

Adapting to climate change

Action plan

Non-technical summary
May 2011



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1. Introduction

In recent years, our climate and weather patterns have changed significantly, becoming much less predictable.¹

With the scale of change in our weather systems it is now paramount to focus our efforts on adapting our behaviour and planning for the possibility of severe weather events and the likely impact on the health and quality of life of our people and potential damage to our economy and natural environment.²

By planning and preparing for severe weather we hope to build resilience in to our organisation services, reducing the potential damage and cost as a result of the unpredictability of our climate.

This action plan highlights the types of severe climatic events we could face in the future and the impact these could have on services. It provides each type of event a risk score (based on impact x likelihood)³ and sets out measures that Essex County Council can take both now and over the next ten years to adapt and build resilience to these types of event. Most adaptation measures will not require major investment but will be about changing our systems and behaviours to ones more appropriate for a changing climate.

2. Summary of Essex

Essex is one of the largest counties in the UK, covering approximately 337,000 hectares and recorded a population of 1.712 million⁴ in 2008. The county is subject to significant development pressures and agriculture covers more than half of the counties low-lying land. Essex has important transport links, extensive networks of roads and inland waterways and 350 miles of coastline, with ecological important areas and numerous coastal communities.⁵ The low-lying land and geographical location on the Thames Estuary makes Essex vulnerable to various natural hazards, such as flooding and drought.^{6 7}

In general, Essex can expect warmer, wetter winters, hotter, drier summers and a rise in sea levels by 2080. Weather is likely to become more variable and extreme events could be more frequent, increasing the risk to Essex from events such as droughts, extreme cold conditions and floods.⁸ These projections for Essex are based on the 2009 scenarios produced by the UK Climate Impacts Programme, funded by Defra.

In 2010, a Local Climate Impact Profile (LCLIP) study highlighted the number of weather related incidents occurring in Essex. More than 160 severe weather related incidents affected Local Authority services, business and communities between January 2004 to December 2009. These incidents consisted of road and rail disruptions and damages, the disruption and demand on public sector services, damage to buildings from falling trees and flooding, power cuts, risk to the environment and health concerns in vulnerable people.⁹

The Essex LCLIP and comprehensive risk based assessment enables Essex County Council (ECC) to assess the impacts of recent and projected weather events on its services, and communities.^{10 11} This encourages informed adaptation decisions and has led to the development of ECC's adaptation action plan.

3. ECC Adaptation Action Plan

3.1 Action Plan Assessment

Each directorate¹² identified a number of actions addressing climate related risks, which either:

- contributed to building their capacity to adapt by gathering and sharing information, developing appropriate policies, plans and strategies and/or,
- minimises and takes advantage of the consequences of climatic change through delivering adaptation actions to build resilience.¹³

There are several viable adaptive measures that result in effective adaptation and these were assessed and ranked as one of the following options:

- **Cost effective measures**, delivering benefits that exceed the costs.
- **Low cost measures**, low costs with potentially large benefits.
- **Cross-cutting benefit measures** contribute to adaptation and also deliver other benefits.
- **Adaptable management measures** are useful for dealing with longer-term uncertainties.
- **Managed approach**, where climate risks are out weighted by non-climate factors.¹⁴

The following timescales have also been identified for each adaptation measure:

- **Act Now** - Aim to have implementation from now to 5 years.
- **Monitor** - monitor the situation and review or implement actions as required.
- **Plan Ahead** - Longer-term planning for implementation within 10+ years.

The headline actions identified within this plan are summarised below and detailed in appendix 1:

- As the Lead Local Flood Authority for Essex on flood and water management an action plan has been developed and is being implemented in line with the Flood and Water Management Act (2010).
- Highways Management adhere to the winter maintenance plan when the snow, ice and frost cause a disruption to Essex transport infrastructure.
- All directorates maintain and exercise their business continuity plans and allow flexible working where appropriate.
- ECC will ensure alternative waste disposal options are available to mitigate individual waste treatment or disposal site closures triggered by high winds.
- Vulnerable clients cared for by ECC who are at risk from prolonged hot summers and cold weather are identified, such as older people and young children with a disability and underlying health problems.

4. Monitoring and Review of Actions

Implementation has begun on a number of actions within the action plan. However certain actions addressing future climatic events will not be implemented immediately and will require those associated climate related risks to be monitored before any actions are implemented. The action plan covers the next 10 years and will also require monitoring with the risks and actions being reviewed annually. Annual progress reporting on the adaptation action plan will incorporate progress reporting against all directorate actions.

The plan will be updated on an ongoing basis to reflect growing evidence of risks and impacts and improving understanding of the needs of each directorate. It is important that each directorate takes responsibility for and continually reviews their actions. This may in turn enable a revision of the risks and actions in line with the climatic and weather changes and ensures the actions remain relevant to ECC services.

5. Conclusion

The action plan is intended to be a 'living document' and adaptable, in order for actions to be amended as our knowledge and understanding of climatic and weather changes grows. The priorities for continuous development on adaptation should reflect the following:

- Continue to understand ECC risk threshold.
- Focus on actions that manage and address risks associated with current climate variability and extremes as a starting point.
- Balance the Management of climate and non climate risks.
- Ensure climate risk management is integrated into ECC decision making, policies and planning, especially in areas responsible for long term assets. (Such as council buildings, built environment).
- Avoid actions that stop or limit future adaptation.
- Review the continued effectiveness of adaptation decisions in light of any climatic and organisational changes.
- Work in partnership with key stakeholders (internally and externally).¹⁵

Adaptation is the only way to cope with the inevitable impacts from a changing climate and severe weather events over the next few decades and without early and strong mitigation, the cost of adaptation will rise sharply.¹⁶ Mitigation and adaptation are two critical issues ECC must address to help ECC services, Essex's communities and businesses manage climate change and build resilience. Implementation of the adaptation action plan will help tackle these issues at the local level.

6. References:

- ¹ UKCIP website: www.ukcip.org.uk & Met Office website: www.metoffice.gov.uk
- ^{2 & 5} HR Wallingford, Climate Change in Essex –The Evidence base and priorities for a county-wide action plan Part 1 – Project Report, Report no EX 5210, 2005
- ³ Based on JCAD Risk Management Score system
- ⁴ Office for National Statistics, Sub-national population projections, 2008
- ⁶ Essex Community Risk Register, 2008
- ^{7 & 9} Calder, A. Essex LCLIP, University of Essex & ECC, 2010
- ⁸ UKCIP, © UK Climate Projections 2009
- ¹⁰ UKCIP, A Local Climate Impacts Profile: How to do a LCLIP, UKCIP, Oxford, 2009
- ¹¹ Essex County Council Climate Change Risk Assessment, 2010
- ¹² In light of organisational changes and directorate restructuring the climate risks will be reviewed and incorporated into any new directorate structure.
- ^{13 & 15} UKCIP, Identifying Adaptation Options, Defra, 2006
- ¹⁴ Rising to the challenge–The City of London Corporation's Climate Adaptation Strategy, January 2007.
- ¹⁶ The Stern Review of the Economics of Climate Change, 2006

7. Appendix 1: Headline priority climate risks and actions for Essex County Council.

Climate & Weather event	Risk to Service Delivery	Risk Score ^(1-2 Low, 3-5 Medium, 6-8 High, 9-16 Very High) ¹	Adaptation Response		Adaptation measures options rank	Timescale	Lead Responsible	Monitoring/ Review process
			Building Adaptive Capacity	Delivering Adaptation Actions				
Flooding & Coastal Flooding	Responsibility as a Lead Local Flood Authority for Essex on flood and water management.	16	Action plan developed and requires a local flood risk management strategy; establish partnership working, completion of preliminary flood risk assessment and a record of drainage assets.	Carry out flood risk and management work concerning surface runoff and ground water.	Cost Effective	Act Now	Strategic Development (ESH)	
		6	Update Highways Maintenance Strategy in line with current needs & statutory requirements		Low Cost	Act Now	Highways Management (ESH)	
		4	Revise public transport routes to develop a process for emergency and /or longer term planning to avoid key sites where problems may occur	Action plan will focus on transport service changes and journeys with transport companies; identify key areas to be affected and type of measures.	Adaptable Management	Initial report end 2011/12, Action plan implemented mid 2013	Passenger Transport Strategy (ESH)	Annual update from 2013
	Risk to delivery care provisions and support to vulnerable people and hard to reach groups isolated by floods and during severe weather.	9	Follow business continuity plans, Flu plans and redeployment plans as required.	Business Continuity Plans reviewed, updated and tested regularly.	Cross-Cutting Benefits / Cost Effective	Act Now	Business Continuity Champion (AHCW & SCF)	Yearly review.
			Flood watch risks monitored by Emergency Planning. Flood watch risks available for public from DEFRA.	Flood watch risks and alerts monitored and cascaded	Cost Effective	Monitor	Emergency Planning and AHCW Business Continuity	
		12		Maintain communication cascades with Providers. Map of Providers locations.	Low Cost	Act Now	Business Continuity Champion. (AHCW)	Providers mapped. Communications tested.

¹ The risk score is based on ECC JCAD risk score (impact x likelihood)

Climate & Weather event	Risk to Service Delivery	Risk Score	Building Adaptive Capacity	Delivering Adaptation Actions	Adaptation measures options rank	Timescale	Lead Responsible	Monitoring/ Review process
Flooding & Coastal Flooding	Risk to people and properties from flooding. Potential requirement to temporarily relocate council services (for example schools).	9	Include risk in Business Continuity Plans	Ensure that Business Continuity Plans cover information provision to all of School service areas.	Low Cost	Act Now	Business Continuity Champion (SCF, ESH, AHCW)	Yearly review.
		4	Identify building issues which prevent opening or are likely to prolong closure. Communicate information to Area Managers in order to support schools where necessary.	Roll out text alert system across Adult Health and School services to enable front line staff and providers to plan their journeys. Use teletext to provide public with service update and contacts.	Cost Effective	Act Now	SCF	Respond as and when required. Review after event.
	As the Lead Local Flood Authority for Essex the council's reputation maybe at risk if it is perceived not to have met its responsibilities concerning flood management. Flooding will impact on insurance costs for council buildings and locally for businesses and residents.	16	Investigate major flood incidents across Essex and ensure the correct authority is identified.		Low Cost	Act Now	Strategic Development (ESH)	
			Develop a Local Flood Risk Management Strategy for Essex which will link in with the flood communication strategy.	Agree affordable and effective actions in sites of high risk	Cost Effective	Act Now	Strategic Development (ESH)	
		6	Testing of emergency/ disaster recovery plans and business continuity plans.		Low Cost	Act Now	Risk Management Consultancy Services (Finance)	
Snow, Ice & Frost	Disruption to transport network due to icy and snowy conditions leading to increased risk of collisions and road closure preventing public to travel to work or access vulnerable people etc. A demand on salt provisions to expand salting routes.	9	Implement Winter Maintenance Plan by reviewing previous seasons to plan for next season,		Cost Effective	Act Now	Highways Management (ESH)	
		6	secure adequate salt supplies, initiate emergency salting network to keep key areas moving and raise public awareness of winter driving	Provide timely and adequate transport information for the public.	Low Cost	Monitor	Passenger Transport Strategy (ESH)	
		9	Frequent testing of Business Continuity Plans	Update Business Continuity Plans to include key agency contacts to respond where ECC services are unable to within required timescales.	Cost Effective	Act Now	Vulnerable Children Service Development (SCF)	

Climate & Weather event	Risk to Service Delivery	Risk Score	Building Adaptive Capacity	Delivering Adaptation Actions	Adaptation measures options rank	Timescale	Lead Responsible	Monitoring/ Review process
Snow, Ice & Frost	Snow and flooding will prevent collection of recycling and opening of civic centres which will potentially lead to waste stockpiling	6	Work with contractors on winter operation plan to review previous seasons to plan for next season, secure adequate salt supplies and update the public on service		Cost Effective	Act Now	Waste Operations & Contracts team (ESH)	
				Ensure alternative disposal options are available to mitigate individual site closure	Cross-Cutting Benefits			
	School closure due to staff shortages, child safety, building damage and transport disruption which leads to child care issues and parents unable to go into work.	9	Update and test Business Continuity Plans.	Ensure that Business Continuity Plans cover information provision and advice to all of School service areas.	Cost Effective/ Low Cost	Act Now	School Improvements & Early years (SCF)	Annually
			Public awareness of school closures through key media sources, ensuring the communication team have a shared awareness of issues emerging. Liaise with Transport teams regarding information on the condition of roads and access to schools. Area Managers informed in order to support schools.	Communication team to liaise with senior management regarding school information handling and media management.	Cost Effective	Act Now		Respond as and when required. Review after event.
	Staff unable to make it to work - risk of not enough staff to cover front line services - Staff health and safety for those who need to visit clients such as Meals on Wheels, WRVs kitchens. Non-main roads, pavements not gritted but still need to be accessed to get to clients.	9	Met office warnings to be forwarded to BC Champions to decide actions. ACL Service to publish teaching centre closures on websites, via Contact Essex, and Essex radio stations.	Warnings actively monitored within AHCW and cascaded. Each ACL teaching centre / local Library branch decide independently to close if conditions are dangerous.	Cross-Cutting Benefits / Adaptable Management	Act Now	Adult Health & Community Wellbeing	All snow/ice warnings cascaded to BC plan managers, and Providers
				Gritting near care homes and day care centres. Communities / Residential homes to store grit. Front line staff warned which roads are being gritted early to plan their journeys	Cost Effective	Monitor/Act now	Adult Health & Community Wellbeing	Gritting policy on internet

Climate & Weather event	Risk to Service Delivery	Risk Score	Building Adaptive Capacity	Delivering Adaptation Actions	Adaptation measures options rank	Timescale	Lead Responsible	Monitoring/ Review process
Extreme Weather	Failure to maintain cover for frontline services or unable to reach and provide support to clients	8 to 9	Maintain and test Business Continuity Plans. Exercise a call down communication systems and flexible working with staff.		Cross-Cutting Benefits	Act Now	Business Continuity Champions (AHCW, SCF & ESH)	Yearly review.
	Disruption to transport network causing road closures, congestion, rail delays and reduced bus passenger satisfaction.	9	Discuss and influence where possible appropriate vehicle contracts with operators to meet changing needs and passenger expectations.	Encourage operators to access Government funding streams, work with operators to improve the benefits of public transport as an alternative to the car.	Cross-Cutting Benefits	Monitor	Passenger Transport Strategy (ESH)	
	Staff unable to access place of work due to council building and IT damage, health and safety causing service disruption.	3	Maintain and test Business Continuity Plans. Implement flexible working arrangement		Low Cost	Act Now	Business Continuity Champions	Yearly review.
			Update and inform staff of issues and provisions. Review HR web pages and policies.				Corporate HR Service	Continually reviewed
	Building damage and public injuries will impact on ECC self insurance fund, costs and availability for the council and businesses.	6	Testing of emergency/ disaster recovery plans and business continuity plans.		Low Cost	Act Now	Risk Management Consultancy Services (Finance)	
			Implement a long term risk financing strategy to mitigate these risks.		Cost Effective			
Storms	Service delivery severely affected by disruption to transport network, phone line connections and power failure. Risk to Care homes and clients homes with medical equipment.	6	Action Business Continuity Plans - call down communication/ flexible working/ working from home.		Cost Effective	Act Now	Business Continuity Champions (AHCW, ESH)	Yearly review.
		8	Promote registration and awareness of EDF helpline who provide 'priority services for customers with special needs during power cuts				AHCW Business Support	Monitor
	Windblown waste & debris will be a risk to the public. High winds will result in closure of waste facilities, which may lead to waste stockpiling, impacting on health	6	Ensure contractors include measures to prevent increased levels of leaching at landfill sites from storms.		Adaptable Management	Plan Ahead	Waste Operations & Contracts team (ESH)	
				Ensure alternative disposal options are available when individual site closes.	Cross-Cutting Benefits	Act Now		

Climate & Weather event	Risk to Service Delivery	Risk Score	Building Adaptive Capacity	Delivering Adaptation Actions	Adaptation measures options rank	Timescale	Lead Responsible	Monitoring/ Review process
Storms			Consider the need for more frequent collection, Working with District and Boroughs.		Cost Effective	Act Now		
Hotter Summers	Vulnerable clients at risk from heat exposure include: older people living alone, or in a care home, children with disabilities in ECC residential centres or fostering homes, Clients with underlying health problems on medications or bedbound. Those living in poor ventilated buildings, homeless and those with physical and outdoor jobs.	10	Identify young and families most vulnerable to heat stress, with physical and mental health problems. Train social care staff to manage and advice on heat stress	Include in Service Action Plans planning for hotter summers, such as increased visits during heatwaves.	Cost Effective	Act Now	Vulnerable Children Service Development (SCF)	
		9		System to identify and check on vulnerable people living alone. Daily contact by care workers or volunteers to those identified as high risk. Follow the 2010 heatwave advice for health & social care professionals	Cost Effective	Monitor	AHCW Business Support	Vulnerable client list maintained (currently 1,000 clients).
				Follow government Heat Wave Plan: leaflets sent to clients and libraries. Meals on Wheels place drinks into client's hands.	Cost Effective	Act Now	AHCW Business Continuity Champion	Review after incident
	Rubbish decaying more rapidly in warmer weather, encouraging pest species and risk to people's health.	4	Through education and awareness activities and campaigns, reduce the amount of waste produced per household.		Cost Effective	Act Now	Recycling Promotions & Education team (ESH)	
			Review and revise Codes of Practice and enforcement to ensure proper waste storage		Cost Effective	Plan Ahead	Waste Operations & Contracts team (ESH)	
	Increased demand on public transport due to an increase on outdoor activities and facilities. Pass holders increase travel due to weather unrelated to price could increase costs.	1	Review and revise maintenance routines for public transport to take into account rising temperatures.	Transport companies adapt their services to reflect new travel and leisure patterns. Monitor impact on concessionary fares costs.	Cost Effective	Monitor	Passenger Transport Strategy (ESH)	Initial report end 2011/12, Implementation plan 2013/14
			Find new methods to promote public transport use, walking and cycling to visit tourist locations.	Passenger Transport information strategy review	Low Cost	Act now		

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