

Building resilience in a changing climate How resilient is your service?

A guide for services 2012

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This guide provides help for services to assess how resilient their service is to climate change. It forms part of the city's [Climate Change Strategy](#) priority to, "adapt to climate change," where the city has pledged to know and plan for climate change risks; minimise the impacts of emergencies arising from climate change; and reduce the impacts from floods.

The term "resilience" is used in a number of ways. The Civil Contingencies Unit uses the term when assessing how well we respond to particular emergencies, and services are expected to have robust business continuity plans in place for this. Although there are close links between responses to emergencies and responses to climate change, civil contingencies focuses on the short-term and **climate change on the long-term**. This guide specifically focuses on how resilient services are to climate change and how resilient they will be in the future, by giving services guidance on building climate change resilience into capital spending, policies and plans.

Why we need to build resilience now

Climate change will threaten the way we deliver services, and deciding not to adapt potentially has significant cost implications. For example:

Buildings and infrastructure - future weather events could impact on infrastructure and the maintenance thereof. There are likely to be additional costs if we don't retrofit buildings with resilience measures before extreme weather becomes more frequent. The costs of retrofitting buildings later will be 10-20% higher than if these works were incorporated in a base scheme¹.

Staff productivity - if we have more heatwaves and hotter weather, it could result in more people being absent from the workplace, and could reduce productivity. During one week of the July 2006 heatwave, UK employers lost an estimated £168m a day in productivity².

Flooding - this can be amongst the most costly weather event, and under the most extreme climate change scenario, the annual cost of flooding could increase to 20 times the current level³. If buildings aren't adapted this will likely incur an additional buildings insurance premium.

The benefits of building resilience

Building resilience to extreme weather events makes economical, social and environmental sense. The costs of protecting the city from climate change will be less if we invest now rather than wait until services and buildings are damaged after an extreme weather event. We can minimise the costs of adapting to climate change by building it into the early stages of planning.

Other potential benefits include:

- ◆ Providing opportunities to carry out repair and maintenance work that needs doing that would otherwise not be prioritised.

¹ Adapting to climate change impacts – a good practice guide for sustainable communities

² Centre for Economics and Business Research

³ 2004 foresight Report

- ◆ Giving the council the opportunity to show it is resilient to climate change. If the council can respond effectively to extreme weather events, this will promote a better reputation and potentially increase recruitment and retention of staff.
- ◆ Reducing costs if we are proactive in responding to extreme weather events. This would provide the assurance of continued service delivery, especially to our vulnerable communities.
- ◆ Making staff more productive, if premises are made more comfortable and staff health and wellbeing is a priority. Previous weather events have highlighted the problems associated with staff productivity.

The latest climate change projections for Portsmouth

Based on the latest projections from the [UK Climate Impact Programme](#), we are now able to look in more detail at how Portsmouth’s climate could change. It is likely that the extreme weather events that Portsmouth currently experiences, such as heatwaves and heavy rainfall (leading to flooding) will become more frequent. The four main headlines are:

- ◆ The sea level is likely to rise, and extreme sea levels will be experienced more frequently.
- ◆ Summer mean temperatures will increase, and higher summer temperatures will become more frequent. Summers may become drier.
- ◆ Winter mean temperatures are likely to increase, and there is likely to be an increase in heavy winter precipitation (rain, sleet, snow).
- ◆ There is likely to be increased variability in weather events, particularly storminess (including wind & lightning).

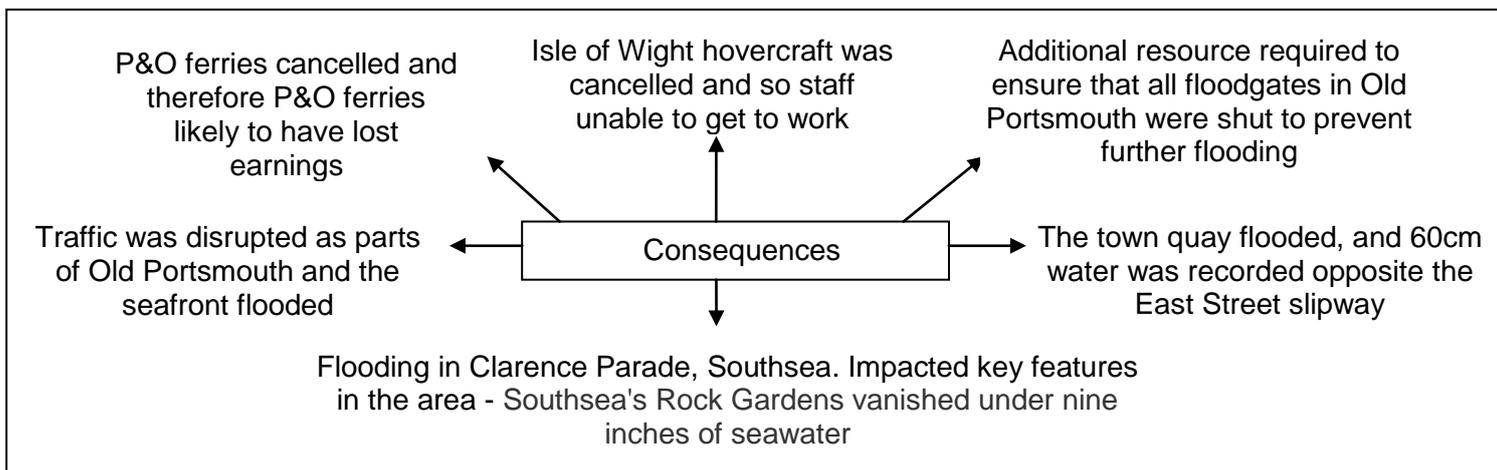
Locally this could mean we will be at a greater risk of surface-water flooding, as well as coastal flooding. It could also mean that generally summers will become much hotter, which could impact on our more vulnerable residents, and stormy events could become more frequent. These events cause damage to buildings and other infrastructure.

The impacts of previous weather events on Portsmouth services

During the last 10 years, there have been a number of extreme weather events that had more significant impacts than others, and it is these events which have been predicted to increase in the coming years. The next section looks at these events in more detail, and highlights the impacts that arose as a result of the weather event. In the future, these impacts are likely to intensify, as these extreme events are experienced more regularly.

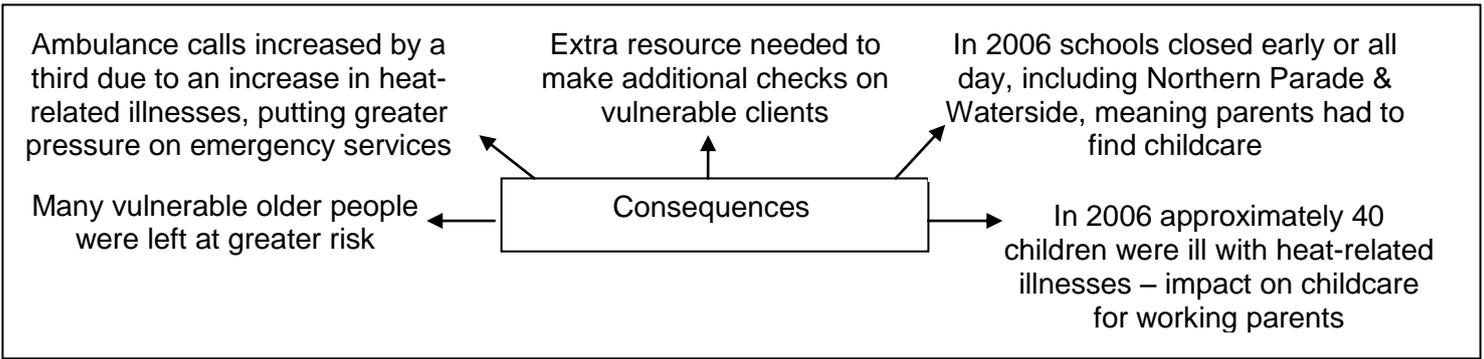
Flooding due to high tides

Although Portsmouth’s coastal defences help to minimise the disruption caused by high tides, on occasion, we do still experience flooding as a result of high tides. In the future, this is likely to become more frequent as the sea level continues to rise. In March 2008, the tide reached **5.53 metres** (2.8 metres above sea level). It was the highest tide in Portsmouth since December 1989.



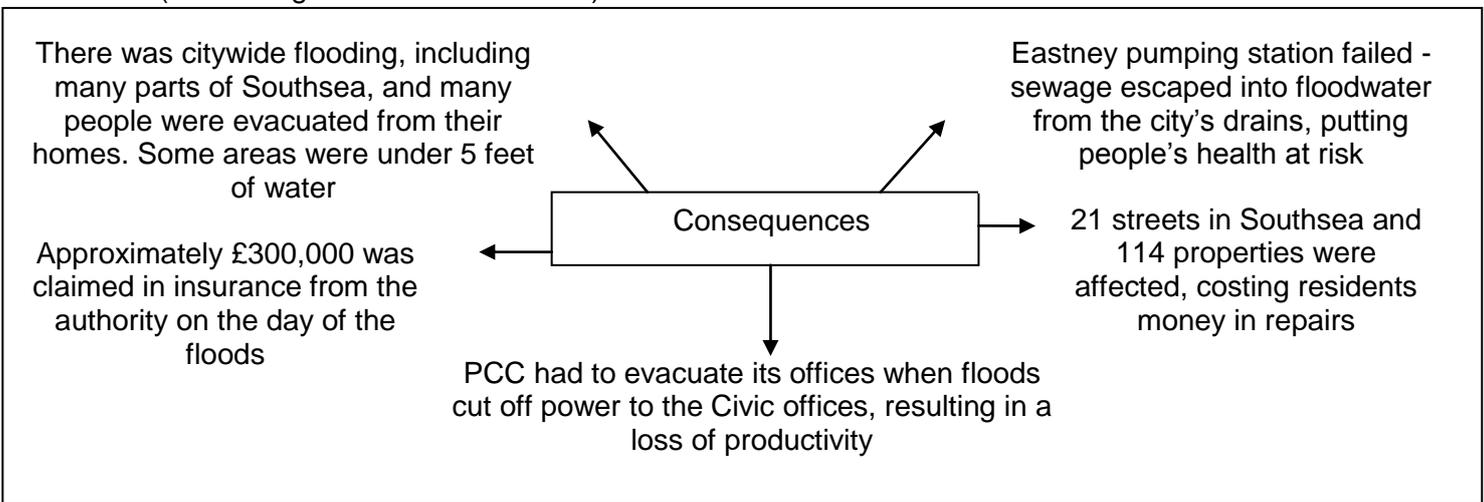
Heatwaves

Portsmouth has experienced 2 major heatwaves in recent years, the first in August 2003 where temperatures reached **36°C** and the second in July 2006 when it was between **30-32°C**.



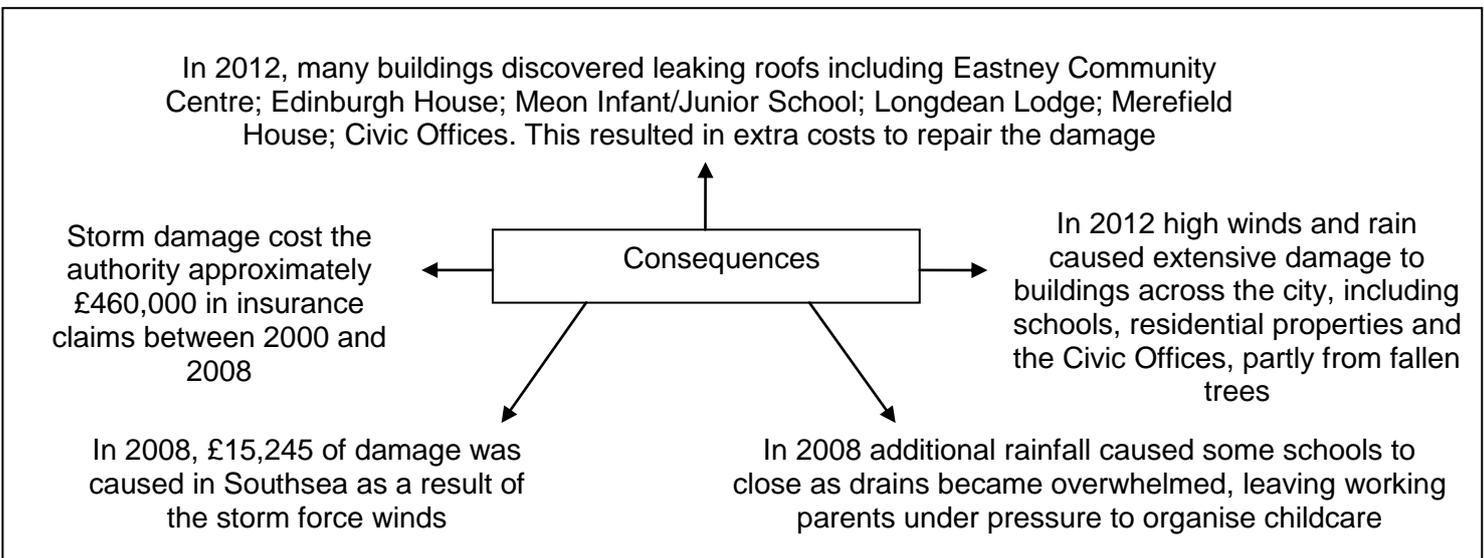
Heavy rainfall

In September 2000, large parts of Portsmouth flooded as a result of heavy rainfall. In **3 hours, 60 mm** of rain fell (the average for the whole month).



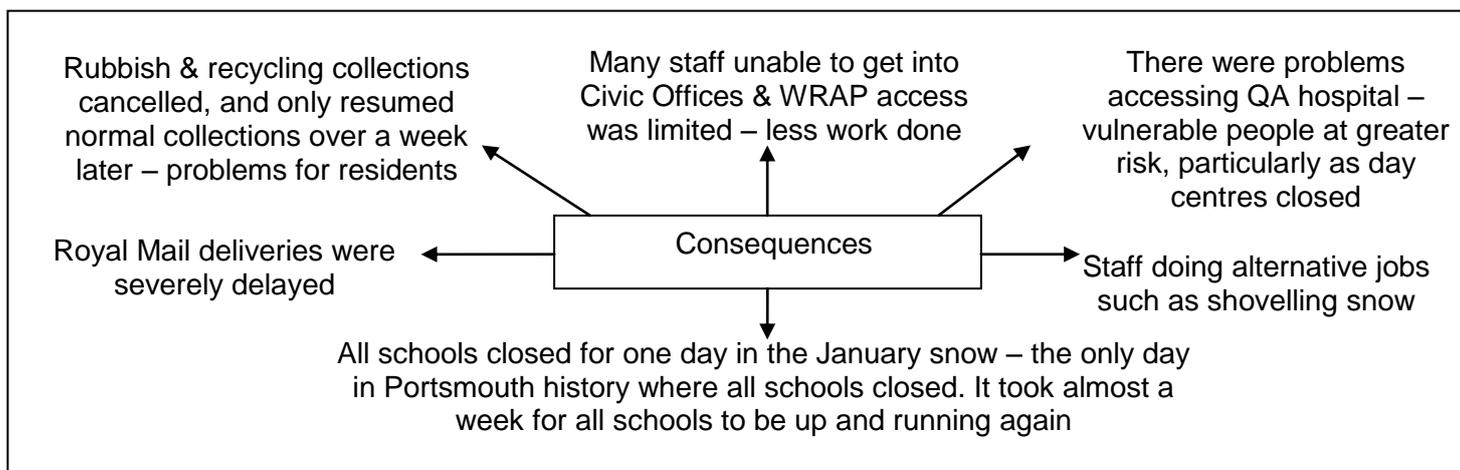
Storms and gales

In the last 9 years, Portsmouth has been subject to over 6 events of "severe weather," typified here by 'storms and gales'. Portsmouth also experiences episodes of high wind speeds (such as in March 2008 where wind speeds reached **70-80 m.p.h**), which damages property and causes disruption to channel crossings. In January 2012, wind speeds reached up to **82 m.p.h** around the area, causing extensive damage across the city.



Snow and ice

In 2010, Portsmouth was subject to two major incidences of snow and ice, the first hit the city in January, and disrupted services across the city for over a week. This prompted all services to review their continuity plans, so that when further snow hit in December, we were better prepared as a council. These episodes provided some real evidence for why we should be adapting to extreme weather events.



How we are at risk locally

Based on a number of interviews that took place with services in 2008 and again in 2010, we have a much better idea of how past extreme weather events have affected service delivery, and how weather events in the future are likely to impact on the council. Following these discussions, a comprehensive risk based assessment was completed by all services across the council, to assess the likely risks posed to service delivery. Each service's risk assessment is available at: <http://intranet/Services/8943.html>. From this a number of corporate risks have been identified, which are likely to affect most of PCC's services.

Potential impacts	Consequences (The impacts result in...)
Gridlock in the city and travel disruption	Staff have reduced mobility as a result of gridlock in and out of the city. Care workers are unable to get to vulnerable clients, and staff are unable to get to work.
Service delivery disruption & closure of frontline services	Services that people rely on (particularly more vulnerable residents) are closed for a period of time, including day centres. This puts greater strain on staff to check clients' safety, and more staff need to travel to clients. Staff with children have to take leave when schools close. In the long term it could affect our reputation for continuous service delivery.
A greater reliance on partners	As we deliver more services with and through our partners, we will rely on them more to ensure services aren't affected during extreme weather. We rely on care home operators to put robust continuity plans in place, and rely on COLAS to clear our roads.
Damage to infrastructure	Damage to buildings could result in greater accessibility issues, as well potential ICT failure. This could cause implications for staff accessing the network from home. Historical buildings on the seafront could be affected by stronger windspeeds.
Reduced health and wellbeing	Hotter weather (and warmer winters) could cause other diseases to become more common, and could result in more staff sickness, a reduction in staff productivity, and a greater risk to our vulnerable clients.

Vulnerable services

A number of services have been identified as being the most vulnerable and at the highest risk to the impacts of climate change. These services are:

- ◆ Adult Social Care
- ◆ Children's Social Care

◆ Schools

These services form the basis of the "priority services" in the council – this is primarily because they work with vulnerable client groups, or school children, and therefore have a greater responsibility in their duty of care. Thus, building resilience to the main impacts they identified as a high risk, will be critical if they are to continue to deliver their services effectively and efficiently.

Services aiding resilience

The other prioritised services are those that provide support to the city's infrastructure, which is important when a number of the projected impacts of climate change will affect the city as a whole. These services are:

- ◆ Transport and Environment
- ◆ Asset Management
- ◆ Planning

The policies, plans and regulations that these services write, adhere to and support will be critical in ensuring that our transport network, our buildings, and other associated infrastructure is effectively adapted to the projected negative impacts of climate change, so that in the long-term associated problems of climate change are reduced, and the highlighted priority services are less affected.

How we are already adapting to climate change

Corporately, a number of actions have been identified, and are being taken forward as part of this work:

- ◆ Logging of extreme weather events, including what the impacts and costs are.
- ◆ Agreeing a set of indicators to monitor PCC's resilience to climate change. Services will be expected to provide necessary information i.e. number of schools closed, water use, number of sites currently in flood zones etc.
- ◆ Embedding this policy into corporate approaches and processes, including projects, procurement and commissioning, and corporate risk. By doing this, it will not only ensure that resilience is integrated into business as usual, but in the design and delivery of new services.
- ◆ Analysing flood risk areas against vulnerable communities in the city, and adding this information to the Joint Strategic Needs Assessment.

A number of services across the council have already started looking at how they can help build resilience to climate change. These actions are detailed in the table below.

Service	What we are already doing
Planning	<ul style="list-style-type: none"> ◆ The draft Portsmouth Plan includes policies for delivering sustainable development (e.g. reducing flooding; green infrastructure), and will be used for development management purposes ◆ An Infrastructure Development Plan is in place ◆ Standards for BREEAM and the Code for Sustainable Homes are included as part of development assessments ◆ Strategic Flood Risk Assessments are carried out for all development proposals which are in flood risk areas ◆ The potential for having Sustainable Urban Drainage systems is included in the Portsmouth Plan
Transport and environment	<ul style="list-style-type: none"> ◆ Surface Water Management Plan and Preliminary Flood Risk Assessment in place by June 2011 ◆ Continue to progress work outlined in the Portsea Island Strategy (particularly flood cells 1 and 4) to protect the city from flooding. This strategy has secured funding.
Housing management	<ul style="list-style-type: none"> ◆ Developing a Greener Homes initiative ◆ Successful completion of the Eco-Home and Solar PV Panel projects
Community housing	The home improvements work in private sector housing will contribute towards reducing carbon emissions
Community	Testing of business continuity plans, to ensure they are fit for purpose. This includes

Safety, HIDS & Licensing	ensuring disaster recovery systems are in place for SWIFT and SMART (HIDS).
Adult Social Care	<ul style="list-style-type: none"> ◆ Audit of sustainability plans that apply to Adult Social Care and our co-ordination of emergency responses with Health and other partners ◆ Action plan to be drawn up based on the audit findings
Culture	<ul style="list-style-type: none"> ◆ Take forward the coastal protection and sea defences detailed in the seafront strategy specifically environmental agency bid to attract major funding for sea defences such as Southsea coastal defence works ◆ Continue to implement the Sustainable Planting policy ◆ All events have “wet weather” alternatives

A checklist for building climate change resilience into your service

Although there is a lot of work already happening to build resilience to climate change, it is important that when service plans are scheduled for review or new services or projects are agreed, we look at potential ways of building resilience, before we are forced to act by a sudden event or mounting maintenance costs e.g. costs of emergency repairs to infrastructure are typically ten times the cost of routine maintenance.

When making a service decision, services should be asking the below questions:

- ◆ How is the subject of the decision affected by today’s severe weather? Have these impacts been adequately addressed?
- ◆ Has a climate change impact assessment been carried out looking at the four headline scenarios? If not, can this be justified?
- ◆ How will climate risks and opportunities be communicated to staff and stakeholders? Is there a training need?
- ◆ Is the decision long-term? How will it be able to adapt to climate change in the future?
- ◆ When commissioning or contracting a new or existing service, how has the specification taken account of climate change? Are the contractors’ resilient?

The following checklists allow you to assess your service’s vulnerability to climate change, and find ways to build resilience now.

Checklists for services

Premises and assets

Questions to consider...

- ◆ Are any of your assets or premises in an area at risk of flooding (coastal or surface water)? Are you planning any new development which will be in a flood risk zone?
- ◆ If you are in a flood zone, do you have appropriate flood defences or have you thought about how you are going to design suitable measures that will reduce the cost of repair if that building were to flood?
- ◆ Do you have equipment to clean up with after an extreme weather event?
- ◆ If your premises have been damaged before, have you considered a higher standard of resilience to prevent the same damage happening again?
- ◆ Have you considered whether you could operate from alternative premises if you had to? This includes frontline delivery buildings e.g. day centres; care homes and libraries
- ◆ How well do your buildings cope with higher temperatures?
- ◆ Do you have measures in place to reduce your carbon footprint and save energy?
- ◆ Are you an intensive energy user?

Take action...

1. Carry out a flood risk assessment for new development
2. Look at practical solutions for reducing damage to buildings caused by flooding – move electrical equipment above flood level; lay ceramic tiles & rugs instead of fitted carpets
3. Regularly maintain gutters and drains
4. Reduce impermeable surfaces
5. Fit seals to doorways
6. Consider the use of green roofs and green walls
7. Annually review properties to make sure physical measures are in place to reduce risk of heat stress and damage from flooding
8. Ensure design specifications for new and future builds take account of climate change
9. When building stock is changed, look at improving existing measures e.g. thermal comfort
10. Consider developing a staff travel plan such as car sharing, and look at installing automatic meter readings in your buildings to monitor energy consumption

Suppliers and contractors

Questions to consider...

- ◆ What happens if your suppliers can't get to you because of weather-related disruptions?
- ◆ What if your customers couldn't get to you?
- ◆ Are your suppliers and contractors aware of what to do in a weather-related emergency? Do they have appropriate business continuity plans in place?
- ◆ Are contracted out services aware of the impacts of climate change on service delivery?

Take action...

1. Make sure that your contractors have appropriate business continuity plans in place. Consider whether it would be appropriate to make business continuity planning a contractual requirement
2. Create contingency plans with contractors as appropriate (buses, schools, waste)
3. Look at alternative routes that could be used if certain roads were blocked, and potentially review how contractors reach sites
4. Make sure your suppliers and contractors have considered how extreme weather affects your clients, for example, a community centre or a care home. Make sure they are seeking the best value for money by reducing energy consumption, and maintaining the building appropriately
5. If your customers need to get to you, consider how the routes they use could be disrupted by extreme weather

People (staff and customers)

Questions to consider...

- ◆ Are your staff and customers vulnerable to extreme temperatures? Have you considered risks such as fainting, injury or a reduction in efficiency?
- ◆ Have you thought about the health and safety implications of your staff working outdoors on high temperatures?
- ◆ What happens if staff can't get to work?
- ◆ Are staff aware of business continuity arrangements? Do they know the arrangements for taking time off work?
- ◆ Are staff and customers aware of the health risks associated with extreme weather, especially heatwaves?
- ◆ If roads are closed due to flooding or snow, how will staff get to work?
- ◆ How do you communicate with vulnerable customers during emergencies, and do they know what to do in an emergency?

Take action...

1. Identify individuals with medical conditions and increase awareness of the impact of extreme temperatures with staff and vulnerable customers
2. Allow outside workers to wear comfortable clothing and provide plenty of water
3. Look at fitting blinds to south-facing windows
4. Provide shade in outdoor area e.g. parapets or planting schemes
5. Close windows when external temperatures are higher than internal temperatures
6. Ensure flexible working arrangements are in place so that staff can work from home
7. Ensure staff are aware of HR policies in taking time off work (e.g. if schools are closed and parents need to find alternative childcare arrangements)
Ensure information is communicated with residents on "what to do if you can't access put services". Ensure arrangements are in place to get in touch with customers if necessary. Point customers to useful information such as the PCC flood plan and our emergency procedures

Delivering services

Questions to consider...

- ◆ Are you reliant on information technology, and what would you do if you were cut off from the mains power supply?
- ◆ What alternative arrangements do you have to access vital data?
- ◆ If your staff are unable to get to work, can you continue to deliver your service? Can they work from home?
- ◆ Have you considered an increase in demand for certain services? Are your customers likely to expect more from you during an extreme weather event?
- ◆ What would happen if you couldn't deliver services to your customers due to weather-related disruptions? For example, staff couldn't visit clients.

Take action...

1. Make sure business continuity plans are up to date and raise awareness of them
2. Back up all data and discuss any issues you might have with IS. Consider other ways of accessing databases that might be needed – are there opportunities to join up with other local authorities?
3. Look at whether it would be appropriate to develop a service-level heatwave or flood plan
4. If the vital parts of your service could not be delivered if there was widespread flooding or severe snow/ice, consider how you could change the way you deliver that part of the service
5. Consider reviewing how your service is affected by weather events now and look at any complaints that have been associated with these. There could be a problem in service delivery that recurs during extreme events.
6. Consider teleconferencing facilities.



Portsmouth
CITY COUNCIL

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