led to costs in both financial terms and in staff time and resource. Blaeberry Cemetery in Whitburn, Linlithgow Loch and several housing areas around West Lothian are a few examples of areas which have faced flooding problems. It is estimated that the flood potential will continue to increase as the climate changes. Losses in lives have also occurred, most recently in Christmas 2014 in an incident on a local motorway during a hail storm.

The most recent major weather event occurred in March 2018, when the '*Beast from the East*' reached Scotland. Snow and later flooding had already caused damage in West Lothian in January earlier that same year and a the landslip in Winchburgh caused two days delays on busy train routes, but a major snow storm in early March stopped the whole country. Public transport services and stores closed down and major strategic roads between Glasgow and Edinburgh saw cars stuck in the snow. The Council, via Operational Services, tried to keep major roads and buildings open, but available resources proved insufficient for this challenge. After the storm passed, problems continued to occur and recorded media suggest that many Council owned homes have drainage problems and several roads in West Lothian are in a poor condition due to the increasingly harsh conditions.

Feedback from the questionnaires send out in 2015 highlighted one period of particularly bad weather that has been repeatedly mentioned as one of the worst examples of severe weather conditions. In both late 2010 and early 2011 West Lothian was ravaged by heavy snowfall, gale force winds, icy temperatures and torrential rain. Few Services had any record of these specific events; however the media data suggests there was a surge in severe weather events throughout these two years.

In 2010, 12 severe weather events that occurred throughout the year were recorded in the media, all with severe impacts.

Throughout January, there were a number of incidents of severe winter conditions. The Livingston Designer Outlet shopping centre was forced to close due to heavy snow, resulting in a loss of revenue and staff time. This happened within the same period of time of major roads closing throughout Scotland, including important links such as the M8.

After the heavy snow, the next concern was the inevitable flooding from the snow melt. Council management at the time predicted that the bill for the winter budget for this period would reach in excess of £3 million, £1 million over the annual expenditure, and the increase on the figure for the previous year was £2,522,688.

The severe weather continued into spring, as at the end of March there were many reports of adverse weather conditions. Incidents caused by extreme weather, and heavy snow in particular, were reported through two separate media points. It was reported that 20,000 homes across Scotland were left without power due to high winds, snow storms, and torrential rain, the result of which was that entire communities throughout West Lothian, East Lothian and Mid Lothian were left without heating or cooking facilities. Extreme weather warnings were reported on the same day, with the Met Office expecting 50cm of snow over high ground over the days to come.



The cost of the above issues was disruption throughout West Lothian, as well as the rest of Scotland, with staff unable to get to work and front-line services having to prioritise dealing with the extreme weather conditions, taking them away from other essential work. On the 31st of March 2010, the poor weather continued and it was reported that 300 cars had been trapped on the roads overnight as a result of up to 50cm of snowfall, and an increased number of 48,000 homes across the U.K. were without power. Again, the impact of the council was in staff time and dealing with road maintenance.

Further into summer, in July 2010, the forecast predicted at one point that Scotland would face 40 consecutive days of rain. This led to the disruption of travel networks, especially on the roads due to the abundance of surface water and slippery conditions. As a result Operational Services were forced to focus solely on flood defence, which removed staff resources from other duties.

All these events impacted on a range of key services across the council. West Lothian College had to close in December 2011 for an entire week due to the adverse weather conditions causing serious disruption to students and staff. A similar incident was recorded at Cedarbank Primary School in Livingston, which also resulted in closure as a result of the serious snow conditions in 2011.

The financial cost was recorded by the council's Financial Management Unit. Over the winter of 2010, into January 2011, Insurance Services exceeded their insurance excess of £925,000 by £1,324,000. This event increased property claims by around 230%. As a result, significant resources were required in order to resolve claims as quickly as possible.

Again, this meant that work plans required alteration and the entire service had to prioritise the resolving of claims in order to prevent a back log, taking them away from other necessary tasks. The bad weather continued over into January 2012, when strong winds destroyed the 'Go Ape' facility located in Beecraigs Country Park. Not only did the storms severely damage the woodland in Beecraigs, but the destruction of the 'Go Ape' facility resulted in both a social and economic loss to the area through the loss of jobs and local income. "Go Ape" subsequently pulled out of West Lothian.

Based on the data collected between December 2010 and March 2011, the total claim for weather related incidents during the winter was over £1.7 million. Burst pipes and damage to gutters, down-pipes and roofs due to heavy snow were the two biggest reasons for claims. Two highest individual claims were raised by Broxburn Area Housing Office for £114,482.73 and Beecraigs Sawmill for £97,602.32. At Beecraigs Sawmill, the roof collapsed due to the weight of snow. Bursting pipes caused damage especially in Blackburn, where St Kentigern's Academy suffered from damage to ceilings and floors, and Pinewood Special School, Blackburn and Our Lady of Lourdes Primary School lost their ceilings in several classrooms due to heavy snow.

Operational Services also suffered as a result of the extreme weather. The heavy and prolonged rainfall that has occurred over the past few years, as well as bad snow conditions, resulted in a spike in customer inquiries, increases in properties flooded, roads blocked, planned improvement projects delayed and overall demand for Operational Services with the whole service being impacted. The combined cost of severe weather impacts over 2010/11, and across the past 18 years emphasises the need for planned adaptation to climate change and mitigation programs to be put in place across all of the council's services.

Respondents to the questionnaire stated that they addressed extreme weather events using the following methods:

Education Services

Student and staff safety is paramount and as a result, if the weather conditions are extreme the school is closed. Both West Lothian College and Cedarbank Primary School agree that the extreme weather events recorded in 2010/11 would have merited school closure. Otherwise planning ahead to ensure minimum disruption to learning is the next line of defence. For example, having contingency plans for field trips if, like at Cedarbank Primary School, the learning is mostly experience based. Both bodies have also said that communication to both staff and pupils in regards to closure, re-arrangement of assignments and school decisions in regards to the weather are vital. The speed in which the local authority communicates with schools and information on the methods in which students, staff and parents will be contacted, has been highlighted as an issue.

Financial Management Unit (FMU) / Insurance Services

The main method for addressing the effects of severe weather impacts for FMU is by providing support council wide across all services, specific insurance claims, loss mitigation and insurance procedures. Communication is an essential part of FMU's response to severe weather impacts. Their questionnaire response stated that the relationship with front-line services was key. However, delayed communication from other services was mentioned as an area requiring improvement. The delay in advising of claims to FMU in late 2010 / early 2011 resulted in claims procedures taking 20 months from start to finish, stretching staff resources and increasing staff time lost from other activities.

Operational Services

Operational and Road Services are the first line of defence against severe weather conditions and mitigating the effects. In the winter, they operate on a duty based system with workers on call, working out of hours, either gritting roads, or working on areas with drainage issues in times of flood. They prioritise key route areas in West Lothian and deal with them accordingly.

However, in relation to having an adaptation plan in place and being proactive rather than reactive, a number of issues have been raised. The respondent from Operational Services suggested that a number of areas require attention in order to improve the way the service responds to severe weather events and climate change in general.

Communications with other key services was raised again as an issue that requires improvement, although progress is being made. Raising public awareness and changing the expectations of the public was another issue raised, as often the public's needs cannot be matched physically in terms of support, such as provision of sand bags. Communities need to become more resilient and data on floods in particular needs to be captured more frequently and more efficiently, as well as disseminated better.



5 Summary of key findings

Many services reported taking a reactive stance on responding to weather events, rather than a proactive stance.

Many services usually react to the consequences of specific weather events rather than establishing an adaptation programme in which to prepare beforehand. In some cases this reactive response cannot be avoided, however in other instances there can be a degree of planning involved. This may include communicating with partners to determine how an event should be handled or ensuring that more vulnerable areas are highlighted so that prioritisation can occur during an emergency. Many of these issues should be covered through business continuity plans through the council's Emergency Planning function.

Few departments record the impacts of weather related events

Most of the information gathered from the questionnaires was general, with data relating to specific weather events coming from services such as roads and operational services and insurance services. While it could be argued that these services are more likely to keep records of impacts from severe weather events as they have more of a direct impact on their service, information should be retained across all services so that an accurate record of impacts and responses can be kept. In some cases, extreme weather events that were reported as far back as 1997 occurred too long ago for the information to still be kept within the Service, or key staff had moved on, taking their knowledge of the events with them. This has made it difficult to keep an accurate record of the impacts of these weather events.

Few departments had considered the initial impacts of an increase in the frequency of extreme weather events

There are several reasons for this. Some services are not directly responsible for delivery of activities and therefore are not directly affected. Also, many services contract out operations and therefore the risks are alleviated. Finally, some services accept that there is a possibility of being impacted by severe weather events in the future, however are unsure what adaptation procedures to adopt, as there is uncertainty about how the weather systems will change.

Communication between departments is a point of concern

All respondents from the questionnaire stated that communication with other services was a factor in their response to severe weather impacts. Although it had been stated that communications were improving, there were still issues with delayed responses between services. Both Education and Insurance Services stated that their responses to severe weather events could be improved through improved communications between Service Units.

6 Recommendations for the council

Improve the way severe weather impacts are recorded in order to evaluate costs in the future

The council needs to improve the way it records data of impacts from weather events. The council would be able to better assess costs of an incident if it were to record the costs of each severe weather event, and therefore would be able to determine how much the council is paying on repair damage and insurance claims caused by weather. This would allow the council to determine the benefits of investing in adaptation procedures now rather than reacting to weather conditions in the future. This is not possible to do at the moment as no cost data is retained by Services except from insurance claims. This could involve something simple, such as the addition of a box to record the cause of an incident or something more complex where the cost of the incident is evaluated for each Service and compiled, perhaps by the Emergency Planning Officer.

Ensure services become less reactive and more proactive to weather events

Currently, services are more likely to deal with severe weather events reactively, rather than proactively. It is crucial that time is spent planning for future adverse impacts, which will become more frequent as the climate changes. Addressing this issue will increase efficiency in terms of resources, communication with partners and service delivery, allowing departments to be more prepared when dealing with the impacts of weather events.

Use the UKCP09 (and forthcoming UKCP18) programme to assess the predicted changes in future weather events for West Lothian

UKCP09 provides future climate projections for land and marine regions (as shown below) as well as observed (historic) climate data for the UK and has recently superseded UKCP02. It has further been updated. This tool should be used to assess the projected climatic change for West Lothian and used alongside the findings of this LCLIP, to establish an effective adaptation plan, including procedures for West Lothian Council.

| UKCP09* Projected changes in summer and winter temperature and precipitation for West Lothian (Grid 805 - medium emissions) | | | | | |
|---|-------------------------|--------------------------|--------------------------|--------------------------|---------------|
| | | 2020s | 2050s | 2080s | Trend |
| Winter | <i>mean temperature</i> | 1.2°C (0.5°C - 2.0°C) | 2.0°C (1.0°C - 3.0°C) | 2.6°C (1.4°C - 4.1°C) | <i>warmer</i> |
| | <i>precipitation</i> | 5% (-2% - 14%) | 12% (-2% - 24%) | 15% (2% - 32%) | <i>wetter</i> |
| Summer | <i>mean temperature</i> | 1.5°C (0.6°C - 2.5°C) | 2.5°C (1.2°C - 4.1°C) | 3.7°C (2.0°C - 5.8°C) | <i>warmer</i> |
| | <i>precipitation</i> | -6% (-17% - 7%) | -14% (-28% - 1%) | -17% (-34% - 0%) | <i>drier</i> |

The Met Office indicate “*building on the success of UK Climate Projections 2009 (UKCP09), a new project, called UK Climate Projections 2018 (UKCP18), is set to deliver a major upgrade to the range of UK climate projection tools designed to help decision-makers assess their risk exposure to climate.*

UKCP18 will use cutting-edge climate science to provide updated observations and climate change projections out to 2100 in the UK and globally. The project will build upon the current set of projections (UKCP09) to provide the most up-to date assessment of how the climate of the UK may change over the 21st century.

UKCP18 will update the probabilistic projections over land and provide a set of high-resolution spatially-coherent future climate projections for the globe at 60km scale and for

the UK at 12km scale. The 12km climate model will be further downscaled to a level previously only used for short-term weather forecasts allowing realistic simulation of high impact events such as localised heavy rainfall in summer. The marine projections will also be updated for sea-level rise and storm surge.

This project will equip the UK with information to help adapt to the challenges and opportunities of climate change and is due to report in December 2018”.

Use information gathered from the other LCLIPs to assess possible risks and solutions to potential future changes in weather

The data collected from the other LCLIP's across Scotland may be useful in aiding the council to evaluate impacts that may occur in the future but have not been experienced in the past. This will assist the council in recognising potential threats and establishing a robust Adaptation Action Plan. For example, Aberdeen City Council published their LCLIP report in 2014. Interestingly, some of the council's key findings were similar to West Lothian's, such as the need for better recording of data relating to severe weather events.

Carry out a Risk Assessment Workshop

As mentioned, one of the main objectives of this LCLIP report is to provide the basis of a risk assessment workshop for West Lothian Council services and community planning partners, so that the risks and potential impacts of climate change can be assessed. A workshop with internal council Services was held in May 2018 and provided the opportunity for services to communicate and share ideas, and to develop a joined up approach to adaptation planning. This will result in a WLC Adaptation Action Plan. However, the community planning aspect has yet to be advanced.

7 Next steps

The next stage is having undertaken the risk assessment workshop is prepare an Adaptation Action Plan. This will play a vital role in making services across the council more resilient to the impacts of severe weather events. The workshop provided an opportunity to open up lines of communication between services, albeit the community planning partners aspect remains an area which has been highlighted as requiring improvement. The *Adaptation Action Plan* can be implemented initial by the local authorities and subsequently community planning partners, and help to establish a unified method for adapting to the impacts of climate change in West Lothian.

Furthermore, the recommendations made in this report will assist the council in meeting its statutory requirements under the Climate Change (Scotland) Act 2009 and the objectives set out in its *Climate Change Strategy 2016*.

The key message from the LCLIP is that the effects of climate change have a significant impact on the local authority and the way it delivers its services. Adopting an effective adaptation programme will result in increasing the resilience of the council and the area of West Lothian in general.

The key findings of the *Integrated Pollution Prevention and Control (IPPC¹) Fifth Assessment Report (AR5) Climate Change 2014: Impacts, Adaptation and Vulnerability* are that:

- climate change is already having an impact on ecosystems and people on all continents and across the oceans.
- as sea levels rise, coastal communities worldwide will experience ever more flooding, coastal erosion and submergence. Species face extinction and the ocean is warming and acidifying.
- unmitigated climate change poses great risks to human health, global food security, and economic development.
- urgent action to reduce carbon emissions is essential to avoid dangerous climate change. The level of adaptation required is dependent on the scale of mitigation.
- adaptation is essential to deal with the risks of climate change, but there are limits to what adaptation alone can achieve.

The above findings emphasise (particularly in points 3 and 5) the importance of having an adaptation programme in place. Using the recommendations set out in the LCLIP will aid the council in putting together an effective adaptation programme, and in turn, help achieve Outcome 5 of the *West Lothian Council Climate Change Strategy*, of 'A Well-Adapted West Lothian':

Appendix 1: Questionnaire responses

Appendix 1A:

Local Climate Impact Profile- West Lothian

Questionnaire - Finance and Estates

Date: 16/02/2015

Service: Finance and Estates: Corporate Procurement Unit

Part 1: Core functions/assets and the consequences of severe weather

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|--|
| 1. What are the core functions or assets your service has to deliver or manage? |
| The CPU ensure the council spend is captured under a contract with agreed terms and conditions |
| 2. What have been the most significant weather events that have impacted your service in the last five years (e.g., events that may have put lives at risk, severely disrupted services, resulted in great fi |
| None known (only been here two years) |
| 3. How did this weather/ type of weather event affect your service/service delivery? (e.g. staff / IT services / energy supply / transport etc)? (Please be specific and note whether the impacts had: very little affect/little affect/greatly affected/severely affected). |
| N/A |
| 4. What were the costs (e.g. financially, staff time, health and safety)? |
| N/A |
| 5. Do you feel there were any effects on your service's/ the council's reputation? (Please identify between: not damaged / damaged / severely damaged). |
| N/A |
| 6. Were there any insurance claims? (Any that stands out in particular). |
| N/A |
| 7. Were there any effects on your services long-term strategic goals? (e.g. changes in targets, re-prioritisation of objectives |
| N/A |

| |
|--|
| 8. In the future, do you foresee the delivery of your service or assets being affected by changes in climate? (e.g. Increasingly mild, wet winters/Increasingly warm dry summers/ Increased heavy rainfall etc.). (Please identify between: Never/not likely/maybe/very likely/ definitely). |
| Not likely – our service can be carried out electronically for a short period of time |

Part 2: Responses

| |
|--|
| 9. What did your service do to respond to such a weather event? |
| N/A |
| 10. Is there anything that you feel would have improved your response to the event? (yes/no). If yes, please explain below. |
| N/A |
| 11. Was there any collaboration with other departments/services in response to the event? (yes/no) If yes, please explain below. |
| N/A |
| 12. Why did your service respond to the weather event in this way? |
| N/A |
| 13. Do you have any supplementary information that might be useful for us to better understand the way your service responds to such events? (yes/no). |
| N/A |
| 14. Are there guidelines in place to help in responding to these events? (yes/no). |
| N/A |

Part 3: Managing

| |
|--|
| 15. How would you rate the risk of severe weather events affecting your service/ organisation again in future? <i>(Please be specific and state whether the risk is: low, medium, high).</i> |
| Low – our role can be carried out electronically for a short period of time |
| 16. Are you responsible for your service risk register? If not, can you please identify who is? |
| Yes |
| 17. Have there been any procedures or adaptation measures put in place since this event? (yes/no). |
| N/A |
| 18. What changes could be made to improve the response to such events in the future? |
| N/A |
| 19. Are there any factors that would enable you to implement these changes with relative ease? Are there key challenges that you would need to overcome? |
| N/A |
| 20. How do you feel changes in the frequency/magnitude of severe weather would affect your service in the future? |
| Low – our role can be carried out electronically for a short period of time |
| 21. Are there any other ways the weather has affected your service? |
| No |

Appendix 1B:

Local Climate Impact Profile- West Lothian

Questionnaire - Education

Date: 17/11/14

Service: Education

Part 1: Core functions/assets and the consequences of severe weather

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|---|
| 1. What are the core functions or assets your service has to deliver or manage? |
| Providing various social experiences to pupils on the Autism Spectrum within West Lothian. This is achieved through Outdoor Visits and activities. |
| 2. What have been the most significant weather events that have impacted your service in the last five years <i>(e.g., events that may have put lives at risk, severely disrupted services, resulted in great fi</i> |
| High winds of 2011? closed Beecraigs Country Park and rendered large sections unuseable due to fallen/hung up trees. Periods of heavy snowfall in 2012 mean that risk assessment of areas to visit have to be carefully considered since it usually involves mini bus travel. Special schools more likely to close due to the problems of transport. |
| 3. How did this weather/ type of weather event affect your service/service delivery? <i>(e.g. staff / IT services / energy supply / transport etc)? (Please be specific and note whether the impacts had: very little affect/ little affect/greatly affected/severely</i> |
| It means that you have to use a different venue and have two or three alternative sites and activities to fall back on. Good local knowledge is very important. School closures due to heavy snowfall ; the inability of staff to reach their workplace; the problems of travel by road with vulnerable pupils. When it is bad ,usually wind and snow .it stops all activity and has repercussions for parents in term of childcare and lost work time. High wind situation means finding alternative venues and being aware of traffi bulletins. |

| |
|--|
| 4. What were the costs (e.g. financially, staff time, health and safety)? |
| Costs to council and parents hard to quantify –also difficult for bus companies/ taxis to gauge how safe it is to set off to school. Staff to report to nearest council establishment. |
| 5. Do you feel there were any effects on your service's/ the council's reputation? (Please identify between: not damaged / damaged / severely damaged). |
| No |
| 6. Were there any insurance claims? (Any that stands out in particular). |
| No |
| 7. Were there any effects on your services long-term strategic goals? (e.g. changes in targets, re-prioritisation of objectives) |
| No |
| 8. In the future, do you foresee the delivery of your service or assets being affected by changes in climate? (e.g. Increasingly mild, wet winters/Increasingly warm dry summers/ Increased heavy rainfall etc.). (Please identify between: Never/not likely/maybe/very likely/ definitely). |
| Not likely |

Part 2: Responses

| |
|--|
| 9. What did your service do to respond to such a weather event? |
| High wind –change venue Snow-school closure or early finish |
| 10. Is there anything that you feel would have improved your response to the event? (yes/no). If yes, please explain below. |
| Early decision making by the local authority Local radio stations keeping people informed |
| 11. Was there any collaboration with other departments/services in response to the event? (yes/no) If yes, please explain below. |
| No |
| 12. Why did your service respond to the weather event in this way? |
| Safety is paramount –pupil safety must be priority |

| |
|--|
| 13. Do you have any supplementary information that might be useful for us to better understand the way your service responds to such events? (yes/no). |
| No |
| 14. Are there guidelines in place to help in responding to these events? (yes/no). |
| Yes |

Part 3: Managing risk

| |
|---|
| 15. How would you rate the risk of severe weather events affecting your service/ organisation again in future? (Please be specific and state whether the risk is: low, medium, high). |
| High |
| 16. Are you responsible for your service risk register? If not, can you please identify who is? |
| No –Head teacher Cedarbank |
| 17. Have there been any procedures or adaptation measures put in place since this event? (yes/no). |
| Council always review –use of group call |
| 18. What changes could be made to improve the response to such events in the future? |
| Early decisions –good use of weather forecast |
| 19. Are there any factors that would enable you to implement these changes with relative ease? Are there key challenges that you would need to overcome? |
| Improved communication via phone / computer /media |
| 20. How do you feel changes in the frequency/magnitude of severe weather would affect your service in the future? |
| More downtime, work time lost |
| 21. Are there any other ways the weather has affected your service? |
| Dictates what is comfortable/possible for the pupils to access |

Appendix 1B:
Local Climate Impact Profile- West Lothian

Questionnaire - Insurance Services

Date: 10 November 2014

Service: Insurance Services, Financial Management Unit

Core functions/assets and the consequences of severe weather

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|--|--|
| <p>1. What are the core functions or assets your service has to deliver or manage?</p> | <p>5. Do you feel there were any effects on your service's/ the council's reputation? <i>(Please identify between: not damaged / damaged / severely damaged).</i></p> |
| <p>Provision of Insurance Services and Covers to West Lothian Council</p> | <p>Not an impact on the reputation of FMU as a whole in relation to the Insurance Service</p> |
| <p>2. What have been the most significant weather events that have impacted your service in the last five years <i>(e.g., events that may have put lives at risk, severely disrupted services, resulted in great fi</i></p> | <p>6. Were there any insurance claims? <i>(Any that stands out in particular).</i></p> |
| <p>Winter of 2010 into January 2011 and the damage and disruption caused by the severe weather event of snow and freezing temperatures.</p> | <p>Yes – Over one hundred individual property claims were registered during the period to take into account asbestos surveys, repairs and reinstatement costs. Some specific examples would be: Roof repairs at Deans Depot (£90k) and Beatlie School (£40k).</p> |
| <p>3. How did this weather/ type of weather event affect your service/service delivery? <i>(e.g. staff / IT services / energy supply / transport etc)? (Please be specific and note whether the impacts had: very little affect/little affect/greatly affected/severely affected).</i></p> | <p>7. Were there any effects on your services long-term strategic goals? <i>(e.g. changes in targets, re-prioritisation of objectives</i></p> |
| <p>Severely affected in trying to establish extent of claims and extent of damage, conveying requests for loss adjuster to assess and timeous recovery and repair of all assets mainly property and vehicular related.</p> | <p>WLC retendered our insurance covers in 2013 and the breach of stop loss did significantly affect our ability to retain existing cover at a reasonable premium. Effectively the result was a premium increase of approximately 9.8%</p> |
| <p>4. What were the costs <i>(e.g. financially, staff time, health and safety)?</i></p> | <p>8. In the future, do you foresee the delivery of your service or assets being affected by changes in climate? <i>(e.g. Increasingly mild, wet winters/Increasingly warm dry summers/ Increased heavy rainfall etc.). (Please identify between: Never/not likely/maybe/very likely/ definitely).</i></p> |
| <p>We exceeded our insurance stop loss (excess) of £925,000 by £1,324,000. This event resulted in an increase in property claims by approximately 230%. . Staff were stretched to the limit to ensure all claims were handled timeously and resolved as soon as possible.</p> | <p>Potential that if we have an extreme weather event that the assets and infrastructure may be damaged and result in additional claims and therefore impact on future cost of Insurance.</p> |

Part 2:
Responses

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| 9. What did your service do to respond to such a weather event? |
| The provision of support to all council services in relation to insurance procedures, loss mitigation and claims. |
| 10. Is there anything that you feel would have improved your response to the event? (yes/no). If yes, please explain below. |
| Yes – the delay in services advising of claims in relation to the event was a major factor in the clearance time taken on the claims as a whole. From event to settling of final claim relating to the event and receiving recovery from insurers was 20 months. |
| 11. Was there any collaboration with other departments/services in response to the event? (yes/no) If yes, please explain below. |
| Yes – Relationship was key with all frontline services. Dialogue was maintained with Housing Construction & Building Services, Education Services, Property Management, council’s Brokers, Loss Adjusters and Insurer appointed claims agents. |
| 12. Why did your service respond to the weather event in this way? |
| Insurance claims require to be monitored throughout to ensure compliance with policy terms, conditions, warranties & exclusions thus enabling the council to gain full benefit from the covers in place. By responding in such a manor we are able to provide a best value service to the council as a whole. |
| 13. Do you have any supplementary information that might be useful for us to better understand the way your service responds to such events? (yes/no). |
| Yes – Guidance on how to respond to different types of claims in available through the Insurance Services intranet site . |
| 14. Are there guidelines in place to help in responding to these events? (yes/no). |
| Yes – Guidance on how to respond to different types of claims in available through the Insurance Services intranet site . |

Part 3: Managing risk

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| 15. How would you rate the risk of severe weather events affecting your service/ organisation again in future? <i>(Please be specific and state whether the risk is: low, medium, high).</i> |
| Medium – Reduction in staff and resources within frontline services may have an impact should services fail to maintain appropriate procedures in light of expected change. |
| 16. Are you responsible for your service risk register? If not, can you please identify who is? |
| No not responsible and yes can identify individual with responsibility – Ailsa MacKerrow monitors Covalent. |
| 17. Have there been any procedures or adaptation measures put in place since this event? (yes/no). |
| Not in FMU but in frontline services severe weather protocols have been put in place. |
| 18. What changes could be made to improve the response to such events in the future? |
| More co-ordinated approach by services with more timely provision of information to FMU to facilitate speedy insurance recovery. |
| 19. Are there any factors that would enable you to implement these changes with relative ease? Are there key challenges that you would need to overcome? |
| Frontline services to maintain appropriate procedures in light of expected staff and resource changes. |
| 20. How do you feel changes in the frequency/magnitude of severe weather would affect your service in the future? |
| Increased claims and increased premiums as a result |
| 21. Are there any other ways the weather has affected your service? |
| Event over in days – claims can take years to resolve. |

Appendix 1B:
Local Climate Impact Profile- West Lothian

Questionnaire - Operational Services

Date: 01 December 2014

Service: Operational – Roads & Transportation – Flood Risk management

Part 1: Core functions/assets and the consequences of severe weather

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| 1. What are the core functions or assets your service has to deliver or manage? |
| Flood Risk Management, water-related assets & water quality etc. |
| 2. What have been the most significant weather events that have impacted your service in the last five years (e.g., events that may have put lives at risk, severely disrupted services, resulted in great fi |
| Heavy and prolonged rainfall and stormy weather. |
| 3. How did this weather/ type of weather event affect your service/service delivery? (e.g. staff / IT services / energy supply / transport etc)? (Please be specific and note whether the impacts had: very little affect/little affect/greatly affected/severely affected). |
| A spike in customer enquiries A spike in overall demand Properties flooded Public roads become blocked Service severely impacted |
| 4. What were the costs (e.g. financially, staff time, health and safety)? |
| High financial cost, overtime payments to out of hours personnel. Not costed. |
| 5. Do you feel there were any effects on your service's/ the council's reputation? (Please identify between: not damaged / damaged / severely damaged). |
| When the team aims to reduce flood risk and people get flooded it is damaging to the council's reputation. |

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| 6. Were there any insurance claims? (Any that stands out in particular). |
| There were claims but not against the council's insurance. |
| 7. Were there any effects on your services long-term strategic goals? (e.g. changes in targets, re-prioritisation of objectives |
| No. Flooding always has the effect, however, of reminding people of the risks in the short-term. Windy conditions, particularly where the ground conditions are wet represent a further threat to the road network. |
| 8. In the future, do you foresee the delivery of your service or assets being affected by changes in climate? (e.g. Increasingly mild, wet winters/Increasingly warm dry summers/ Increased heavy rainfall etc.). (Please identify between: Never/not likely/maybe/very likely/ definitely). |
| Definitely. |

Part 2:
Responses

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|---|
| 9. What did your service do to respond to such a weather event? |
| Everything it usually does. |
| 10. Is there anything that you feel would have improved your response to the event? (yes/no). If yes, please explain below. |
| There needs to be improvements in the emergency and operational response to severe weather and heavy rain in particular. We need to build greater resilience in the community. We need to reset expectation and we need to increase awareness of the risk of flooding and we need to continue to invest in measures to reduce overall flood risk and we need to more effectively capture data about flooding. |
| 11. Was there any collaboration with other departments/services in response to the event? (yes/no) If yes, please explain below. |
| Roads & Transportation works closely with the Contact Centre and NETs, land & Countryside Services. There are operational links with the Emergency Planning Officer although not in every event. |
| 12. Why did your service respond to the weather event in this way? |
| It's what we do and in part why we are here. |
| 13. Do you have any supplementary information that might be useful for us to better understand the way your service responds to such events? (yes/no). |
| We maintain a record of flood events but the way we capture data could be improved. |
| 14. Are there guidelines in place to help in responding to these events? (yes/no). |
| Yes there is a severe weather plan and a severe weather manual. The extent to which the manual is used is questionable. |

Part 3: Managing risk

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|---|
| 15. How would you rate the risk of severe weather events affecting your service/ organisation again in future? (Please be specific and state whether the risk is: low, medium, high). |
| High |
| 16. Are you responsible for your service risk register? If not, can you please identify who is? |
| No but involved. |
| 17. Have there been any procedures or adaptation measures put in place since this event? (yes/no). |
| Not recently although we are currently updating the severe weather manual |
| 18. What changes could be made to improve the response to such events in the future? |
| Better trained workforce. More emergency drills. Set customer expectation to realistic levels. |
| 19. Are there any factors that would enable you to implement these changes with relative ease? Are there key challenges that you would need to overcome? |
| Not all under my control. Initiatives need to be carefully programmed to avoid overloading key personnel. |
| 20. How do you feel changes in the frequency/magnitude of severe weather would affect your service in the future? |
| Transportation team provide. The response needs to be much more carefully prioritised managed and coordinated and the cost controlled. |
| 21. Are there any other ways the weather has affected your service? |
| Ageing road and water-related assets, a decrease in capital and revenue investment and the effects of severe weather together mean that the effect of severe weather will get worse. |

Appendix 1B: Local Climate Impact Profile- West Lothian

Questionnaire - West Lothian College

Organisation: West Lothian Council

Date: November 2014

Part 1: Core functions/assets and the consequences of severe weather

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|---|---|
| 1. What are the core functions or assets your service has to deliver or manage? | 5. Do you feel there were any effects on your service's/ the council's reputation? <i>(Please identify between: not damaged / damaged / severely damaged).</i> |
| Core function is the delivery of education and training in a single site campus based in Livingston | Not damaged. |
| 2. What have been the most significant weather events that have impacted your service in the last five years <i>(e.g., events that may have put lives at risk, severely disrupted services, resulted in great fi</i> | 6. Were there any insurance claims? <i>(Any that stands out in particular).</i> |
| The most significant events were the bad winters of 2010 and 2011. In particular in December 2011 the College had to close for a full week because of the adverse weather conditions resulting in disruption to learners. | No. |
| 3. How did this weather/ type of weather event affect your service/service delivery? <i>(e.g. staff / IT services / energy supply / transport etc)? (Please be specific and note whether the impacts had: very little affect/little affect/greatly affected/severely affected).</i> | 7. Were there any effects on your services long-term strategic goals? <i>(e.g. changes in targets, re-prioritisation of objectives</i> |
| Affected through disruption to Learner's timetables in 2010 and 2011 as road conditions were such that most staff and learners could not access the College resulting in the re-organistaion of lessons and assignments. The adverse weather also resulted in more time being spent on building checks to prevent frozen pipes. | Yes work was done to ensure we improved communication channels through development of social media and improved the procedure for College closure. |
| 4. What were the costs <i>(e.g. financially, staff time, health and safety)?</i> | 8. In the future, do you foresee the delivery of your service or assets being affected by changes in climate? <i>(e.g. Increasingly mild, wet winters/Increasingly warm dry summers/ Increased heavy rainfall etc.). (Please identify between: Never/not likely/maybe/very likely/ definitely).</i> |
| The costs were related to staff time and loss of income from commercial lets not able to go ahead. | Not likely. |

Part 2:
Responses

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| 9. What did your service do to respond to such a weather event? |
| Communicated College closure to staff and learners through radio and West Lothian Council website. |
| 10. Is there anything that you feel would have improved your response to the event? (yes/no). If yes, please explain below. |
| Yes communication in advance to staff and students about how they would be told about the College closure. |
| 11. Was there any collaboration with other departments/services in response to the event? (yes/no) If yes, please explain below. |
| Yes – collaboration between the College and West Lothian Council. |
| 12. Why did your service respond to the weather event in this way? |
| No option as road conditions were so bad it would have been unsafe to ask staff and learners to come to the College. |
| 13. Do you have any supplementary information that might be useful for us to better understand the way your service responds to such events? (yes/no). |
| Yes - Copy of College Closure Procedure. |
| 14. Are there guidelines in place to help in responding to these events? (yes/no). |
| Yes as set out in Question 13. |

Part 3: Managing risk

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|---|
| 15. How would you rate the risk of severe weather events affecting your service/ organisation again in future? (Please be specific and state whether the risk is: low, medium, high). |
| Risk is medium. |
| 16. Are you responsible for your service risk register? If not, can you please identify who is? |
| Risk Register is the responsibility of the College's Leadership Team. Each risk has a lead contact from the Leadership Team. |
| 17. Have there been any procedures or adaptation measures put in place since this event? (yes/no). |
| Yes College closure procedure reviewed and updated. |
| 18. What changes could be made to improve the response to such events in the future? |
| Development of Moodle so that learners can access course materials and make direct contact with lecturers. |
| 19. Are there any factors that would enable you to implement these changes with relative ease? Are there key challenges that you would need to overcome? |
| Yes staff member has been appointed to take forward the development of Moodle. |
| 20. How do you feel changes in the frequency/magnitude of severe weather would affect your service in the future? |
| Severe winters could have an impact if it resulted in the College having to close. |
| 21. Are there any other ways the weather has affected your service? |
| No. |
| 22. Would you be interested in participating in a climate risk workshop with West Lothian Council and other Community Planning Partners? (yes/no). |
| Yes. |

Appendix 1B: Local Climate Impact Profile- West Lothian

Questionnaire - Scottish Fire and Rescue Service

Date: 19/02/2015

Service: Scottish Fire and Rescue Service

Part 1: Core functions/assets and the consequences of severe weather

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| <p>1. What are the core functions or assets your service has to deliver or manage?</p> | <p>5. Do you feel there were any effects on your service's/ the council's reputation? <i>(Please identify between: not damaged / damaged / severely damaged).</i></p> |
| <p>Delivery of a community safety emergency response service.</p> | <p>Indicatively the SFRS enhances its reputation during these types of events as core services continue to be delivered.</p> |
| <p>Delivery of a community safety risk prevention service.</p> | <p>6. Were there any insurance claims? <i>(Any that stands out in particular).</i></p> |
| <p>2. What have been the most significant weather events that have impacted your service in the last five years <i>(e.g., events that may have put lives at risk, severely disrupted services, resulted in great fi</i></p> | <p>No</p> |
| <p>Severe flooding. Severe adverse winter weather. Severe winds.</p> | <p>7. Were there any effects on your services long-term strategic goals? <i>(e.g. changes in targets, re-prioritisation of objectives</i></p> |
| <p>3. How did this weather/ type of weather event affect your service/service delivery? <i>(e.g. staff / IT services / energy supply / transport etc)? (Please be specific and note whether the impacts had: very little affect/little affect/greatly affected/severely affected).</i></p> | <p>SFRS undertakes a review and debrief process after significant events and determines any lessons that can learned to improve future pre-planning and service delivery.</p> |
| <p>Affected through disruption to Learner's timetables in 2010 and 2011 as road conditions were such that most staff and learners could not access the College resulting in the re-organistaion of lessons and assignments. The adverse weather also resulted in more time being spent on building checks to prevent frozen pipes.</p> | <p>8. In the future, do you foresee the delivery of your service or assets being affected by changes in climate? <i>(e.g. Increasingly mild, wet winters/Increasingly warm dry summers/ Increased heavy rainfall etc.). (Please identify between: Never/not likely/maybe/very likely/ definitely).</i></p> |
| <p>4. What were the costs <i>(e.g. financially, staff time, health and safety)?</i></p> | <p>Increased severe weather event threats may lead SFRS to move assets to strategic locations across Scotland or purchase additional equipment (e.g flood response equipment, water pumps)</p> |
| <p>Difficulties in staff attending work. Spate conditions of calls for services to be delivered. Increased fuel usage. Increased staff costs (on call staff)</p> | |
| <p>All impactshadminimaleffectsaspreplanning arrangements are made and implemented for severe adverse weather events.</p> | |

Part 2:
Responses

| |
|---|
| 9. What did your service do to respond to such a weather event? |
| Attend emergency incidents. Undertake rescue of stranded individuals Rescue casualties Pump water Work with partners to mitigate impact of severe weather |
| 10. Is there anything that you feel would have improved your response to the event? (yes/no). If yes, please explain below. |
| Lessons learned inform future pre-planning and service delivery |
| 11. Was there any collaboration with other departments/services in response to the event? (yes/no) If yes, please explain below. |
| In some instances Local/Regional/National Resilience Partnerships were stood up to apply a multi-agency response to dealing with events. Currently SFRS is a member of the West Lothian Severe Weather Group. SFRS maintains a positive relationship with the West Lothian Emergency Planning Officer |
| 12. Why did your service respond to the weather event in this way? |
| Multi agency and partnership working is a key principle of how SFRS delivers its services as it recognises the benefits of a joint approach to problem solving |
| 13. Do you have any supplementary information that might be useful for us to better understand the way your service responds to such events? (yes/no). |
| No |
| 14. Are there guidelines in place to help in responding to these events? (yes/no). |
| Yes SFRS has severe adverse weather plans in place |

Part 3: Managing risk

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|---|
| 15. How would you rate the risk of severe weather events affecting your service/ organisation again in future? (Please be specific and state whether the risk is: low, medium, high). |
| Based on pre-planning arrangements and current planning assumptions- Low |
| 16. Are you responsible for your service risk register? If not, can you please identify who is? |
| SFRS Risk Management Department |
| 17. Have there been any procedures or adaptation measures put in place since this event? (yes/no). |
| Not clear on question being posed so unable to respond (which event ???) |
| 18. What changes could be made to improve the response to such events in the future? |
| As per previous responses SFRS continually reviews current service delivery arrangements through de-brief processes |
| 19. Are there any factors that would enable you to implement these changes with relative ease? Are there key challenges that you would need to overcome? |
| Any recommendations for change which have financial implications would have to be factored in to future annual capital; and revenue budget planning processes. |
| 20. How do you feel changes in the frequency/magnitude of severe weather would affect your service in the future? |
| Limited negative adverse effect using current planning assumptions |
| 21. Are there any other ways the weather has affected your service? |
| No. |