



Adapting to Climate Change: Local areas' action

Local & Regional Adaptation Partnership Board

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CAG Consultants in association with [Mud Island Marketing](#)

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NI188 Assessment Matrix for Levels 0 to 4

| | Leadership | Partnership | Assess current situation | Assessing future risks | Developing an approach | Action plan | Implementation | Monitoring and review |
|---|---|---|---|--|---|--|---|--|
| 0 | Identify lead officer Establish (outline) process | | Audit existing PPS etc Begin process of looking at local risks | | Establish process (see leadership) | | | |
| 1 | Public commitment to manage climate-related risks Ensure good communication within the authority | Communicate relevant vulnerabilities and risks to partners | Undertake risk assessment of significant local vulnerabilities | Assessment how risks and vulnerabilities may change in future using UK climate projections | Establish approach for next stage | | (Examples include suggestions of evidence of any actions in place to address significant vulnerabilities and opportunities) | |
| 2 | | LA engaged with other LSP partners that are aware of LA's work LSP (and other partners) have started to assess the impacts of climate change on their objectives | Undertake comprehensive risk-based assessment of (current local) vulnerabilities Identify priority risks | Undertake comprehensive risk-based assessment of (future local) vulnerabilities Identify priority risks | Identify effective adaptation responses to priority risks | | Started implementing adaptation measures in some priority areas | |
| 3 | Embed climate impacts and risks across council decision-making | Support LSPs in taking a risk-based approach to managing major weather and climate risks | | | | Develop a comprehensive Adaptation Action Plan | Implement appropriate adaptation responses in all priority areas | |
| 4 | | | | | | | All units in LA and all partners in LSP are implementing the comprehensive Adaptation Action Plan | Robust procedures are in place for regular and continual monitoring and review to ensure progress with each measure and updating of objectives |

* Hyperlinks link to a relevant case study ** Levels do not necessarily correspond to the case study areas' current NI188 progress

1. Adapting to climate change

1.1 Introduction to this document

'Adapting to Climate Change: Local areas' action' provides examples of how local authorities and their partners are adapting to climate change to help inform wider action.

This report is intended for all local authorities and Local Strategic Partnerships in England. All local areas will need to adapt to climate change, whether or not the LSP is signed up to the National Indicator 188: Planning to Adapt to Climate Change (NI188).

1.2 Background to the report

37% of Local Area Agreements include a commitment to NI188, which measures progress towards assessing and addressing the risks and opportunities of a changing climate. But all local areas will need to demonstrate progress in adapting to climate change as part of the Comprehensive Area Assessment. Local authorities and partners are expected to Build Adaptive Capacity¹ (to enable the local areas to Deliver Adaptation Actions²) through:

- Organisational change and leadership
- Assessing current and future risks
- LSP and community engagement
- Early implementation of adaptation actions
- Strategy and action plan development, and
- Monitoring, review and evaluation

This report has been produced by CAG Consultants on behalf of the Local and Regional Adaptation Partnership Board (LRAP). LRAP includes representatives from the [Environment Agency](#), [Regional Climate Change Partnerships](#), [Communities and Local Government \(CLG\)](#), [Department for Environment, Food and Rural Affairs \(DEFRA\)](#), [Regional Development Agencies](#), [Government Offices](#), [Local Authorities](#), [the Local](#)

¹ Building Adaptive Capacity: this describes many of the adaptation responses that local partners will undertake, especially in the first instance. New project management systems need to be put in place, data on future climate will need to be assembled and shared, research commissioned, training and member / staff development provided. All these activities can be seen as Building Adaptive Capacity.

² Delivering Adaptation Actions: these are generally illustrated by physical examples such as increasing the height of a flood defence wall or installing external shading above south-facing facades. But they can also include non-physical actions, such as changing the school calendar to reduce the exposure of school children to heat wave conditions, or installing early warning systems on local flooding.

[Government Association](#), [Local Strategic Partnerships \(LSPs\)](#), [Natural England](#), [the Nottingham Declaration Partnership](#) and [the UK Climate Impact Programme \(UKCIP\)](#).

The overarching aim of LRAP is to facilitate 'a robust approach to identifying and managing the risks and opportunities of unavoidable climate change'. The Board seeks to facilitate action on climate change by highlighting best practice, enhancing skills, providing toolkits and encouraging joint working between local and regional agencies.

1.3 How this report fits with the NI188 guidance

The suggested elements required by local areas to reach Levels 0 to 4 of NI188 are shown on the next page.

This report is not intended as a prescriptive approach to climate change adaptation and should not be taken as a road map for progression against National Indicator 188. Comprehensive guidance and tools ([NI188 Guidance Notes](#) and the [Self Assessment Guidance and Matrix](#)) exist to assist local authorities and their partners with this task. Instead, this report shows how a selection of local authorities and their partners have addressed specific issues and implemented innovative solutions which fit their own unique challenges in addressing climate change adaptation. It is hoped that the lessons they have learned will be of use to other Local Authorities seeking to enhance their own communities' capacities to adapt to the impacts of climate change.

1.4 How to use the report

It can be read as a stand-alone document; it draws together the lessons learned from the experience of local authorities and their partners in adapting to climate change, and is illustrated with several case studies.

To find out what other local areas have been doing to make progress against specific NI188 actions, click on the links in the NI188 Assessment Matrix.

To find out more about these examples, and learn from their experience, read the detailed case studies in the back of this report. Each case study describes how the local authority and/or partners have helped the area adapt to climate change and discusses what worked well and what worked less well in each case.

The case studies are drawn from each of the 9 English regions. They represent both rural and urban areas and different types of local authority (both unitary and two-tier). They also cover a range of adaptation responses (from planning, to health, to transport-related actions).

2. Local areas planning to adapt to climate change

2.1 Adaptation actions

In making progress against NI188 (Planning to adapt to climate change), local authorities and their partners are required to 'have put in place mechanisms for proactively managing climate risks and taking appropriate actions'ⁱ. Progress against the five levels of NI188 requires action involving:

- Organisational change and leadership
- Assessing current and future risks
- LSP and community engagement
- Early implementation of adaptation actions
- Strategy development, and
- Monitoring, review and evaluation

2.2 Organisational change and leadership

One of the greatest challenges in preparing to adapt to climate change is building the organisational capacity to adapt to the impacts of climate change. When getting started local authorities need to engage others, identify resources and undertake a high level stock-take of current policies and plans (Level 0).

As many local authorities are finding, engagement of other partners is critical in planning adaptation action: particularly the Local Strategic Partnership and other existing partnerships. Although not a specific requirement for Level 0, many local authorities are engaging partners at an early stage to explore their interest and commitment; to understand existing activities on climate change adaptation; and to build the business case for further work. For example:

- [Gloucestershire County Council](#) built on its strong relationship with the Environment Partnership of the Gloucestershire Conference (LSP) before starting the development of its own council climate change strategy.
- [Lincolnshire County Council](#) engages with partners through the Lincolnshire Climate Change Priority Group.

Putting in place the resources and staff to develop and implement an adaptation action plan is an important first step. The ways that local authorities are managing the process varies between areas, with action being led by:

- **A single officer**, such as the Climate Change Officer in [Newcastle City Council](#) who, through his two year post has co-ordinated the development of the Council's Climate Change Strategy and the Newcastle Climate Change Partnership. In contrast, climate change in [Birmingham](#) is led by a Senior Climate Change Officer and the Manager of the Environment Partnership within BeBirmingham (the LSP).
- **A network of officers** within the local authority. Like many councils, [Rotherham Metropolitan Borough Council](#)'s climate change work is managed under the banner of sustainable development, and, while co-ordinated by a Policy Officer within the Chief Executive's Directorate, is led by members of the Sustainable Development Officers Group.
- **A dedicated climate change team.** [Hertfordshire County Council](#) has a team of 3 climate change officers, led by the Sustainability Team Leader.

Hampshire County Council: Assessing organisational capacity for adaptation

Hampshire County Council's research on organisational change identified nine pathways for progressing climate change adaptation: awareness, agency, leadership, agents of change, working together, learning, managing operations, programme scope and expertise. The Council worked with consultants to develop the Performance Acceleration Climate Tool (PACT) as part of the ESPACE project. The tool, supported by trained assessor and external moderators, highlights strengths and weaknesses and potential next steps for improving the organisation's climate change response.

Hampshire County Council, along with four local authorities and a business, are now piloting PACT's use in progressing NI188 action. Early results suggest that, unlike existing environmental management tools such as ISO 14001, PACT enables follow-up discussion and work with assessors to identify areas for improvement. Its use has helped participating organisations to clarify and re-assess their perception of their own performance and has developed a sense of ownership of the outcomes and changes needed.

A high-level stock-take of how climate change adaptation is integrated within local/regional policies and plans can provide a baseline of action, for example:

- [Liverpool City Council](#) commissioned consultants to undertake a thorough review of current policy and practice within the Council, focusing on its approach to risk management and business continuity planning. Good practice on adaptation by other local authorities was also used to benchmark the City Council's current level of activity and inform future action planning.

2.3 Assessing current and future risks

Undertaking a risk-based assessment of significant climate change risks, vulnerabilities, impacts and opportunities is a major part of NI188 and critical to identifying priorities for adaptation. In making progress against NI188 local areas are expected to understand their current vulnerability to climate change; identify potential future impacts; ensure senior managers are prepared to address them; and prepare to develop and maintain a monitoring system (Level 1). To meet Level 2, areas should have undertaken a comprehensive assessment of climate threats and opportunities and identified priority risks.

Understanding current vulnerability

There are many ways in which local authorities and their partners are building up a picture of current vulnerability to climate change, for example by:

- Undertaking a [Local Climate Impact Profile \(LCLIP\)](#), which has been used in [Leicester](#), [Liverpool](#), [Manchester](#), [Gloucestershire](#), [Birmingham](#) and [Leeds](#) to document the impacts of past weather events using media reports and other data.
- Using council officers' and other service providers' knowledge of past events to understand their impacts on the area. For example, [Rotherham Metropolitan Borough Council](#) held workshops with officers and partners to raise awareness of climate change impacts and to help inform their Adaptation Action Plan.
- Using LSP partners' knowledge to understand the impacts of past weather events. For example, partners were critical in identifying risks and adaptation priorities in [Middlesbrough](#).
- Developing systems to monitor and record the consequences of past weather events. [Leicester City Council](#)'s LCLIP specifically identified a need to improve its monitoring and reporting systems. [Staffordshire](#) & Stoke on Trent Archive Service have developed an on-line archive of past weather events, utilising farmers diaries, newspaper reports, estate records and school log books.

Identifying potential future impacts

Local areas are also using various tools and research to identify future risks and impacts of climate change, for example by using:

- Climate change scenarios (UKCIP, 2002) to provide headline messages for likely climate change, used in many areas including [Kent](#), [London](#), [Liverpool](#), [Newcastle](#), [Staffordshire](#), [Wolverhampton](#), by the [North East Adaptation Study](#), and by the [Three Counties Alliance Partnership \(3CAP\)](#), while many authorities are keen to use the [UK Climate Projections](#) (UKCP09).

- The Business Areas Climate Impacts Assessment Tool (BACLIAT). For example [Newcastle City Council](#) used BACLIAT and guidance on the Nottingham Declaration website to develop briefings for individual Council service areas. While [Hertfordshire County Council](#) has prepared on-line summaries of future risks for key council services.
- Existing risk-based methods, such as those used to identify priority risks (see example of Gloucestershire below).

Gloucestershire County Council: Raising awareness of risk management approach across county and districts

Gloucestershire County Council's foresight in using its risk management approach to identify risks of future flooding enabled it to insure the County's schools in 2006/07 and save £1.9 million when the county was flooded in 2007.

Now the County Council is working with Stroud District Council to raise awareness of the importance of a risk-management approach across each of six district councils through a series of workshops for all elected members and senior managers, and emergency planning officers and risk managers.



Reflecting on the workshops to date, Corporate Sustainability Manager, Peter Wiggins thinks that "the programme of workshops is already building a massive increase in awareness – things are definitely starting to happen".

- A 'Mini-Stern' review, as undertaken by [Manchester City Council](#). This found that failure to adapt to the legislative, policy and physical aspects of climate change could result in potential losses of £20 billion to the City Region economy and £70 billion to the North West.
- Regional studies, such as the [North East](#) and Yorkshire & Humber adaptation studies, to identify potential impacts and adaptation responses within a regional, as well as sub-regional context.
- Research to investigate the impacts on specific types of infrastructure. For example [Kent County Council](#) was involved in modeling the impacts of climate change on biodiversity and habitat connectivity, while [Derbyshire, Leicestershire and Nottinghamshire County Councils](#) worked together to identify current and future impacts on highways policies and standards.

- Vulnerability mapping, for example [Leeds City Council](#) is developing 3-D mapping and modeling of the city to store and analyse potential future impacts, while [BeBirmingham](#) is also modeling the city's social, environmental and economic vulnerability to heat, flooding and extreme wind to support infrastructure management, business and work with vulnerable communities.

[Hertfordshire County Council: Assessing the impacts of climate change on health and adult care services](#)

Hertfordshire County Council's Sustainability Team worked with Adult Care Services and the Hertfordshire NHS Environment Group to commission joint research to understand the impacts of climate change on health and adult care services. The study emphasises the importance of building resilience and adapting health and adult care services to cope with the impact of climate change within the context of their role in delivering sustainable development. It also provides a range of options to Hertfordshire County Council and Hertfordshire's NHS Primary Care Trusts which will be relevant to other areas:

1. Raise the general public's awareness of health-related impacts from climate change and avoidance measures.
2. Maintain high health standards in the population of Hertfordshire.
3. Lobby and support calls for non-healthcare adaptation measures that will benefit healthcare provision.
4. Raise health and adult care staff's awareness of health-related impacts from climate change and climate emergencies.
5. Develop early warning systems to alert healthcare departments to climate events.
6. Develop risk-based business continuity and contingency plans for climate events.
7. Improve monitoring and surveillance of climate-sensitive conditions.
8. Identify most at-risk groups within Hertfordshire population.
9. Improve the resilience of healthcare infrastructure to climate impacts.
10. Improve the capacity of NHS and ACS to cope with changing health trends and demand spikes.
11. Further develop ties with the Fire and Rescue Services (FRS) via Emergency Planning group and formalise contingency procedures during flood events.
12. Improve coordination between different agencies and also between agencies and other key stakeholders.

2.4 LSP and community engagement

Level 2 of NI188 requires Council's to start working with their Local Strategic Partnership (LSP) to identify major weather and climate vulnerabilities., although NI188 Guidance suggests 'bringing in partners earlier than Level 2'. Areas are required to

encourage LSP partners to undertake risk-based assessments (Level 2) and ensure that the authority is supporting the LSP and partners organisations in managing climate change risks across the area (Level 3).

Indeed many local authorities have found that engaging with the local community, partners and the LSP is critical to the process. For example engagement has contributed to:

- **Designing the project plan and process for developing an Adaptation Action Plan.** [Lincolnshire](#)'s Climate Change Priority Group enabled the sharing of experiences, pooled knowledge, provided support for each other and identified areas for joint working.
- **Understanding the past and future impacts on services.** [Hertfordshire County Council](#) found service providers' knowledge (such as those from Primary Care Trusts and Adult Care Services) invaluable in providing insights into the impacts of climate change.
- **Raising awareness of climate risks and impacts.** [Staffordshire](#)'s award winning OC₃ Climate Change project has developed a user friendly, interactive website to help residents understand climate change and the actions they can take.
- **Identifying priority risks and adaptation responses.** See example from Liverpool below.

[Liverpool City Council: Involving stakeholders in developing a risk-based adaptation framework](#)

As part of its commitment to NI188, Liverpool City Council commissioned consultants to develop a 'climate impacts and vulnerabilities' framework in November 2008. This framework was developed through a process involving a wide range of stakeholders including 100 senior officers within the Council and partner organisations. At these workshops, the stakeholders assessed and prioritised climate change risks for their service area, using the Council's own 'risk management' methodology, and identified existing and potential adaptation responses.

The involvement of partners from the outset helped to provide a broader perspective on the issues, and to identify areas for joint working. The use of the Council's existing business/risk management activities and effective briefing of workshop participants prior to each workshop also enabled the project's success and the Council's progression to Level 1 of NI188. According to Christine Darbyshire, who led the study within the Council's Regeneration Policy Business Unit, "the

process we have been through has been comprehensive and effective and has generated a high-level interest and positive feedback from other public sector bodies”.

2.5 Early implementation of adaptation actions

Most areas are already beginning to deliver some adaptation actions before they have developed an Adaptation Action Plan, even if these actions have not been formally identified as priorities. To deliver Level 2, areas are required to begin to implement some priority actions and move on to implement adaptation responses to priority issues under Level 3. For example, substantive programmes and projects are in place to build adaptive capacity and to identify and deliver practical responses in relation to:

- **Flood risk management.** [Rotherham Metropolitan Borough Council](#) is working with Yorkshire Forward and the Environment Agency to build adaptive capacity into the flood alleviation scheme. In [Somerset](#), the County Council and the Farming and Wildlife Advisory Group (FWAG) is involved with woodland planting to alleviate flooding.
- **Urban drainage.** [Leeds City Council](#) is working with Yorkshire Water and the Environment Agency to prepare a Surface Water Management Plan, and has installed rain gauges and clear gulleys to reduce the risk of pluvial flooding.
- **Coastal erosion.** [ReBlackpool](#) – an Urban Regeneration Company is delivering a coastal defence scheme that will improve adaptive capacity. See also the East Riding case study below.
- **Green infrastructure.** [BeBirmingham](#) is working with Natural England and the Forestry Commission to develop a city-wide framework for green infrastructure networks to manage flooding, reduce heat stress in the city and tackle health inequalities through the provision of amenity spaces. [Manchester City Council](#) is collaborating with SureStart centres to install green roofs.
- **Transport.** Research by the [Three Counties Alliance Partnership](#) in the East Midlands into the impacts of climate change on highways policy identified the need for adaptation of bridges and other structures, drainage, grass cutting, materials, resurfacing, tree and hedge maintenance and winter maintenance.

[East Riding Council: 'Rollback' policy for coastal caravan parks](#)

The East Riding Coastal Zone, stretching from Flamborough Head to Spurn Point, has one of the fastest eroding coastlines in



North West Europe. The coastline is one of the region's key environmental assets and the caravan park is an important tourist destination.

With the need for a sustainable approach to maintaining the viability of the caravan industry on this coastline, the local authority, the Environment Agency and the caravan park owners developed the concept of 'rollback' - to physically move caravan parks away from the eroding coastline whilst improving the quality of the local environment and sustaining the communities which are dependent on coastal tourism. Local councils have worked together to develop a new policy which permits the replacement of caravan park sites and the restoration of vacated areas, pending the development of the new Local Development Framework.

The concept of 'rollback' has since been extended to houses and farmsteads in 2005, and provides a planning response to reducing the effects of coastal erosion on communities that can be applied to other coastal areas.

- **Biodiversity and habitats.** The [Broads Authority](#) is working with landowners, the Environment Agency, Natural England and the regional drainage board as part of their 'Connecting Wetlands' projects to look at how wetlands can contribute to flood risk management and, as habitats, be made more robust.
- **Planning.** [Leicester City Council](#) has developed Supplementary Planning Guidance on climate change and sustainable development.
- **Economic development and regeneration.** Climate change adaptation has been built into regeneration projects through remediation for flood protection and provision of green and blue spaces by the [London Borough of Barking & Dagenham](#) (at Barking Riverside) and [Wolverhampton City Council](#) (at Bilston Urban Village).
- **Health and social care.** Research in [Hertfordshire](#) has identified options for improving the resilience of health and adult care services.
- **Water efficiency.** [Bilston Urban Village](#) (see below) is expected to incorporate resilient plant species into landscaping which will minimise water use, while water savings are being made on the [Preston Estate](#) within Reigate and Banstead Borough through the installation of devices in private and social housing.

[Wolverhampton City Council: Delivering adaptation actions at Bilston Urban Village](#)

Wolverhampton City Council worked with Advantage West Midlands and partners to build climate resilience into a



new development – Bilston Urban Village. Bilston Urban Village is a £200 million development which is intended to be a flagship project which demonstrates sustainability. It will include a state of the art leisure centre, 800 new homes, 16,900 m² of new employment accommodation, a primary and community care centre, a new academy school and a pedestrian link to the high street

The project provided an early opportunity to test the UKCIP Risk and Uncertainty Framework, which was used to assess the impacts of future climate change on the site; and consider climate change adaptation within the Environmental Statement and Economic Impacts Appraisal.

The first area to be developed – the site for the leisure centre and health centre - is expected to include both mitigation and adaptation measures including: BREEAM rating of 'Very Good' as a minimum throughout the building design, safe access routes in the event of flooding / extreme climate events, Sustainable Urban Drainage Systems, resilient planting regimes, and the flexibility to alter uses over the lifetime of the building.

Although the characteristics and requirements of the site and Bilston Brook have lent themselves to consideration of the site's adaptive capacity, there are clear lessons for other master planning processes which need to consider the resilience of whole site and area infrastructure to climate change.

2.6 Strategy and action plan development

Developing a comprehensive adaptation action plan is a key output of the NI188 journey. Local areas need to create an outline project plan, express a vision for a 'well adapting local community' (Level 0), identify and prioritise adaptation actions (Level 2), develop a comprehensive action plan and ensure that climate change impacts and risks are embedding into all decision-making (Level 3).

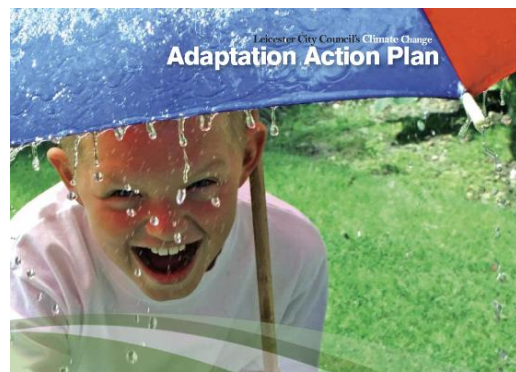
Local authorities and their partners are all at different stages of the process, and have approached strategy development in different ways for example:

- A 50-year vision is being developed by the [Broads Authority](#) and its partners, a process of engagement which could take as long as 5-10 years to develop with effective community engagement. A vision for the future of the [Somerset Levels and Moors](#) is being developed as part of the 'Water Adaptation is Valuable for Everybody' (WAVE) project, and will take account of climate change and flood risk modelling.
- The [City of London Corporation](#) pioneered the development of Adaptation Strategy in 2006. It was developed by consultants through a series of three workshops and generated significant publicity around the issues.

- Directorate-level Adaptation Action Plans have been prepared within [Staffordshire County Council](#), which used a 'priorities matrix' to assess the likelihood and seriousness of different impacts under three headings: 'Continuity of Service', 'Dealing with Emergencies', and 'Planning and Designing for the Future'.
- [Leicester City Council](#) identified 'no regret', 'low regret' and 'win win' options by using the Council's Corporate Risk Assessment methodology and the Eco-Management and Audit Scheme (EMAS) Significance Matrix, see below.

Leicester City Council: Adaptation action plan

Leicester City Council was one of the first councils in the UK to develop a climate change adaptation action plan. Following a long history of pioneering work relating to sustainable development, the Council signed the Nottingham Declaration in 2006 and began work on a [Climate Change Adaptation Action Plan](#) in September 2007, to complement its (mitigation-focused) [Climate Change Action Plan](#).



The Action Plan, which was published in 2008, was developed through widespread consultation through workshops with key council officers and senior managers to develop an Adaptation Risk Register. The Council's existing Corporate Risk Assessment methodology and the Eco-Management and Audit Scheme (EMAS) Significance Matrix were used to identify 'Significant Effects': flood risk, summer heat waves and prolonged periods of increased temperatures, and water availability. Adaptation options included: reviewing the maintenance regimes for clearance of roadside gullies, culverts and the drainage assets; developing a Supplementary Planning Document relating to climate change and sustainable development; and identifying and mapping flash flood hotspots within Leicester and identifying the causes of flooding.

Leicester City Council's approach has helped to mainstream climate change adaptation within existing decision-making mechanisms, and has contributed towards the Council making good progress in achieving Level 2 of NI188. However, as Anna Dodd, Team Leader of the Environment Team points out, developing the action plan is only half the task, "the adaptation action plan is good, but actually the bigger challenge now is to implement it and generate the enthusiasm for delivering it!"

- Those local authorities who have used existing systems such as Environmental Management Systems and Corporate Risk Registers have reportedly been particularly successful in embedding climate change across council decision-making.

London Rivers Action Plan

The London Rivers Plan (LRAP) is an example of a partnership approach to developing a city-wide strategy for restoring the Thames tributaries. Many tributaries still suffer from pollution and may be at risk of flooding if events become more frequent and intense as predicted.

The Plan aims to restore these rivers to their natural state, reduce flood risk and improve the natural environment to meet London's Biodiversity Action Plan targets, and is also expected to have strong links to the emerging Mayor of London's Climate Change Adaptation Strategy.

The LRAP was developed by the Environment Agency, the Greater London Authority, WWF-UK, the London Wildlife Trust, The River Restoration Centre, Natural England and the Thames Rivers Restoration Trust. It is intended to provide a central online resource of information to help planners, developers, landowners and other stakeholders recognise the opportunities for river restoration. In incorporating climate change adaptation, the partnership has taken a wider view of river restoration and recognises the wider opportunities and benefits such as: better flood management, improved habitats and corridors for river wildlife, and green spaces for urban regeneration. Speaking about the LRAP, Isabel Dedring, Director of Environmental Policy for the Mayor of London says "this plan will deliver aesthetic benefits but will also help us prepare for our changing climate. Restoring our rivers will play a part in making London a more attractive place for people to come to live and invest".

2.7 Monitoring, review and evaluation

Continual monitoring and regular review is essential to any process. Arrangements for monitoring new risks and the effectiveness of adaptation levels are required by Level 2, while robust systems for monitoring, reporting and review are essential to meet the requirements of Level 4.

Authorities are using a range of tools to assess the risks to future plans and projects, such as their Corporate Risk Registers and Sustainability Appraisal.

- [Leeds City Council](#) is developing a climate proofing template for new projects as well as a new approach to sustainability appraisal which will weight different types of 'upstream' impacts according to their 'downstream' implications, using The Natural Step approach.

- [Wolverhampton City Council](#) developed a Climate Change Adaptation Toolkit which helps planners, development control officers and developers identify the potential risks and impacts of climate change on development, and appropriate adaptation responses.

Most climate change strategies make reference to monitoring and reporting progress through a variety of mechanisms, including:

- Climate change working groups or partnerships. [Newcastle City Council](#) is currently reforming new internal and external working groups to co-ordinate adaptation and mitigation work under its Environment & Regeneration Programme Board and the Environment and Housing Partnership of the LSP.
- New policy developments also prompt review. For example, [Staffordshire City Council](#)'s Climate Change Working Group is reviewing their Action Plan on an annual basis. The original strategy (published in October 2005) has been revised to reflect recent changes in national policy and legislation such as the draft Climate Change Bill and the emergence of Local Area Agreements, and is expected to be reviewed and revised again in 2009.
- [Hampshire County Council](#) has used the Aalborg Commitments to assess its progress against sustainable development, including climate change.
- Comprehensive Area Assessment will provide the external and internal mechanism for assessing localities' progress on climate change adaptation, with authorities, such as [Birmingham City Council](#) having already piloted the new framework.

3. Key ingredients for progress

While the adaptation actions undertaken by the local authorities and their partners detailed within the 27 case studies vary considerably, all share some common factors which have enabled progress to be made in Planning to Adapt to Climate Change.

3.1 Leadership

The experience of the 27 areas featured shows that, above all, leadership at all levels is critical to building adaptive capacity. Leadership may be provided by:

- **Individual officers** within the authority. Several councils, including [Leeds](#), [Manchester](#) and [Hertfordshire](#) cited the commitment and enthusiasm of particular officers as being important to initiating and driving action.
- **Elected members**, who have responded to local concerns about weather-related events such as flooding in [Gloucestershire](#), [Newcastle](#), [Middlesbrough](#) and [Hampshire](#). E.g. Councillors' support for [East Riding](#)'s practical approach to coastal erosion was essential in driving through its 'rollback' policy.
- **Senior council figures**, such as the leader, the cabinet portfolio holder and chief executive. For example, the CEO/Leader's influence was critical to good attendance of officers and partners at 6 workshops in [Liverpool](#).
- **The LSP and thematic partnerships**. For example, [BeBirmingham](#) Environment Partnership and partners' actions on pollution and flooding were important in building adaptive capacity and delivering adaptation actions. The Water Management Partnership in [Somerset](#) also provided strong support for current catchment management projects.
- **Specific partners**. The Environment Agency, Primary Care Trusts, Fire and Rescue, utilities and business, the voluntary sector, district councils have all been cited as useful partners in leading action in different ways.
- **Internal working groups/champions**. Most councils and LSPs have set up internal mechanisms to lead action, such as officers' working groups, members' panels and formal champions. For example, [Gloucestershire County Council](#) has set up a network of 64 champions from across the Council's directorates to provide internal leadership on climate change.

3.2 Raising awareness

One of the first steps for building adaptive capacity within local authorities, partnerships and individuals is to raise awareness of the impacts of climate change and the implications for local services and communities. Local authorities and partners have

found that capitalising on local events, using existing tools and developing new tools can help raise awareness of the need to adapt to climate change. For example:

- Flooding in [Gloucestershire](#), the North East and Yorkshire & Humber in 2007 and 2008 provided the impetus for local action and linking climate change adaptation to existing flood risk management and drainage works.
- Many local authorities and partnerships have used the UKCIP climate change scenarios published in 2002. Several areas, such as [Birmingham](#), [London](#) and [Leeds](#) are keenly awaiting the UKCP09 climate projections to inform future research and modelling of local impacts.
- Local Climate Impact Profiles (LCLIPs) have proved useful tools for raising awareness of past weather-related events, while specific data on weather ([Leeds](#)), biodiversity ([Kent](#)), rivers ([London](#)), health and population ([Hertfordshire](#)) and Fire and Rescue Service call outs ([Birmingham](#)) have been used to build up a picture of past and future impacts and responses.
- Workshops, presentations, seminars and events for the public and council officers have played an important role in raising awareness of the need for climate change adaptation, within local authorities, with their partners and with local communities.
- Several authorities have developed materials to help raise awareness of the need to prepare for climate change. For example the [Wellingborough Toolkit](#) was developed to 'enable local people to gain a greater understanding of the issues ... and how they can plan to adapt their lifestyles to cope with the changing weather patterns'.
- Materials and tools have been developed to help council officers take account of climate change within decision-making, and may provide useful templates for other areas. Products include [Hertfordshire County Council](#)'s briefings for council services, [Staffordshire County Council](#)'s Adaptation Action Plan guidance, [Wolverhampton City Council](#)'s Climate Change Adaptation Toolkit, [Leeds City Council](#)'s climate proofing template, the [London Borough of Barking & Dagenham](#)'s guidance notes on green roofs, and [Leicester City Council](#)'s Supplementary Planning Guidance on climate change and sustainable development.

3.3 Engaging and working in partnership

To build the adaptive capacity of the local area, local authorities cannot work alone; working in partnership with other organisations is critical. Early engagement of partners is essential according to many of the case study areas, and can help to:

- **Raise awareness of climate change.** Many of the council officers and partners interviewed for this report said that involving partners at the beginning of the process helped to raise awareness, build ownership of the process and start embedding adaptation in the work of partners. “Bringing together partners at Level 0 is really important.” thinks Keith Budden, [BeBirmingham](#) Environment Partnership Manager, “It’s about how to link resilience into the agendas of all organisations from day one”.
- **Assess the risks and opportunities of climate change.** For example, widespread consultation enabled [Leicester City Council](#) to identify the risks and impacts of climate change to Council services and also offered the opportunity to ‘share resources, knowledge, passion and authority’ in Lincolnshire.
- **Consider adaptation responses.** According to Stephen Dury, Project Manager at [Somerset County Council](#), early engagement of partners enabled “each of the organisations involved [to] appreciate the need to have measures in place to adapt to the impacts of climate change in Somerset, and through this project are working closely together to achieve this”.
- **Think more holistically about climate change adaptation issues.** For example, [Stroud](#)’s Global Changes Think Tank, which included LSP members, council officers and the community-based Transition Stroud network, helped focus attention on the big future issues. Taking an adaptation approach encouraged stakeholders to think about river restoration in [London](#) from a different angle, according to Natural England.
- **Engage with ‘difficult to reach’ stakeholders.** [LB Barking & Dagenham](#) focused on engaging organisations representing minority communities, whilst work by [Kent County Council](#) highlighted the importance of engaging spatial planners in adaptation and biodiversity issues.
- **Draw on others’ expertise.** Many areas’ analysis of impacts and adaptation actions has depended heavily upon the expertise of partners. According to Dr Nick Cooper from Royal Haskoning, the [North East Adaptation Study](#)’s “success is mainly due to the excellent collaboration of the Partners involved and to the combination of state-of-the art science with the practical ‘on-the-ground’ knowledge and experience of those involved”.
- **Save money.** Several projects featured within the case studies involved joint procurement of research to build adaptive capacity. For example, the 3CAP ([Three Counties Alliance Partnership](#)) have saved over £700,000 in their first year through joint commissioning of design and technical expertise.
- **Secure funding and identify the wider benefits of projects.** A partnership approach was critical to the success of the [Rotherham](#) Flood Resilience Scheme,

for securing funding, and for identifying wider opportunities for regeneration and environmental improvement.

- **Avoid future costs and conflicts.** Adverse media coverage of a workshop in the [Broads](#) resulted in partners spending 3 or 4 months explaining issues to the community and, according to Simon Hooton, Director of Conservation and Countryside Management at the Broads Authority, “forced us to think about how we integrate the community engagement work of all our partners to ensure that we have a genuinely joined-up approach”.

Many local authorities acknowledge the challenges involved in working in partnership. In particular, gaining and maintaining participants’ involvement has proved difficult due to competing priorities and the timescales needed for planning. For example, officers in [London](#) and [Wolverhampton](#) cited the long time frames needed to develop a Local Development Framework, which have delayed progress on projects.

3.4 Embedding climate change in decision-making

Embedding climate change in council and local areas’ decision making is a requirement for Level 3 of NI188, but also said to be a successful way of creating the mandate for future action. “The challenge has been to embed climate change adaptation into the business planning psyche” according to Nigel Riglar, Strategic Director at [Stroud District Council](#). Areas are starting to ensure that climate change adaptation is embedded within:

- **Sustainable Community Strategies and Local Area Agreements.** Even those areas which have not chosen NI188 as one of their 35 top indicators, often feature climate change adaptation as a key theme within their Sustainable Community Strategies and are prioritising adaptation action because they recognise its importance.
- **Planning documents.** Several local authorities are working to integrate climate change adaptation within their Local Development Framework, Core Strategy and Supplementary Planning Guidance, including [Leicester City Council](#), [East Riding Council](#), the [City of London Corporation](#) and authorities in [Kent](#) and the [North East](#).
- **Project appraisal.** The [Bilston Urban Village](#) and [Barking Riverside](#) developments demonstrate the benefits of taking account of climate change risks and impacts within the planning process, Economic Impact Appraisal, Environment Statements, and even by requiring Climate Change Assessments to be undertaken by developers.
- **Council business plans.** Many officers are working to integrate climate change adaptation within internal service plans; and highlighted the importance of building on, and adding value to, the Council’s existing work. Anna Dodd, Team

Leader for the Environment Team at [Leicester City Council](#) advises other areas to “build on the work that local authorities have already done. Look at other people’s plans and work and develop your own work from there.”

Council officers are finding ways of ensuring that climate change is considered within future decision and plan making. Many are using national, regional and local appraisal tools, risk assessment, scrutiny functions (i.e. requiring all cabinet papers to consider the sustainability aspects) and developing new tools to future-proof new projects.

3.5 Resourcing action

Planning to adapt to climate change requires resources. Many councils and LSPs have dedicated officers in place; however this can vary greatly depending on size. For example, [Hertfordshire County Council](#)’s work on climate change is supported by a five-strong team; [Newcastle City Council](#)’s single Climate Change Officer serves both the Council and the LSP; while climate change is just one part of a Policy Officer’s job in [Rotherham Metropolitan Borough Council](#). Similarly, Ian Wykes at [Staffordshire County Council](#) says that they take a “poor and plucky” approach to climate change – taking risks with the resources that they have.

Indeed fulfilling NI188 commitments has meant that many councils and partnerships have brought in additional resources to assist with NI188, for example by:

- **Employing students** to help gather evidence and prepare LCLIPs.
- **Drawing on support from national agencies** such as UKCIP.
- **Commissioning external consultants** to undertake risk assessments, undertake research, co-ordinate consultation process, develop climate change strategies and adaptation action plans, and facilitate dialogue with wider partners.
- **Seeking help** to write funding bids and manage complex projects.
- **Joint commissioning** of research with partners.

However, many authorities anticipate future resource gaps in delivering their NI188 commitments. Funding cuts due to the current economic downturn have affected some, while others highlighted the fact that adaptation is still “the poor relation to mitigation and needs more resource”.

3.6 Delivering wider mitigation and sustainability benefits

As the NI188 Guidance recognises, climate change adaptation takes place within the context of sustainable development. Adaptation and mitigation should go hand in hand, with both reinforcing the five principles of sustainable development³.

Several projects featured amongst the case studies demonstrate how climate change adaptation can deliver wider benefits. For example, managing the risks of climate change can:

- Help tackle health inequalities;
- Improve public safety and community resilience;
- Reduce the costs of damage and disruption to public services;
- Provide job opportunities and protect local businesses from future risks;
- Improve the resilience and efficiency of transport; and
- Protect and enhance habitats and biodiversity.

Some local projects also show how mitigation actions can help adapt to climate change. For example the solar PV panels on Alexander Stadium in [Birmingham](#) have generated energy as well as providing cooling for the roof, while [LB Barking and Dagenham](#)'s experience has shown that installing a green roof can dramatically reduce energy use and costs as well as supporting biodiversity, reducing flooding and combating climate change, by reducing the urban heat island effect, so reducing overheating.

In communicating the need for action on climate change, highlighting linkages between adaptation and mitigation can be particularly important. The two aspects of action on climate change can be mutually reinforcing: adaptation work raises people's awareness of the realities of climate change, which can be a spur to action on mitigation; and mitigation actions are needed to give credibility to an area's commitment to acting on and preparing for climate change.

³ *Securing the Future* sets out the five principles of sustainable development in the UK: Living within environmental limits, ensuring a strong, healthy and just society, achieving a sustainable economy, promoting good governance and using sound science responsibly.

Annex: The case studies

East of England

[The Broads Authority: Engaging people in climate change adaptation within a 50-year vision for the Broads](#)

[Hertfordshire County Council: Assessing the impacts of climate change on health and adult care services](#)

East Midlands

[3CAP: The effects of climate change on highways policies](#)

[Leicester City Council: Developing a climate change adaptation action plan](#)

[Lincolnshire County Council: Working in partnership on climate change](#)

[Wellingborough Partnership: Climate change engagement toolkit](#)

London

[City of London Corporation: Developing an adaptation action plan](#)

[London Borough of Barking and Dagenham: Integrating climate change within policies and regeneration](#)

[London Rivers Action Plan](#)

North East

[Middlesbrough Council: Developing a climate change community action plan](#)

[Newcastle City Council: Developing an adaptation action plan](#)

[North East Climate Change Adaptation Study](#)

North West

[Blackpool central seafront coastal protection and regeneration](#)

[Liverpool City Council: Involving stakeholders in developing a risk-based adaptation framework](#)

[Manchester City Council: Undertaking a 'Mini-Stern' report and delivering adaptation actions](#)

South East

[Hampshire County Council: Assessing organisational capacity for adaptation](#)

[Kent County Council: Promoting adaptation of biodiversity in Kent and across Northwest Europe](#)

[Preston Water Efficiency Initiative](#)

South West

[Gloucestershire County Council: Building County-wide adaptive capacity through risk-management and awareness raising](#)



[Somerset County Council: Developing more 'climate-resilient' water systems in Somerset](#)
[Stroud District Council: Working with the Transition Town initiative on adaptation](#)

West Midlands

[BeBirmingham: Understanding the risks of climate change in Birmingham](#)
[Staffordshire County Council: Developing and revising adaptation action plans](#)
[Wolverhampton City Council: Building adaptive capacity in Bilston Urban Village](#)

Yorkshire & Humber

[East Riding Council: 'Rollback' policy for its eroding coastline](#)
[Leeds City Council: Developing a detailed LCLIP](#)
[Rotherham Metropolitan Borough Council: Renaissance flood alleviation scheme](#)

BeBirmingham: Understanding the risks of climate change in Birmingham

[Return to NI188 Matrix](#)

Summary

Following commitments to climate change adaptation in the city's Climate Change Framework, BeBirmingham – the city's Local Strategic Partnership, is now working closely with partners to assess the current and future risks of climate change to inform its adaptation action plan. Long-term research programmes with partners such as the University of Birmingham are being matched by practical action to improve the city's green infrastructure and advice to protect Birmingham residents from future flooding and heat waves. Leadership from the Council, the Environment Partnership and individual partners has been critical. However, BeBirmingham's biggest concern is the ability of the new Comprehensive Area Assessment and the general lack of understating to give this issue the strategic importance that it requires.

Background

Following political leadership and commitments to climate change adaptation in the city's Sustainable Community Strategy and Climate Change Framework, BeBirmingham – the city's Local Strategic Partnership are now working closely with partners to assess the current and future risks of climate change to develop its adaptation action plan.

Adaptation has always been at the heart of BeBirmingham's work on climate change "but has always been the quieter step sister to mitigation's big brother" says Keith Budden, Manager of the Birmingham Environment Partnership. Birmingham's Climate Change Strategic Framework was designed to prepare the city for the impacts of inevitable climate change and deal with emergency situations. While *Cutting CO2 for a Smarter Birmingham* focused largely on mitigation, the Strategic Framework also set out commitments to 'respond to extreme weather' and 'planning and adapting the city for the future'.

According to Keith Budden, the real drivers for Birmingham's work on adaptation have been the Fire & Rescue Service and the Primary Care Trust. The former Deputy – now Chief Fire Officer at West Midlands Fire & Rescue Service, Vij Randeniya drove the issue at an early stage by highlighting the rising human and financial costs of managing summer, floods and extreme weather (such as small tornadoes). This helped put climate change into a local, operational and financial context. The Fire Service's commitment to climate change adaptation has been matched by action to reduce its emissions, for example through its new BREEAM 'Excellent' rated Headquarters⁴. Meanwhile, the Primary Care Trust has provided valuable data to show the numbers of excess deaths from heat waves, as part of their Heat Wave planning. As Senior Climate Change Officer,

⁴ <http://www.wmfs.net/Media/Press+Releases/Press+Release/?contentId=101538>

Dr. Jonathan Adey points out “without the evidence, we can’t prioritise the issues and adaptation responses”. Birmingham’s Adaptation Action Plan is expected to be published in the summer of 2009.

Members of BeBirmingham’s Environment Partnership have also been driving the adaptation agenda through practical action.

A partnership between Severn Trent, the Environment Agency, Birmingham City Council and CSV Environment worked with residents to reduce pollution and flooding in the Washwood Heath Brook in Birmingham. The Environment Agency and Wildlife Trust have also been involved in creating flood retention capacity and recreational areas at Park Hall.



Washwood Heath Brook

Washwood Heath Brook runs through a deprived community in the heart of Birmingham and was heavily polluted as a result of from mis-connections (from household appliances such as toilets to the Surface Water Drain), collapsed pipes, sewage blockages and flytipping. As members of the local Pollution Partnership (part of the Birmingham Environment Partnership), and as part of a long term programme to tackle the worst areas of flooding and pollution, partners identified sources and champions to work with residents to clean the brook, clear overgrown vegetation and rubbish as well as repainting benches and planting new trees and shrubs. The Partnership are now working at Spark Brook to improve flood capacity.



Risk based assessment

BeBirmingham is continuing to work with partners to understand the risks of climate change in order to reach Level 2 of NI188 by March 2010. This long term programme of work includes:

- A Local Climate Impact Profile (completed), which will be supplemented by UK Climate Projections data in 2009
- An economic assessment of the impacts of climate change, delivered in partnership with local and regional organisations
- Developing a city-region scale framework for green infrastructure networks based on reducing the risks of climate change and maximising opportunities for tackling health inequalities and preparing for climate change, in partnership with Natural England and the Forestry Commission
- GIS-based modelling and assessment of climate change risks and social, environmental and economic vulnerability, covering the urban heat island, flooding and extreme wind to support Birmingham City Council's Resilience Team and partners in identifying and supporting vulnerable communities, businesses and infrastructure.
- A heat risk assessment to identify Birmingham's urban heat island effect, in conjunction with the University of Birmingham and building on the University of Manchester's ASCCUE project. The project, which will develop a heat model for the West Midlands will include a fine scale Urban Heat Island model of Birmingham, and will be informed by the new UK Climate Projections.
- Undertaking a Health Impact Assessment (using Welsh HIA methodology) of the Local Development Framework and Core Strategy to understand the health risks of climate change and adaptation options.
- Embedding adaptation and promoting pro-environmental behaviours into staff training, demonstration projects and public campaigns.
- Mainstreaming business continuity and risk management into partners' resilience.

To prepare for achieving Level 3 of NI188 by 2011, BeBirmingham are working closely with individual partners such as the University of Birmingham, Birmingham City Council's Resilience Team and Community Resilience fora. To focus on climate change adaptation, the Birmingham Environment Partnership has also formed a new adaptation sub-partnership. This involves organisations such as the Environment Agency, Natural England, the Forestry Commission, local authorities, planners and the PCT. "Bringing together partners at Level 0 is really important" thinks Keith Budden, "it's about how to link resilience into the agendas of all organisations from day one". For example existing partners' initiatives include:

- The Environment Agency's Tame Catchment Management Plan, 2056
- Birmingham Resilience Team's Heatwave Plan
- West Midlands Conurbation Community Risk Register
- Severn Trent infrastructure planning
- Critical infrastructure review

Although at an early stage, BeBirmingham's adaptation work has helped make important links between issues such as pollution, green infrastructure and health inequalities. However, understanding the role of green infrastructure has also highlighted potential conflicts, as well as synergies between climate change mitigation and adaptation responses. For example, efforts to reduce leakages from water pipes in the city, could threaten trees in the city which rely on these leaks and help protect areas from flooding and provide shelter from heat in urban areas. At the same time, reducing the paving over of driveways in the suburbs can help reduce the use of resources, and provide sustainable urban drainage in residential areas. Another example is the solar PV panels on Alexander Stadium have generated energy as well as providing cooling for the roof.

Lessons learned

Political leadership and serendipity have been cited as the reasons behind Birmingham's success in bringing climate change to the heart of its LSP. The BeBirmingham chair and Birmingham Environment Partnership have championed sustainability and climate change as a partnership priority.

The combined information and data from partners such as the Fire & Rescue Service, Primary Care Trusts, Environment Agency, Birmingham University, the Resilience Team and community resilience fora have also been crucial in understanding current and future climate change risks, impacts and vulnerabilities. One of the outputs of this local intelligence has been Birmingham's LCLIP which, according to the BeBirmingham Environment Partnership Manager has helped to raise awareness of climate impacts amongst partners, but has yet to be more widely communicated within the City. "The key thing is getting the story right" says Keith Budden, "it's important to make climate change adaptation relevant to the local area, to local people, and to the operations of organisations".

On the other hand, delays in national data and funding have held back progress. BeBirmingham are eagerly awaiting the new UK Climate Projections to help inform their climate change risk and vulnerability modelling. The current economic situation and lack of understanding of climate change adaptation has made it difficult to secure funding for staff within BeBirmingham and the Council. Changes in personnel have also made it difficult to maintain contacts and networks.

For Jonathan Adey, the most significant challenge has been the lack of understanding outside the 'sustainable development world' of the considerable challenges that we face in current decades and the ambiguity of the timescales involved, which is difficult for people to comprehend. He believes that we need to "rebrand climate change and focus on 'future proofing' while looking for 'win wins' for adaptation and green infrastructure. Adey adds that local authorities should not neglect wider global impacts of climate change which will affect refugees to cities like Birmingham and supply chains.

Keith Budden's biggest concern is the extent to which the new Comprehensive Area Assessment (CAA) will assess localities' progress on climate change adaptation.

Birmingham, along with six other authorities piloted the new CAA framework, and their experience highlighted the potential gaps in CAA prioritisation of climate change adaptation and whether local authorities can be assess as having four stars *and* be on track with adaptation.

For more information:

[BeBirmingham Climate Change Strategic Framework](#)

[Cutting CO2 for a Smarter Birmingham: Strategic Framework](#)

[Video of Washwood Heath Brook](#)

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[Return to NI188 matrix](#)

Blackpool central seafront coastal protection and regeneration

[Return to NI188 matrix](#)

Summary

This case study is about the delivery of coastal management in Blackpool to meet climate change and regeneration objectives. Led by Blackpool's Urban Regeneration Company, ReBlackpool, the sea defence scheme takes account of both climate change and integrated regeneration requirements. The programme is part of a very substantial coastal protection scheme funded by the Department for Environment, Food and Rural Affairs (DEFRA) and the European Regional Development Fund, through the North West Development Agency. The sea defence scheme is being constructed by Blackpool Council in conjunction with their construction partners Birse Coastal. The four-year building programme is Blackpool's biggest ever civil engineering project. Once completed, it will see the rebuilding of the 3.2km of promenade and sea wall between Blackpool's Sandcastle and North Pier. Although documentation of the project does not reference its adaptation aspects overtly, the focus on physical works to improve the sea wall in an area prone to serious flooding has positive adaptation implications given the likelihood of more extreme weather events in future.

The seafront regeneration and coastal protection process

The project is part of the Blackpool Resort Masterplan. It simultaneously covers the regeneration of the seafront area and the modernisation of flood defences. A recent report by English Heritage notes "in addition to reconstructing the 100 year old seawall, the introduction of 'Spanish steps' is designed to both further aid sea defences by removing wave energy as it approaches the seafront and improve pedestrian movement between the promenade and the beach".

Blackpool's coastal seafront was awarded £8.2 million from the North West Regional Development Agency and £3 million from the European Regional Development Fund (ERDF), along with £63 million from DEFRA to remodel Blackpool's central seafront. By June 2008, ReBlackpool reported that a total of £174m had been allocated to the project with the aim to develop a comprehensive coastal protection scheme to strengthen and renew 3.2km of sea wall. The NWDA notes that the project will 'not only protect 1,500 local public and private businesses from flooding and prevent sand based erosion but will also provide an opportunity to change the alignment of the sea wall and transform the promenade as part of the aim to create a 21st century world class resort'⁵.

The remodelling process will create 6 large headlands "each extending 30 metres, which will offer unique tourism attractions and provide better access to the beach and promenade, along with the creation of a new summer promenade. English Heritage (undated) notes that the six new headlands along the seafront, will each be larger than

⁵ <http://www.nwda.co.uk/news--events/press-releases/200601/%C2%A38-million-boost-for-blackpool.aspx>

a standard football pitch, and will be used to create “a year round urban park, innovative public spaces and buildings and an interactive outdoor classroom for children. Through high quality environmental and public realm improvements, the project addresses both environmental and regeneration challenges”. The work is being led by ReBlackpool, which is the city’s urban regeneration company.

Blackpool Council has described the aims of the work as five fold:

- To provide vital coast protection that will end the risk of flood for 1500 business and residential properties and stop coastal erosion;
- To increase the width of the pedestrian promenade to create an additional 5 hectares of high quality, open space for visitors and residents to enjoy;
- To create five [now six] new headlands offering unique attractions celebrating all the fun of the seaside;
- To provide better access to the beach and promenade for all; and
- To create a unique seafront that can’t be found anywhere else in the world (Masterplan Central Promenade Seafront Project Newsletter June 2005).

The coastal works provide an interesting interplay between arts and leisure uses, transport infrastructure and coastal defences that have a climate change adaptation purpose. Dubbed by ReBlackpool as the ‘Seafront Experience’, the work comprises ‘several inter-related schemes [which] collectively seek to enhance the visitor potential with a unique seafront environment and reinvention of the Great British seaside resort’⁶.



Figure: Reconstruction and improvement of damaged sea defences. (Source: ReBlackpool Annual Report, 2008)

ReBlackpool reported (June, 2008) that the project ‘centres on the reconstruction and improvement of damaged sea defences’ It noted that construction was completed on St Chad’s headland in May 2007, while construction of the remaining 5 headlands and parades continued throughout 2007 and 2008, and these were at varying stages of completion by June 2008. It explained that the headlands will be opened on a phased basis, with priority given to the headland in front of the Tower. Construction is expected to be completed by Autumn 2009.

⁶ <http://www.reblackpool.co.uk/reblackpool/pages/DMBlogsPage.aspx?PageID=508>

Adaptation aspects

A recent (2008) Flood Risk Assessment for Blackpool noted the ongoing risk of flooding in the central seafront area. It explained that there was significant current potential for tidal flooding 'on the landward side of the immediate promenade defences, southwards of the Tower along the coast and this area is the subject of the current major reconstruction and improvements to sea defences programmed for completion in 2008'. In the past there have been breaches of the sea defences in the central seafront area due to a combination of high tides, high winds and high rainfall. The effects of climate change will make extreme weather events more common, reinforcing the need for the adaptive improvements to coastal defenses as part of the central seafront regeneration programme. The previously noted Flood Risk Assessment (2008) explains that there is currently work being undertaken to replace time expired seawall along a 3.2km stretch of central Blackpool which has been designed with a life of 100 years. The new seawall will continue to protect the central area of Blackpool from coastal erosion and flooding'.

The approach to adaptation in Blackpool has been judged as particularly notable. A recent report from the UK's Institute of Civil Engineers (ICE) has suggested that Blackpool's flood defense scheme is one of the best ways to cope with natural disasters in the UK. 'ICE in the North West said the £68m state-of-the-art scheme, currently taking shape on the Promenade, is "much more effective" than existing defenses across the UK' (<http://www.blackpoolgazette.co.uk/blackpoolnews/Blackpool-sea-wall--top.4223647.jp>). The sea wall now acts as not only an attractive way of connecting the promenade with the beach but as a robust flood defense system through its 'stepped' nature.

For more information:

[For details of the coastal regeneration scheme](#)

[About ReBlackpool](#)

[On the engineering/adaptation aspects](#)

[Return to NI188 matrix](#)

The Broads Authority: Engaging people in climate change adaptation within a 50-year vision for the Broads

[Return to NI188 matrix](#)

Summary

The Norfolk and Suffolk Broads covers an area of 303km² and is Britain's largest nationally protected wetland with the status of a national park. Its rivers, broads (shallow lakes), marshes and fens make it as a unique area, rich in rare habitats. Situated in a low-lying area of the East of England, however, it is also extremely vulnerable to extreme weather events and sequential climate change. Rising sea levels pose a particular threat to Broads' landscape and those who inhabit it.

The Broads Authority has set up a Climate Change Adaptation Panel to coordinate efforts in the area and is working with local authorities in the area to inform and contribute to their work in achieving progress against NI188. It has developed two practical adaptation projects 'The Whole Valley Approach' and 'Connecting Wetlands'.

These project will help inform the development of a 50-year vision for the Broads, which will set out how the area will adapt to the changing climate. To develop the vision, a process is being developed that will involve all the stakeholders in the area. This will require a different way of engaging with people, going out into communities and genuinely involving them.

The area's work on climate change has benefitted from a strong partnership approach. "Partners have been happy to sit down together and be open. That has been driven in part by the realisation that no one organisation has the solution and that this is a new issue. People are also very pragmatic. They don't feel comfortable saying 'that's not my problem' any more and so want to work together to address it", says Simon Hooton, Director of Conservation and Countryside Management at the Broads Authority.

Background

The Norfolk and Suffolk Broads covers an area of 303km² and is Britain's largest nationally protected wetland with the status of a national park. Its rivers, broads (shallow lakes), marshes and fens make it as a unique area, rich in rare habitats. Situated in a low-lying area of the East of England, however, it is also extremely vulnerable to extreme weather events and sequential climate change. Rising sea levels pose a particular threat to Broads' landscape and those who inhabit it.

The Broads Authority, set up in 1989, with responsibility for conservation, planning, recreation and waterways, has become increasingly concerned about the mounting evidence of the threats posed by climate change to the Broads. The Authority has set up a Climate Change Adaptation Panel to coordinate efforts in the area. It is also working with local authorities in the area to inform and contribute to their work in achieving progress against NI188.





Figure: Norfolk Broads meets the sea (photo courtesy of Mike Page)

The Broads Climate Change Adaptation Panel

The Broads Authority recognises that adapting to climate change cannot be done alone. In 2008, it set up the Broads Climate Change Adaptation Panel, a high-level strategic grouping whose purpose is to examine how best key stakeholders can work together to take a coordinated approach. The Panel is linked to the [Broads Forum](#), a consultative forum, which provides a public conduit for reporting and feedback on the Panel's work.

Organisations on the Panel include the Environment Agency, Natural England, Norfolk County Council, the Norfolk Climate Change Task Force, the National Farmers Union and the Broads Authority itself. It is chaired by Professor Kerry Turner, Director of The Centre for Social and Economic Research on the Global Environment (CSERGE), based at the University of East Anglia.

According to Simon Hooton, Director of Conservation and Countryside Management at the Broads Authority, one of the starting points for the Panel has been trying to understand what they know about the issue and how it affects the Broads in particular: "the problem we have is that there is an ever expanding array of climate change evidence, some of it examining other parts of the UK, that we realised that it is difficult to get an accurate overview of what the issues are for the Broads in particular." The Panel has also been useful for exchanging information on the partners' work. The Panel, for example, has discussed how to link a Norfolk Climate Change Task Force project on climate change adaptation and infrastructure with Natural England's work looking at the impacts of climate change on the natural environment.

Perhaps most importantly, the Panel has helped facilitate coordination of work. There is no obvious lead in the area for climate change adaptation work. Environment Agency manages work in relation to coastal flood risk, for example, whilst the local authorities play a major part in the shoreline management plan, understanding habitat adaptation falls under Natural England's jurisdiction and the Broads Authority has planning responsibilities for the flood plain. So the Panel plays an important role in bringing

these diverse responsibilities together to ensure that there is a joined-up approach to climate change adaptation.

Practical climate change adaptation projects

The Panel has also overseen two very practical pieces of work, which will help inform the development of a 50-year vision for the Broads.

The first is a project to develop a 'whole valley approach' to management of the Broads' five valleys. The project's aim is to develop a detailed management approach, ensuring that work is as coordinated and as integrated as possible. The approach also recognises that some things are outside the remit of the Broads Authority and its statutory partners. So the project also engages landowners such as farmers. As the approach develops, a 'future-proofing' process will be introduced. This will mean that new projects will be tested against future scenarios. When installing a river footbridge, for instance, questions will be posed such as, 'will the riverbank still be there in 50 years' time?' or 'how long should the bridge be built to last?' and 'should its height be raised to account for rising river levels?'

Hickling – Hickling Restoration Plan (water control and habitat change)

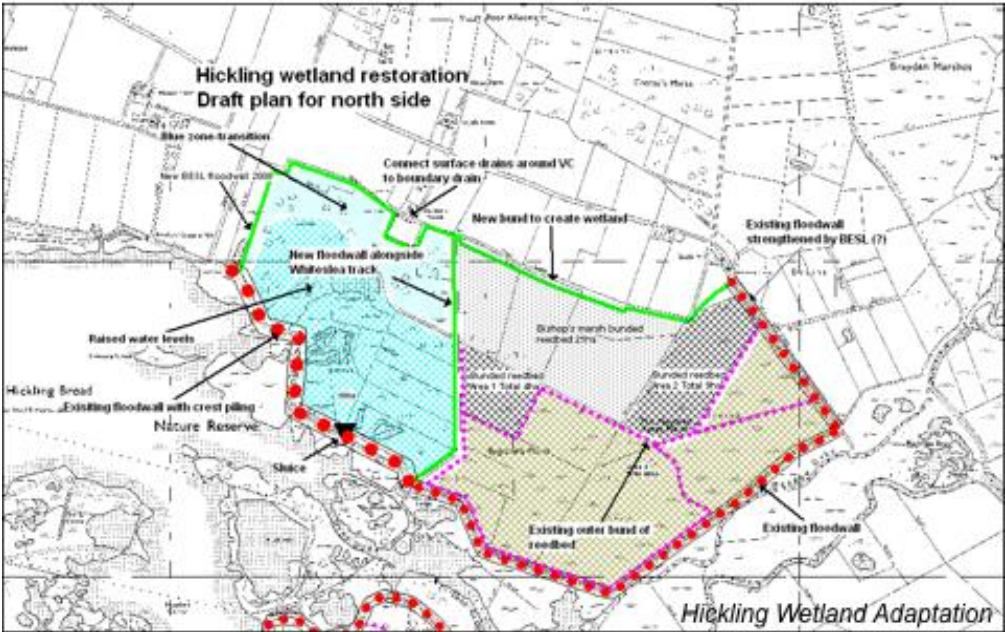


Figure: Planned adaptation for Hickling (courtesy of Norfolk Wildlife Trust)

Another project is the 'Connecting Wetlands' idea. It involves developing small-scale adaptation projects that can demonstrate how adaptation can happen without adversely impacting on other interests. For example, it might look at how wetlands could contribute to flood risk management, and at the same time take into account wider issues such as the need to avoid diffuse pollution, make habitats more robust and resilient and meet the needs of local landowners. To do this, the Broads Authority is

working with a range of stakeholders including landowners, the Environment Agency, Natural England and the regional drainage board.

Working towards a 50-year vision

The Broads Authority and its partners recognise that climate change will bring with it huge challenges for the Broads. Developing a long-term vision will therefore be critical for carefully managing how the area adapts to the changing climate.

The Authority has had plans to develop a vision for of a couple of years, but the scale and scope of the task has grown significantly in recent times. What has become particular apparent is the need to genuinely engage and work with local communities. This point was brought home to the Authority following a Natural England workshop to discuss the emerging findings from its work to examine [the impacts of climate change of the natural environment in The Broads](#). The information got leaked to the local press and led to a number of sensationalist headline being published. As a result, the Authority and its partners spent 3 or 4 months talking to the community to explain and clarify the report's findings and adaptation plans more broadly.

In retrospect, Simon Hooton can see some gains from the event, "It made people think about the issue, to realise that there are some extremely difficult choices to be made and that there isn't some big conspiracy. And it's forced us to think about how we integrate the community engagement work of all our partners to ensure that we have a genuinely joined-up approach." It has also opened the partners' eyes to the complexities involved in developing a long-term vision, including the considerable human considerations and the need to involve people and their communities.

On the back of this experience, the Broads Authority and its partners are now developing a system and process of engagement for developing the 50-year vision, which could take as long as 5-10 years to develop. As Simon Hooton points out, "the work will require engagement across a wide range of people and stakeholders, and we'll need to go incredibly slowly so that we bring people with us."

This will be particularly valuable given the contrasting choices about how the Broads is managed. One of the biggest areas of debate is about whether the Broads will remain a freshwater area or whether they will have to accept the salinisation of it. There are strong arguments both ways. As Simon Hooton notes, "The Broads are an internationally important freshwater habitat – should you give it up so easily? On the other hand, accepting salinisation of the Broads may be financially advantageous and avoids the potential engineering challenges that would be faced in trying to keep the area as a freshwater habitat. If you need to create new coastal habitats it can only be by the coast. But do we have the ability to re-create complex freshwater systems in new locations?"

The challenge therefore, will be creating a process that will involve all the stakeholders that are interested. This will require a different way of engaging with people, going out into communities and genuinely involving them.

Lessons learned

One of the key benefits of setting up the Panel and the climate change adaptation has been the “willingness of agencies to work together”, says Simon Hooton. “Partners have been happy to sit down together and be open. That has been driven in part by the realisation that no one organisation has the solution and that this is a new issue. People are also very pragmatic. They don’t feel comfortable saying ‘that’s not my problem’ any more and so want to work together to address it.”

One of the key lessons learned is that so many people have been keen to take an interest in the agenda, and not just the partner organisations. Simon has been encouraged, for example, by the levels of interest show by parish councillors and others in the community. Nevertheless, one of the key challenges has been the need to engage with communities. Simon notes this requires you to think not just with your “service or organisation head on” but also with your “local resident head on too.”

Another challenge has been the need to recognise the different values that different stakeholders hold. A landowner, for example, will be looking for a profit, whereas a local authority might be happy to go ahead with a project if they have just the bare project costs. These differences can be difficult to reconcile but Simon has found that “you need to recognise that there are different motivations, so you need to learn about these and understand how to work with them. As we come under more stress, this becomes more important and we need a kind of war-effort type of pulling together.” Simon is optimistic about the area’s ability to deal with the challenge. One of the most important lessons for him is “to have trust in releasing power or authority over things. It’s scary, but if we do it with positivity and with commitment it can bring enormous rewards”.

For more information:

[About the Broads Authority](#)

[The Broads Forum](#)

[The Natural England Climate Change Project and Report](#)

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City of London Corporation: Developing an adaptation action plan

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Summary

The City of London Corporation pioneered development of an adaptation strategy in 2006. Consultants were appointed to run a series of workshops with elected members, officers, partners, business representatives, residents and other stakeholders. Through these workshops, stakeholders identified the climate change impacts most likely to affect the City. They also identified and prioritised risks for the Corporation and partners' services, and possible adaptation responses to reduce these risks.

Figure: A green roof in the City of London. (Source: City of London Corporation)



Publication of the Adaptation Strategy in 2007 generated a great deal of publicity. The strategy document helped to raise awareness within the organisation and was a useful tool for engaging external partners.

Since adoption of the strategy, the Corporation has established a corporate working group on adaptation. Implementation of the strategy has been supported by a programme of staff training in climate change and wider sustainability issues.

Two external factors are currently slowing some areas of delivery: the lengthy LDF consultation process is constraining full adoption of new planning policies; and the new UKCP09 scenario predictions are needed to enable a full update of the strategy.

Background

The City of London Corporation is the authority that oversees the 'square mile' of the City. It is not a local authority per se: for historical reasons it has an unusual mix of responsibilities, some of which extend beyond the geographical boundaries of 'the City'. For example, it owns and manages several public open spaces across London (including Epping Forest and Hampstead Heath). While the Corporation's area has only 7-8,000 residents, the City serves about 10,000 businesses and 300,000 commuters.

There is high awareness within the City regarding climate issues: it is the centre of the global carbon trading market and climate risk is a key issue for many global investment banks and insurance firms. The Corporation seeks to ensure that the City is prepared for climate change, helping businesses to take the opportunities and manage the risks it presents.



The Corporation was the first authority in England to develop a dedicated strategy on Climate Change Adaptation, as published in January 2007. It has been awarded beacon status on climate change, and has a long and successful record in managing its own energy use. Addressing climate change is a key priority within its Community Strategy. The Corporation is currently at Level 2 of NI188 and plans to reach Level 4 by March 2010.

Development of the Climate Change Adaptation Strategy

The Corporation began work on a Climate Change Adaptation Strategy in 2006. With support from the Acclimatise consultancy, 3 stakeholder workshops were held involving not only elected Members and officers but also representatives from major businesses in the area and other key players such as Thames Water and Transport for London. The workshops looked in turn at: likely impacts; how impacts would affect services; and adaptation options. The strategy was developed from suggestions made at the workshops, which helped to develop ownership and implementation of the strategy.

The workshops did not present adaptation as a 'green' issue but linked it to risk assessment and business continuity planning, so that all participants felt knowledgeable about taking part. The strategy development process also made use of past work, such as the report 'London's Warming' (2002) prepared for the London Climate Change Partnership (LCCP), of which the City of London is a member.

The resulting strategy was published in January 2007. It presents a table of priority risks for the Corporation's services, with scores for their estimated 'impact' and 'likelihood'. It also sets out proposed actions for tackling these risks, and indicates the service area and partners that need to be involved in each action.

Building capacity to implement the strategy

Following adoption of the strategy in February 2007, the Corporation established a corporate working group on adaptation, with representatives from all the different service areas. Adaptation working groups have also been established within different service areas. The City Surveyor's department and Planning departments have been particularly central to implementation of the strategy. Actions have been incorporated into some departmental business plans.

To support this work, the Corporation has developed a rolling process of training on general sustainability issues, including climate change adaptation. This involves two half-days of training, one on the sustainability framework (see below) and one on how far sustainability is being incorporated into the policies of that particular department.

Encouragingly, as capacity is developed across all departments, new adaptation actions are emerging through normal business and project planning processes. For example, the library and archiving department has identified that climate change will have an impact on their archives, because of changes to humidity and new pests.

Development of adaptation actions

The Corporation has recently reviewed its progress on implementation of the Climate Change Adaptation Strategy, and its performance against NI188, which already meets the requirements for level 3 of NI188 in many areas. Highlights are as follows:

- **Corporate decision making:** An in-depth 'sustainability framework' has been developed to support planning for new projects, which helps the project team to identify synergies and conflicts with council policies and other service areas. A simpler 'sustainability checklist' has also been developed, to ensure that committee reports give details of sustainability implications, including climate change adaptation. Training is being given to committee clerks and policy officers so that they can identify weaknesses in application of the checklist.
- **Assessing and reducing flood risks:** A Strategic Flood Risk Assessment has been prepared, taking account of the predicted impacts of climate change and providing flood risk maps for use by Development Planning and Emergency Planning. Draft planning policies on flood risk, sustainable design and climate change have been prepared. While the new LDF has not yet been adopted, these draft policies are already helping developers to 'future proof' planning proposals. The City is also responding to the Environment Agency's Thames Estuary 2100 action plan consultation, dealing with the long-term flood risks for the Thames, including options beyond the lifetime of the Thames Barrier.
- **Managing open spaces in a drier climate:** A draft core strategy policy on Open Spaces and trees requires that the design and management of open spaces takes into account the effects of climate change. Climate change adaptation forms part of wider environmental management work on open spaces, which is being taken forward on a site-by-site basis. The Corporation has worked with the Fire Brigade to map those parts of Epping Forest that are vulnerable to fire risk, and to reduce fire risks at Stoke Common. And research has been undertaken at Burnham Beeches on the resilience of different tree species to future climate change impacts.
- **Preparing for heatwaves:** The Corporation's social care systems such as Home Care now incorporate arrangements for staff to visit all residents who are identified as vulnerable during heatwaves. Home visit staff already give advice on energy saving and keeping warm, and now extend this to advice on keeping cool. These staff now have an additional duty to contact or check people who might be at risk during heat waves.

Temperature distribution in London, August 2003

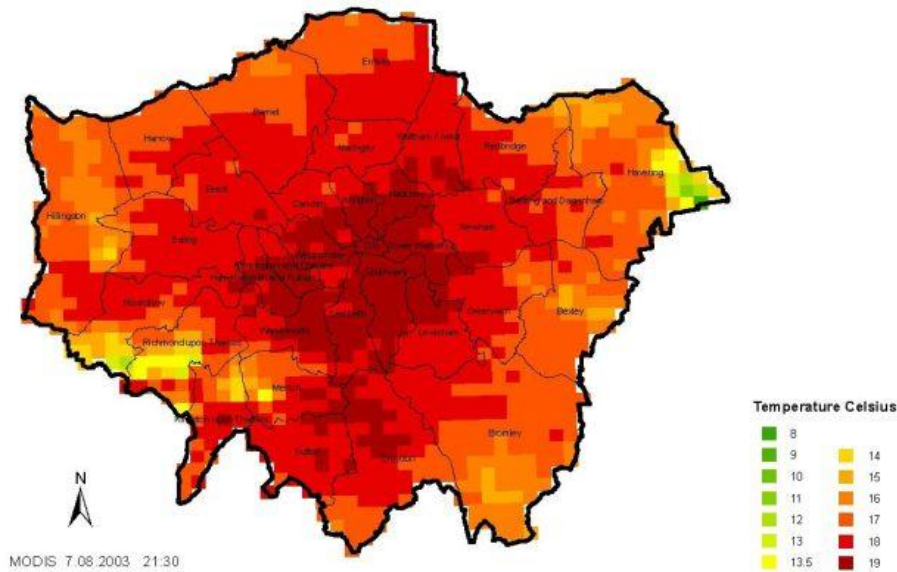


Figure :
London's Urban Heat Island: Distribution of surface temperature across London at 21:30 during the heatwave on August 7th, 2003 (Source: Rising to the Challenge, 2007)

Partnership working has formed part of many initiatives. The Corporation has worked closely with Thames Water, Ofwat, Transport for London and a number of London-wide partnerships, including the London Climate Change Partnership (LCCP). It is supporting a number of pieces of related work, including an LCCP study into the impact public procurement can have on climate change adaptation.

Next steps in taking forward the Adaptation Strategy

Following its recent review of progress on the Adaptation Strategy, the Corporation is now seeking to ensure that the Strategy is up to date and consistent with the most recent documentation from the GLA, Thames Water, Environment Agency and UKCIP. This process cannot be undertaken until the UKCP09 scenarios are available. The forthcoming review will involve the development of more detailed action plans.

Lessons learned

The Corporation generated a great deal of publicity when they developed the Adaptation Strategy, and felt proud to say that they had been one of the first authorities to do so. Just having the strategy document helped to raise awareness within the organisation. It has also been a useful tool around which to engage external partners. The strategy definitely contributed to the Corporation's selection as a Beacon Council on 'Tackling Climate Change'. Initial development of the strategy was aided by existing knowledge and expertise within the Corporation, which had been developed through London-wide initiatives such as the GLA's adaptation policy and the 'London's Warming' report by the LCCP.

Looking back at any engagement process, it is always possible to see that consultation could have been undertaken more widely. But Emma Bara, Sustainability Coordinator at the Corporation, feels that the strategy development process involved the key people who were needed. This included not only officers but also representatives from neighbouring boroughs, the Local Strategic Partnership, City business, the residential community and agencies such as the GLA, Thames Water, the Environment Agency and Transport for London.

The Corporation's work on adaptation been supported at all levels from officers to elected Members. Putting the strategy and the requirement for sustainability implications in committee reports in place has given Members more scope to raise questions on reports and proposals. With hindsight, it might have been useful to have more regular working group meetings during the implementation phase. In most areas of work the strategy has been actively taken forward but this is not necessarily the case across the board and it is important to maintain a high profile throughout the process.

Two external factors are currently slowing some areas of delivery: the lengthy LDF consultation process is constraining full adoption of new planning policies; and the new UKCP09 projections are needed to enable a full update of the strategy.

For more information see:

[Information from the City of London Corporation as a Beacon Council on 'Tackling Climate Change'](#)
['Rising to the Challenge: The City of London Corporation's Climate Change Adaptation Strategy' \(January 2007\)](#)
[City of London adaptation workshops](#)

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[Return to NI188 matrix](#)

3CAP: The effects of climate change on highways policies

[Return to NI188 matrix](#)

Summary

The Three Counties Alliance Partnership (3CAP) – a partnership between Derbyshire, Leicestershire and Nottinghamshire in collaboration with Scott Wilson plc. Have examined the likely effects of climate change on highways policies and saved significant sums of money through joint procurement and action.

The 3CAP study which utilises the UKCIP climate change scenarios (2002) was prompted by efforts to deliver on NI188. The study has identified seven priority areas and opportunities for adaptation to bridges and other structures, drainage, grass cutting, materials, resurfacing, tree and hedge maintenance and winter maintenance. The study has led to the production of a climate change adaptation action plan for the highway network for the three counties, based on a risk and probability management approach.



The three counties have also saved money by combined their requirements for technical expertise and evolving their approach to adaptation action on highway maintenance through the 3CP Partnership. They note that adaptation does not need to cost more; it just requires a new approach.

The Three Counties Alliance Partnership (3CAP)

The organisational context for the climate change adaptation project is the Three Counties Alliance Partnership (3CAP), which was formed in July 2007 and is made up of Derbyshire, Leicestershire and Nottinghamshire County Councils, as well as the Scott Wilson Group plc, a major engineering firm. The 3CAP partnership constitutes a formal agreement for these counties to collaborate with this private sector partner to improve the delivery of highway, and other professional services to the three county councils noted above. The Partnership is able to provide specific services such as policy and planning; operation and management; and engineering design and monitoring. It is being undertaken over a 4-year term from July 2007 to June 2011.

The objective of the 3CAP project is to develop the partnership to be a leader, 'Best in Class', in terms of service delivery and innovation, as well as a centre of excellence for

highway related services. To this effect, a Strategic Board, with representatives across the partnership, provides direction and sets targets, while an Operational Board deals with delivery of workload, integration, performance and innovation. An Alliance Manager provides liaison to the key operational groups while collaborative working groups have been set up to develop and implement a joint approach to processes, performance management, training and development and communication. In June 2007, the 3CAP arrangement was awarded 'Demonstration Project' status by the industry body Constructing Excellence. Demonstration projects are live construction projects that are innovating or are applying an element of best practice.

One of the intentions of the partnership has been to reduce the cost of commissioning services through joint procurement and this has been an important benefit of the approach. An [MJ Achievement Awards document](#) explains that 'The 3CAP has established shared working practices and standardised procedures, delivering efficiency savings 'on the ground' and sharing workload during peaks and troughs. The partnership celebrated a fruitful first year, with a total of nearly £700,000 identified so far as cost savings for the four year contract. This has exceeded expectation and a continued focus on simplifying processes promises further savings as the partnership matures' (MJ Achievement Awards, 2009).

About the 3CAP climate change adaptation project

Undertaken within this overall partnership context, the 3CAP project is a study into the current and likely future impact of climate change on the Highway Network Policies and Standards for the three counties: Derbyshire, Leicestershire and Nottinghamshire. The final deliverable of the 3CAP project is a climate change adaptation action plan for the highway network for the three counties, based on a risk and probability management approach. It largely responded to the publication of the UK Climate Impacts Programme (UKCIP) climate change scenarios for 2040 in 2002, which demonstrated the need for a major focus on adaptation and mitigation efforts.

It appears that officers are driving the collaborative project from the three public sector partner organisations involved in 3CAP. The MJ Achievement Awards 2009 explain that, 'The engineering consultancy divisions at each authority were facing similar problems and saw opportunities for greater collaboration. They agreed to work together, forming the 'Three Counties Alliance', to secure significant efficiency improvements and deliver even better services to their communities' (MJ Achievement Awards 2009).

A Strategic Board was appointed comprising representatives across the partnership. This Board provides direction and sets targets while an Operational Board deals with delivery of workload, integration, performance and innovation. An Alliance Manager provides liaison to the key operational groups. The partnership has aimed to become a "Best in Class" partnership in 4 years, and collaborative working groups have been set up to develop and implement a joint approach to processes, performance management, training and development and communication.

3CAP study specifics

The 3CAP climate change study included a brief literature review, individual meetings with representatives from Nottinghamshire, Derbyshire and Leicestershire County Council, a desktop study of existing highways networks policies and standards, a staff workshop, and the production of a comprehensive, local risk-based assessment of current vulnerabilities to weather and climate, both now and in the future, and begin to identify possible adaptation responses.

NI188 has been an important influence on the study. In delivering this project, the three County Councils involved are striving to achieve National Indicator 188: Planning to Adapt to Climate Change. The final reporting includes the identification of the most effective adaptation responses to achieve Level 2 of National Indicator 188 and the development of an Adaptation Action Plan to achieve Level 3 of National Indicator 188.

3CAP study outputs

From the Output Report produced in February 2009, outputs have included the identification of climate change predictions for the East Midlands and the identification of which highway policies and standards would be affected by climate change. They also included the application of a risk and probability process, and identification of adaptation response options.

Highways are likely to be seriously affected by climate change induced effects such as flooding in some areas and drought effects in others. Current bridge designs can add to problems when flooding occurs. Likewise, the speed of runoff from areas adjoining highways will increasingly create drainage problems, while drought conditions will adversely affect highway landscapes. Thus in the 3CAP study, seven policy areas were identified as likely to be the most significantly affected by climate change and offer the greatest opportunities for adaptation. These were bridges and other structures, drainage, grass cutting, materials, resurfacing, tree and hedge maintenance and winter maintenance.

The project noted that each of the three counties had slightly different adaptation emphases due to their different physical conditions, including retaining walls (Derbyshire), a large river (Nottinghamshire) and a mostly rural network (Leicestershire), so the focus of adaptation activities varied a little across the counties.

As noted above, the final reporting included the identification of the most effective adaptation responses to achieve Level 2 of National Indicator 188 and the development of an Adaptation Action Plan to achieve Level 3 of . It thus exceeded its original requirements.

Benefits and lessons learned

According to Andrew Warrington, Highways Manager at Leicestershire County Council, an important lesson has been ensuring that time is given to running the ideas and proposals past local authority officers actually involved in service delivery in highway

maintenance. This helps to check which highway maintenance service areas are more vulnerable to climate change and which adaptation activities are both practical and deliverable. They have been able to identify the places on the highway network that are most at risk from climate change and needed most adaptation attention. The project found that service providers have also started to develop their own adaptations.

Another lesson is the cost savings that can be made by commissioning jointly, meaning that procurement of design services and technical expertise happens once rather than three times, county by county. As noted above, over £700,000 was saved in the first year of the Partnership's operation and a similar order of savings is expected in future years.

Finally, an important lesson is the key message coming out of the project that adaptation action does not need to cost a lot of money. Rather, local authorities need to evolve their approach to adapt to climate change rather than start completely anew in relation to highway maintenance.

For more information:

[Update on 3CAP](#)

[3CAP partnership](#)

[3CAP process](#)

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[Return to NI188 matrix](#)

East Riding Council: 'Rollback' policy for its eroding coastline

[Return to NI188 matrix](#)

Summary

East Riding Council of Yorkshire Council developed the concept of 'rollback' to address the impact of coastal erosion on homes, farms and caravan parks. 'Rollback' looks at how residents or buildings can physically move further inland away from the threat of coastal erosion whilst improving the quality of the local environment and sustaining the communities. Rollback is an alternative to people losing their homes, or hard engineering defences. The concept originally focussed on caravan parks (2003-04) and was extended to houses and farmsteads (2005).



Source: East Riding Council

'Rollback' provides a planning response to reducing the effects of coastal erosion on communities that can be applied to other coastal areas.

However, the concept presented a particular challenge to local forward planning policy, in terms of seeking locations for 'new' (or replacement) buildings in open countryside.

Background

The East Riding Coastal Zone, stretching from Flamborough Head to Spurn Point, has one of the fastest eroding coastlines in North West Europe. Whilst the coast is naturally eroding at about 2 metres per year, this process is accelerated by sea level rise due to climate change. One area suffered a loss of 27 metres in one year, although it can fluctuate from year-to-year. The coastline is one of the region's key environmental assets and is an important tourist destination. Around 60,000 East Riding residents live within the coastal zone and it has a vital importance for the local and regional economy, as well as having stunning landscape and environment.

In 2000, East Riding of Yorkshire Council (a unitary authority) and other interested parties agreed to develop the first Integrated Coastal Zone Management Plan (ICZMP). This plan aims to balance the issues that are important on the coast, including the environment, tourism, fisheries, agriculture and rural isolation. 'Towards a Sustainable Coast' (the ICZMP) was launched in 2002. The 'rollback' policy stems from aims CP3, TO6 and LA2 of the Plan which seek to encourage:

- 'rollback' and relocation as a response to the threat of coastal erosion;

- opportunities for providing assistance; and
- the development of planning policies to facilitate this.

Developing the 'rollback' policy and guidance

With the need to have a sustainable approach to maintaining the viability of the caravan industry on this coastline, the concept of 'rollback' was developed and applied by East Riding Council of Yorkshire, the Environment Agency and caravan park owners in 2003-04. Initially, it looked at how caravan parks could physically move further inland away from the threat of coastal erosion whilst improving the quality of the local environment and sustaining the communities which are dependent on coastal tourism. Although originally stemming from the ICZMP (i.e. non statutory non planning document), Council planners then looked at the implications of re-locating the parks, and developed guidelines, standards and policies within which any moves can be made.

The report by David Tyldesley summarises the approach and the background to the original work on caravan sites⁷. Sites at risk were identified and assessed. These were defined as those which were under threat from erosion within the next 100 years. Site assessment included interviews with the owners / operators, or questionnaires where necessary. The extant policy framework at the time was used to support the introduction of a 'rollback' policy for relocation of caravan and holiday home parks. Support was found in a variety of policy documents, including the UK Government's Sustainable Development Strategy, the Regional Sustainable Development Framework, national and regional planning guidance (in PPG20, PPG21 and RPG12), the regional and local economic development strategies, the East Riding of Yorkshire Community Strategy and national and local Biodiversity Action Plans (the latter particularly important in relation to the restoration of vacated sites). Together, this body of advice stresses the need to integrate the different economic, social and environmental strands of sustainable development when seeking to accommodate the requirements of tourism development affected by coastal erosion.

Finally, a new policy was developed, with separate guidance as a framework for making planning decisions related to caravan park relocation and 'rollback'. The policy permitted replacement provision for caravan sites at risk of coastal erosion with appropriate clearance and restoration of vacated areas (with enhancements to nature conservation resources, and provision of public access to the coast where appropriate). The status of the policy and guidance remains as 'interim' development control guidance, pending the development of the Council's Local Development Framework (LDF).

In 2005 the concept was extended to cover homes and farmsteads at risk from coastal erosion. Again, policy guidance was developed as an interim measure, to be used primarily as a development control tool, until it can be tested in the Council's Local Development Framework (LDF). Faced with leaving the majority (86% or 73km) of the

⁷ The rollback of caravan and holiday home parks from the eroding East Yorkshire Coastline (Tyldesley and Associates, August 2003).

coast unprotected from coastal defences, with the loss of a number of permanent dwellings/farmsteads, the Council saw itself faced with the following options:

- Do nothing - planning applications for a replacement dwelling for a dwelling threatened by coastal erosion would be determined using existing general policies in the development plan.
- Facilitate a 'rollback' policy - this would enable a dwelling threatened by coastal erosion to obtain planning permission to be replaced and re-located further inland (a range of options exist within this broad option such as re-locating to the outskirts of a settlement in the open countryside or preferably to an existing settlement).

A new policy was developed, set out below, which it is hoped (and expected) to be included in the new Local Development Framework:

Figure: Rollback policy within the draft Local Development Framework

A. Proposals for the replacement of residential dwellings considered to be at risk from coastal erosion within the next 50 years will be permitted where:

- i. the Council is satisfied that the dwelling is a permanent structure and is occupied on a permanent residential basis;*
- ii. the application secures the demolition of the existing dwelling and restoration of the site within three months of occupation of the replacement;*
- iii. the design of the replacement dwelling reflects the character and appearance of the new locality;*
- iv. the gross volume of the replacement dwelling is no larger than the dwelling it replaces, taking into account permitted development rights associated with the existing property.*

In order to secure more sustainable patterns of development, this will be in the form of replacing the dwelling on a site that is judged to have a life expectancy of at least 100 years:

- v. within the development limit, or adjoining it, of a settlement within the Coastal Zone;*
- vi. within or adjoining the built up area of a smaller settlement (that does not have a development limit) within the Coastal Zone.*

B. Proposals for the replacement of agricultural dwellings/farmsteads considered to be at risk from coastal erosion within the next 50 years will be permitted within the existing holding to a site that is judged to have a life expectancy of at least 100 years, provided:

- i. the dwelling/farmstead is expected to remain in agricultural use;*
- ii. the application secures the demolition of the existing dwelling and restoration of the site within three months of occupation of the replacement;*
- iii. the gross volume of the replacement dwelling is no larger than the dwelling it replaces, taking into account permitted development rights associated with the existing property;*
- iv. the design of the replacement dwelling reflects the character and appearance of the new locality.*

It should be stressed that this represents a significant relaxing of planning law – which would otherwise dictate that development is directed towards previously developed land, using the sequential test (i.e. looking at town centres well served by public transport in the first instance).

Outcomes

The approach helps people and businesses at immediate risk from coastal erosion to relocate. It has enabled businesses (caravan sites, farms) and individual residents to move and therefore contribute to greater climate change resilience. The 'rollback' policy favours early decisions to relocate, allowing housing assets in coastal areas to be sold to finance the purchase of land in open countryside and new home construction. This relaxation of planning policy is an exception case, reducing costs for people wanting to relocate to a safer place in land. The alternative is that people will live with the threat of losing their homes to the sea and may leave it too late to relocate, putting them in day-to-day danger. Further, dwellings close to the cliff-edge tend also to be in relatively poor condition because investment is not justified due to the limited life of the property. Relocating to a new home will lead to an improvement of living conditions and achievement of building standards that will improve residents' health and well-being.

In practice, a number of caravan sites have so far moved to new locations, which are better defended from coastal erosion. In some cases, this has allowed the Council to maximise opportunities for improving caravan sites, by developing appropriate quality specifications for the relocated sites. In terms of the local economy, it is helping to maintain the important caravan industry. At the time of writing, no homes or farms have taken up the offer, although it is estimated that around 70 dwellings are at risk. Council feel they are still operating at Level 0 for NI188 despite this policy approach, although hoping to raise this to Level 2 by the end of 2009 (with other work).

Lessons learned

The policy is seen as a positive and practical approach to saving property and livelihoods and has political support. It is likely to feature as planning policy in the emerging Core Strategy. However, the development of the 'rollback' policy and guidance has been a challenge in forward planning terms, given that it emerged from the non-statutory ICZMP and the East Riding Unitary Authority is having to bring together forward plans from four different local authorities that predated its inception in 1996.

The application of the policy has thrown up a number of challenges. Fitting the local guidance into the principles of the sequential test and in relation to PPG3 including previously developed land proved to be an issue. The poor quality of some of the properties at risk and the applicability of relocation either open countryside or villages inland. The process presents a challenge to forward planning policy given that the coastal strip affected by the relocation is sensitive in environmental and planning terms i.e. other development would otherwise find it very difficult to locate here. In addition,

in relation to caravan sites, any new location needs to be suitable/ acceptable for caravan tourism – who would prefer to be as close to the sea as possible! When relocating caravan sites consideration may be needed to approve a larger number of pitches than the existing site to service any loans to pay for new caravans and pitches from increased on site income, and the programme for 'rollback' is likely to be phased.

A further challenge has been the future management and use of sites vacated. Whilst the caravan 'rollback' policy seeks to turn vacated sites into new coastal assets, with nature conservation and public access improvements, this has proved to be difficult to achieve. The problem also remains of an eroding coastline and any risk to people using the site for recreational purposes.

This suggests that authorities seeking to replicate this approach need to be mindful of the implications of such a relocation policy, paying particular attention to the suitability of new locations and the mechanisms for the improvement of vacated sites.

For more information about:

['Rollback' policy](#)

[Towards a sustainable coast – the integrated coastal zone management plan \(2002\)](#)

[The 'rollback' of caravan and holiday home parks from the eroding East Yorkshire coastline \(David Tyldesley and Partners, August 2003\)](#)

The 'rollback' of residential and agricultural dwellings at risk from coastal erosion in the East Riding of Yorkshire (East Riding Council Dec 2005)

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Gloucestershire County Council: Building County-wide adaptive capacity through risk-management and awareness raising

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Summary

Following severe flooding in 2007, Gloucestershire County Council has been working hard to build adaptive capacity within the Council and across the wider county. Gloucestershire County Council's foresight in using its risk management approach to identify risks of future flooding enabled them to insure the County's schools in 2006/07 and save £1.9 million when they were flooded in 2007.

Now the County Council is working with Stroud District Council to raise awareness of the importance of a risk-management approach across each of six district councils through a series of workshops for all elected members and senior managers, and emergency planning officers and risk managers. Reflecting on the workshops to date, Corporate Sustainability Manager, Peter Wiggins thinks that "the programme of workshops is already building a massive increase in awareness – things are definitely starting to happen".

Background

Severe flooding in Gloucestershire in 2007 provided the country with a sharp reminder of the risks that we face from climate change and prompted a strategic programme to improve the resilience of the Council and the wider county.

On 20th July 2007 Gloucestershire received two months rain in 14 hours. It was a 1 in 120 year event. The flooding meant that:

- 500 businesses and 4500 homes were flooded
- 2000 people were forced to move out of their homes and had to stay in emergency rest centres
- 10,000 motorists and 500 rail commuters were stranded
- 3 people died in Tewkesbury
- 350,000 people were without drinking water for two weeks as the Mythe Water treatment plant was flooded
- The flooding and water crisis cost Gloucestershire County Council an estimated £50 million. Damage to its assets included £25 million repair bill for highways, £2.4 million for 20 damaged schools, £2 million for damaged community buildings, and £206,000 to dispose of extra waste generated by floods

During and after the floods, Gloucestershire County Council led the Strategic Recovery Co-ordination Group and directed a multi-agency operation, working with district councils, the NHS and voluntary organisations to help the county recover. Operations included drop-in events for residents, repairs to flood damaged roads, the re-opening of 20 flood damaged schools and inspections of 400 highways drainage sites.



The County Council has had a Heatwave Plan in place since 2006 to ensure that vulnerable children and older people would be properly cared for in the event of a Heatwave. While the Council's Rural Estates Team were working with tenant farmers and the Countryside Sites Service to encourage sustainable management of farmland and woodlands to reduce flooding through upstream land management. According to Nigel Riglar, the Accountable Manager for Gloucestershire's NI188 work, "adaptation has always been fundamental to the county's work to develop a more resilient natural and built environment", now enshrined as one of the outcomes to be achieved under the [Gloucestershire's Local Area Agreement 2008-2011](#).

In June 2007, Gloucestershire County Council signed the Nottingham Declaration and committed to NI188 as part of countywide efforts to tackle climate change within the *Gloucestershire Sustainable Community Strategy 2007-2017* and LAA and regional commitments within the *South West Regional Spatial Strategy 2006-2026*. Recognising the need to bring together its existing work to adapt to climate change with its efforts to reduce energy consumption and greenhouse gas emissions, the Council embarked on a process to develop a Climate Change Strategy and Action Plan.

Developing a Climate Change Strategy and Action Plan

Gloucestershire County Council's work on climate change adaptation has focused on formulating a strategic programme for the Council, embedding climate change within decision-making and risk management and building capacity across the county to adapt to climate change.

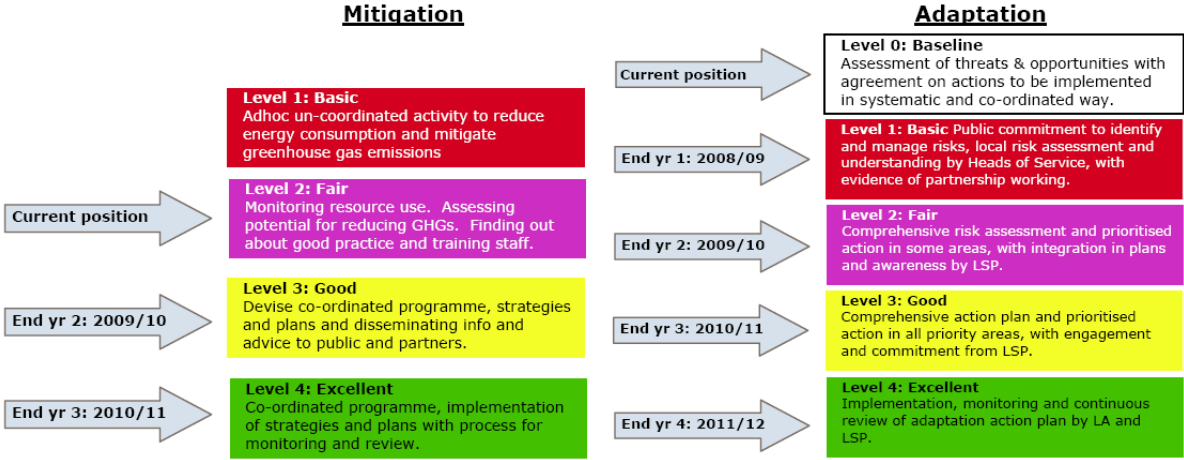
In 2007, the Council worked with CAG Consultants to bring together existing adaptation and mitigation actions, and to develop a vision and level of ambition for the future.

Councillors and officers from across the Council were involved in the process through a series of interviews, meetings and a workshop, which the Council's external partners (including representatives from the Environment Agency, Gloucester University, Gloucestershire First and Stroud District Council) and neighbouring Beacon authority – Worcestershire County Council attended.

The process also involved piloting a climate change performance framework to benchmark the Council's current performance against recognised levels⁸ (see figure below) and helped set the Council's ambition to become 'an excellent' Council for adapting to climate change by 2011/12'.

⁸ The Climate Change Performance Framework used the four levels of performance outlined in the Sustainable Energy Benchmark & Toolkit and the draft NI188 guidance.

Figure: Gloucestershire County Council’s performance in 2007/08 and ambition for mitigating (left) and adapting to (right) climate change



The Climate Change Strategy and Action Plan have now been adopted by the Council and efforts continue to deliver adaptation actions, for example:

- GCC will have invested £9m in flood resilience by the end of 2009.
- All of the county’s 135,000 gullies have been cleaned (£1.1m) and pipes cleared with high pressure jetting units (£300k). The Council has contributed £0.8m to district council land drainage projects on ordinary watercourses and £0.6m to Environment Agency flood alleviation projects, such as the Bournton on the Water scheme to create field drains, attenuation ponds and heighten roadside banking. Flood resilience measures are estimated to have improved the resilience of 1500 homes.
- The Council has been actively raising public awareness of flood resilience through web information, media campaigns, leaflets for riparian owners, a flood information pack, encouraging companies to promote flood defence products to householders, and providing practical help and advice to other authorities such as Northumberland County Council.
- The Council continues to work with NHS Gloucestershire (the Primary Care Trust) in implementing Heat Wave planning.
- An assessment of climate change risks across the Council’s assets is underway.

Embedding climate change across Council decision-making and risk management

The Climate Change Strategy set out Gloucestershire County Council’s vision that by 2012, climate change will be integral to decisions about how it delivers its services, and in its work with partners to secure the future of Gloucestershire, the region and beyond.

A key focus of the County Council’s work has been to embed climate change within its risk management approach, and to use risk management as the Council’s strategic



approach. Identifying the risks of, and insuring against, flooding and water damage to the County's schools in 2006/07 saved the County Council £1.9 million during the 2007 floods.

Climate change (adaptation) is also now integrated into the County Council's emergency and civil contingency planning, procurement guidance, induction training and performance management, which is helping to embed it across all Council business plans. The Council has also ensured that climate change is at the heart of decision-making by:

- Establishing a new Climate Change Forum, chaired by the Lead Cabinet Member for Environment and Community and led by the Corporate Management Team with representation from relevant Members and senior Directorate Champions.
- Established a network of 64 volunteer Climate Change Champions to encourage behaviour change across Council services.
- Strong branding and a communications campaign to raise awareness across Council staff and Members.

Building County-wide capability to adapt to climate change

The Council's third priority has been to work closely with the Gloucestershire Conference (the Local Strategic Partnership) and Environment Partnership to develop a county-wide response to climate change. While the Council already works with the Local Resilience Forum, it has helped lead a county-wide Adaptation Task Group, involving all 6 district authorities and the PCT, to build capacity and capability across the county to adapt to climate change. Their approach has focused on a programme of events, funded by the Environment Partnership, to help raise awareness amongst senior managers, key professionals and elected members, and to start to engage the LSP.

The first event, held in January 2009 was facilitated by the Climate Outreach Information Network (COIN) and sought to build a common understanding of climate change risks and adaptation. Peter Wiggins, Corporate Sustainability Manager at Gloucestershire County Council said that he "really liked the COIN approach which helped to build common levels of awareness about climate change adaptation *and* mitigation ... and helped people to think about things a bit differently".

The event also received positive responses from delegates. One Head of Services found the event an "excellent introduction to the climate change issues and how they will affect us at a local level", while one councillor found it "an invaluable tool for all of us involved and to help us communicate to others".

This was followed by a second event reporting on the Gloucestershire Local Climate Impact Profile, and exploring how climate change can be embedded within emergency and risk management and strategic land use planning.



Figure: Climate change adaptation workshop, 22 May 2009 (Source: GCC)

During 2009, two types of events will be rolled out across the county and district councils, workshops for:

1. all elected members and senior managers
2. emergency planning officers and risk managers

To ensure that each Council has a climate change adaptation plan in place by March 2010, the programme is also supported by:

- a review of progress against NI188 across the County (undertaken by Global to Local Ltd)
- a Local Climate Impact Profile for the County Council (phase 1), district councils (phase 2) and external partners (phase 3)
- a review of risks, opportunities, responsibilities for adaptation and existing data and plans.

Lessons learned

Reflecting on the process to date, Corporate Sustainability Manager, Peter Wiggins thinks that the key to Gloucestershire County Council's success has been due to the commitment and action across all districts and the County Council in Gloucestershire and the strategic level leadership provided. "Stroud District Council's sponsorship of the 'More resilient environment' programme has helped ensure that it is not just a County-led process and helped to build good capability and capacity across the County".

"The challenge has been to embed climate change adaptation into the business planning psyche" according to Nigel Riglar, Strategic Director at Stroud District Council. Programmes, such as Buildings Schools for the Future are in place to ensure that

adaptation is built into buildings and infrastructure, but the difficulty has been to ensure that climate change adaptation is integral, and not an add-on to Council business.

Awareness-raising workshops have been the key to laying the foundations for county-wide adaptation action, says Peter Wiggins. "I really think that the programme of workshops is already building a massive increase in awareness – things are definitely starting to happen".

For more information:

[Climate Change Adaptation: The Gloucestershire Approach](#)

[Gloucestershire's climate change adaptation workshops](#)

[Gloucestershire County Council's Corporate Climate Change Strategy](#)

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Hampshire County Council: Assessing organisational capacity for adaptation

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Summary

Hampshire County Council (HCC) has led the development of the Performance Acceleration Climate Tool (PACT), with Alexander Ballard Ltd. This tool arose from research by HCC on change management for the EU-funded ESPACE project, which highlighted the issue that information and awareness on climate change issues does not necessarily lead to action. HCC's research identified a number of principles underlying effective change by organisations on climate change issues. The PACT tool can be used to review an organisation's performance against 9 pathways, based on these principles. PACT reviewers use the tool to identify which pathways are holding back progress on climate change within the organisation, and suggests ways in which performance could be improved.

PACT was piloted with a range of EU partners in the final year of the ESPACE project, and it has recently been applied to NI188 performance in a further pilot funded by LRAP. This pilot involves four contrasting district councils within Hampshire, and one medium-sized business. The PACT review has already stimulated action within these organisations and has identified ways in which their climate change adaptation performance can be improved. It has also encouraged good two-tier working, and has identified strengths and weaknesses across Hampshire's Local Strategic Partnership.

In addition to its work on PACT, Hampshire has also established a 'Commission of Inquiry on Climate Change' and has undertaken a number of adaptation actions.

Figure: Adaptation issues in Hampshire (source: Commission of Inquiry on Climate Change, 2009 hearings)



Background

Hampshire County Council plays a leading role on sustainable development and climate change issues. Based in the South East of England, Hampshire is one of the largest non-metropolitan counties in England. As one of the founding members of the Climate South East partnership, Hampshire was involved in an early study of climate change impacts in South East England, published in 1999: [‘Rising to the Challenge’](#). Hampshire was also one of the first signatories to the Nottingham Declaration Partnership in 2001, and used this as a catalyst to develop its work on climate change mitigation and adaptation.

Elected members were a critical driving force in the early stages of Hampshire’s work on climate change. Acting as a champion for climate change issues, a leading cabinet member hosted an event for all HCC councillors in 2004 to explore the implications of climate change for the County Council. This event highlighted Bordeaux as a ‘comparator region’ for Hampshire in 2050, which aided visioning about the future challenges and opportunities that climate change might bring. Another tool developed to support this visioning was an edition of a newspaper from 2038 that included articles about bio-diversity, tourism, health and weather forecasting.

A further impetus came from the [‘Aalborg Commitments’](#), signed by the Council in 2004, which have been used to assess the Council’s progress towards sustainable development as a whole. The Aalborg process led to the adoption of a long-term goal for HCC in 2006: ‘Within a decade Hampshire will prosper without risking our environment’. The Council identified climate change as the most immediate threat to this overarching goal.

Hampshire’s Strategic Partnership is committed to progressing NI188 over a three year programme, reaching Level 3 by March 2011. This may seem a modest ambition, given Hampshire’s past work on climate change adaptation, but officers feel that growing awareness of adaptation issues has led to an increasing realisation about just how much still needs to be done to deliver a truly comprehensive response.

The PACT tool

Between 2003 and 2008, HCC led the EU-funded ESPACE project (‘European Spatial Planning: Adapting to Climate Events’). As part of this project, HCC undertook work on change management which highlighted that information and awareness of climate change issues do not necessarily lead to action. Within the ESPACE project, HCC researched how local authorities could stimulate and support change within their own and partner organisations. This led to the development of PACT (the Performance Acceleration Climate Tool) by HCC and Alexander Ballard Ltd. PACT was piloted with a range of ESPACE partners, including the Dutch Ministry of Spatial Planning, HCC, Kent County Council and the Environment Agency.

In 2008/9, HCC obtained funding from LRAP to pilot PACT with four contrasting district councils and one medium-sized business in Hampshire, focusing specifically on these organisations' delivery of NI188.

PACT reviews an organisation's capacity to respond to climate change issues, and helps to identify ways in which the organisation's capacity could be developed most effectively. Trained assessors or peer reviewers assess the organisation's performance in relation to 9 'pathways': 'Awareness', 'Agency', 'Leadership', 'Agents of change', 'Working together', 'Learning', 'Managing operations', 'Programme scope' and 'Expertise'.

During the pilot, the PACT reviewers assessed participating organisations' performance on each pathway against 6 potential levels of organisational response, ranging from Level 1 'Core business focus' to Level 6 'Champion organisation'. HCC has related these pathway response levels to NI188 performance levels. The assessment was based on information provided by the participating organisations, supplemented by a series of interviews with key people.

Participating organisations were then given a report charting areas of strength and weakness, and advice on how to improve their performance. The 'pathways' were used to identify aspects of performance which are particularly holding back an organisation's development on climate change, helping to identify 'where a difference can make a difference'. Feedback from pilot participants indicated that the PACT tool is distinguished from other environmental management tools (e.g. ISO 14001) by the follow-up discussion of the assessment, and work with assessors to identify key areas for improvement.

All the organisations involved in HCC's pilot for LRAP have found the review useful for identifying areas where performance could be improved. In some cases, the organisation's perception of their own performance has been clarified and re-assessed as awareness of climate issues has grown through the PACT process. Some authorities have found the PACT review useful in providing objective evidence to elected members about the current level of performance of their council on climate change adaptation.

HCC is confident that PACT is helping the participating organisations take action quickly. Results from the PACT pilot were fed back to them in late March/April 2009, and some are already changing what they are doing. They have developed a sense of ownership of the outcomes and are already incorporating changes into their business plans and operational management.

As well as this individual learning for the pilot organisations, there has been broader learning for HCC in relation to the Local Area Agreement: the pilot has helped HCC to identify shared strengths and weaknesses across the partnership, which will be addressed by future programmes of joint working.

The PACT pilot has also fostered good two-tier working and has helped to build on the existing work of Hampshire Strategic Partnership. Some organisations which have not yet been involved, such as the PCT and Police service, have expressed interest in participating in a further round of PACT. More detailed findings will be reported to LRAP in the summer of 2009, and will inform options for rolling PACT out more widely either within or beyond the South East.

Other HCC work on climate change adaptation

In 2007, HCC set up a [Commission of Inquiry on Climate Change](#) to look at how Hampshire can adapt to become more resilient to the social, economic and environmental impacts of climate change. Hearings were held in 2007, 2008 and April 2009. Presentations are available on the website (see above).

Other specific adaptation actions that have been developed by HCC include:

- A requirement that climate change impacts should be identified and considered in all council decision-making;
- Work by HCC's Emergency Planning service to review the vulnerability of refuges and the robustness of emergency plans to climate change impacts;
- Integration of climate adaptation into the council's risk management processes;
- A range of initiatives within the Environment Department, including planning policies to support SUDS, green roofs, shading in school playgrounds and management plans for HCC's coastal landholdings;
- Identification of climate vulnerabilities and potential responses by the Adult Care department, with a similar pilot study in Children's services.

Lessons learnt

HCC has established and maintained a leadership role in climate change adaptation with the support of leading councillors. It has developed a range of expertise in climate change and sustainability that fosters effective joint working at local, regional, national and EU levels.

HCC has taken a partner-centred approach to climate change adaptation, bringing in partners from beyond the LAA partnership from the beginning of the NI188 process. The Council is currently clarifying with GOSE/Defra how far these individual partners would be expected to have progressed on climate change adaptation for the LAA/HCC to achieve NI188 Level 3 by March 2011.

Strategic leadership has been central to HCC's success in taking forward climate change adaptation. The behaviour change principles identified through the ESPACE project have been central to HCC's work, and have been integrated into the PACT tool. These principles have helped HCC to work with key people and organisations to develop meaningful actions they can each take to achieve effective long-term change.

PACT has been found to be an effective tool in accelerating performance, both within an organisation and where group of organisations are acting collectively to achieve a common goal. One of the success factors in the PACT pilot was an initial workshop with the LAA partnership, which helped to raise awareness of the process across the partnership as a whole. Data collection went well because HCC was clear from the outset about the level of commitment needed from participants. But a 3-6 month timescale would have been preferable to the 3 month period available for the pilot.

For more information:

[Hampshire County Council's climate change web pages](#)

[ESPACE case study on HCC's organisational change work:](#)

[Hampshire County Council's Climate Change Commission of Inquiry](#)

[ESPACE project](#)

[The Climate South East partnership](#)

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Hertfordshire County Council: Assessing the impacts of climate change on health and adult care services

[Return to NI188 matrix](#)

Summary

In January 2009, the Hertfordshire Environment Forum published a groundbreaking study which examined the impacts of climate change on health and adult care services in Hertfordshire. The study was jointly commissioned by and involved representatives from Hertfordshire County Council's Sustainability Team, its Adult Care Services and the Hertfordshire NHS Environment Group. The study highlighted the importance of building resilience and adapting health and adult care services to cope with the impact of climate change, as well as the challenges of engaging public sector staff and stakeholders in climate change.

Background

In January 2009, Hertfordshire Environment Forum published a groundbreaking report which examined the impacts of climate change on health and adult care services in Hertfordshire.

The study built on Hertfordshire County Council's (HCC) reputation for commissioning collaborative climate change research to understand potential impacts and adaptation responses within the County. Led by Sustainability Team Leader, John Rumble, and now chair of the East of England Climate Change Partnership, Hertfordshire County Council has been at the forefront of commissioning research to understand the impacts of climate change on local authority and partner services, with studies such as:

- [Living with climate change in the East of England](#) (East of England Sustainable Development Round Table, 2004)
- [Adapting to climate change impacts - A good practice guide for sustainable communities](#) (South East Climate Change Partnership, Sustainable Development Roundtable for the East of England and the London Climate Change Partnership, October 2006)
- [Adapting to climate change: a case study companion to the checklist for development](#) (South East Climate Change Partnership, East of England Sustainable Development Round Table and the London Climate Change Partnership, March 2007), and more recently
- Climate change adaptation issues for professions and services falling within the remit of the County Surveyors Society (Hertfordshire County Council and the County Surveyors Society, 2008)

Following considerable foresight in considering climate change adaptation, and becoming a signatory of the Nottingham Declaration on Climate Change in January 2007, climate change is now a strategic priority for Hertfordshire County Council's [Corporate Plan 2009-2012](#). The Council is in the process of developing its own Climate Change Strategy



as well as leading the development of a county-wide strategy through the Local Strategic Partnership – Hertfordshire Forward.

Whilst the Local Strategic Partnership has not signed up to NI188 under the Local Area Agreement, the County Council aims to reach Level 2 of NI188 by 2011, from a baseline of Level 1 at 2008/09. To achieve this, during 2009/10 Hertfordshire County Council aims to focus on actively championing climate change adaptation across the Council and ensuring that climate change impacts, risks and potential adaptive responses are considered formally within policy and budget decision-making. The County Council's work on adaptation includes:

- The development of a Local Climate Impacts Profile
- Service level briefings on adaptation issues for HCC departments
- A strategic climate change strategic risk assessment of HCC's key plans and policies to assess the extent to which they address climate change adaptation to address the high level stock take of risks and vulnerabilities required by Level 0 and Level 1 of NI188)
- Work with the Safety Emergency Risk Management Unit (SERMU) to assess the level of compatibility between emergency planning and the climate change and the corporate risk and monitoring requirements of NI188
- Assessing the links between climate change and HCC's Corporate Risk Register

Action is now being co-ordinated by a five-strong team, including a Climate Change Officer and three supporting officers. The climate change work programme is overseen and promoted by an internal Climate Change Board, established at the end of 2008. The Board, which is chaired by the Assistant Director of Economic Development, Strategic Partnerships and Communications and meets every six weeks is made up of senior representatives from all HCC departments and some key service areas.

Joint commissioning of the research

To further investigation of climate change risks and vulnerabilities across the Council, in 2008 Hertfordshire County Council commissioned research to assess the impacts on the County's health and adult care services. Many of these services are jointly run by the County Council's Adult Care Services (ACS) and NHS partners. ACS is responsible for the care of adults, older people, as well as those with learning disabilities, sensory loss, physical disabilities or mental health difficulties, and delivers integrated services with health and social care services as part of the partnership with the Hertfordshire Partnership NHS Foundation Trust.

So the County Council's Sustainability Team invited the NHS Environment Group and the Hertfordshire Environment Forum to jointly fund and commission the £30K piece of research. Although not part of a formal adaptation action plan, the research met the needs and interests of partner organisations. The National Health Service has developed a strong interest in climate change and to complement its work on carbon management, members of the NHS Environment Group. The NHS Environment Group started in 2004 and consists of representatives from the two Acute Trusts, the two Primary Care Trusts (East & North Hertfordshire and West Hertfordshire PCTs),



Hertfordshire Partnership Foundation NHS Trust (Mental Health Trust), the regional Strategic Health Authority and the county and district authorities.

Involving stakeholders in the research process

The Environment Group's chair, Peter Wright worked with the County Council's Climate Change Officer and a representative from Adult Care Services to commission the research and draw in participants. Peter freely acknowledges that while he was unable to engage many of the direct provider services, the 'usual suspects' that were involved had the knowledge and expertise to inform the study. Bethan Clemence agrees that involving service providers in the research process was particularly useful:

"Representatives, particularly from Adult Care Services had some incredibly useful insights into how climate change is affecting services".

However gaining and maintaining participants' involvement has provided challenging as climate change has not always been seen as a priority and competes with other, equally important agendas. "It's a chicken and egg situation – it's difficult to get people involved in climate change research without the awareness of its impacts – and you can't raise awareness without evidence of the risks and impacts" comments Bethan. However there has been a recent growth in climate change interest amongst services which is enabling future research on the impacts of climate change. For example, a new project working with the Children, Schools and Families department will aim to utilise a growing awareness resulting from climate change and sustainable development being part of the curriculum. To add value to this research, the County Council is also considering the potential for some of the research being undertaken by students in Hertfordshire.

The project board also hopes to bring together participants in a follow up session in order to consolidate learning and plan future action. However, without wider ownership of the research progress may be hampered by the availability of the core willing individuals.

Implications for health and adult care services

The Department of Health's report on the *Health impacts of climate change in the UK* in 2002 acknowledged the impacts on human health, but did little to examine the impacts on wider social services. "As far as we know I don't think anyone's looked at it in this amount of detail" said Climate Change Officer, Bethan Clemence.

The study identified the likely impacts of climate change on Hertfordshire's health and adult care services, which included a reduction in cold-related mortality and illness, an increase in heat-related mortality, increases in food-poisoning, vector borne diseases and weather-related disruption to health and social care provision, see figure. The study emphasises the importance of building resilience and adapting health and adult care services to cope with the impact of climate change within the context of their role in delivering sustainable development (as illustrated by the figure below). It also provides a

range of options to Hertfordshire County Council and Hertfordshire's NHS Primary Care Trusts:

1. Raise the general public's awareness of health related impacts from climate change and avoidance measures.
2. Maintain high health standards in the population of Hertfordshire.
3. Lobby and support calls for non-healthcare adaptation measures that will benefit healthcare provision.
4. Raise health and adult care staff's awareness of health related impacts from climate change and climate emergencies.
5. Develop early warning systems to alert healthcare departments to climate events.
6. Develop risk-based business continuity and contingency plans for climate events.
7. Improve monitoring and surveillance of climate-sensitive conditions.
8. Identify most at-risk groups within Hertfordshire population.
9. Improve the resilience of healthcare infrastructure to climate impacts.
10. Improve the capacity of NHS and ACS to cope with changing health trends and demand spikes.
11. Further develop ties with the Fire and Rescue Services (FRS) via Emergency Planning group and formalise contingency procedures during flood events.
12. Improve coordination between different agencies and also between agencies and other key stakeholders.

Taking forward adaptation actions

The study has yet to be considered by the Primary Care Trusts' Boards but Peter Wright is optimistic that it will receive a positive response when it is presented alongside the two Hertfordshire PCT's new Carbon Management Plan in June this year. "Many people don't see climate change as part of their core activity, and by presenting the adaptation study alongside the carbon management plan, it will not be viewed within a vacuum and I expect that the report's suggestions will be taken on quite readily" he says. Climate Change Officer Bethan Clemence thinks that climate change adaptation has often been seen as more intangible in comparison to climate change mitigation which is given greater impetus by financial costs and levers such as the Carbon Reduction Commitment.

The immediacy and local importance of climate change has also been difficult to communicate due to the lack of weather-related events to raise the public and organisations' consciousness. "Hertfordshire has escaped some of the major weather-related events such as flooding that has generated greater awareness and action on climate change in other parts of the country", says Bethan. On the other hand, local councillors, particularly the Deputy Leader in his role as climate change champion and Executive Member for Performance and Resources, have helped champion climate change within the County.

Although focused on the impacts of climate change on Hertfordshire, Bethan Clemence and Peter Wright agree that the research will be relevant and applicable to other local authorities and organisations such as Primary Care Trusts. Indeed Hampshire County Council are also intending to examine the impacts of climate change on adult care services, while the report has already attracted interest from the national NHS Sustainable Development Unit.

For more information:

[Impacts of climate change on Hertfordshire's health and adult care services \(January 2009\)](#)

[Climate Change Strategy progress](#)

[Strategic Climate Change Risk Assessment \(April 2009\)](#)

[Climate Change Board](#)

[Service level briefings on how climate change might affect Hertfordshire County Council departments and their services](#)

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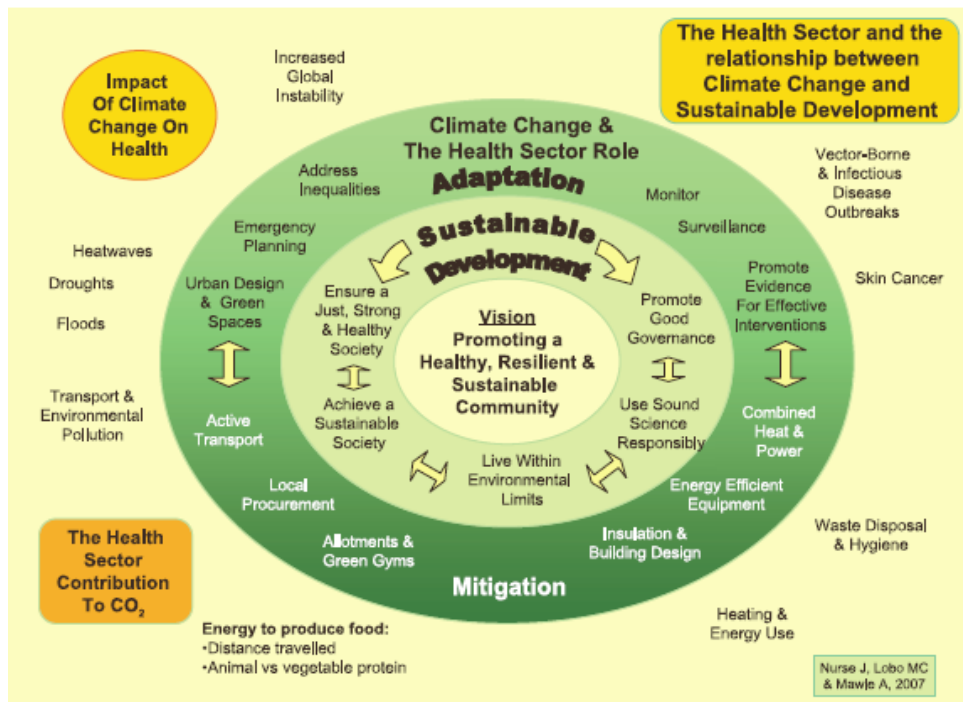
Figure: Risks from climate-related health impacts on categories of health care and adult care service provision

| Implications of climate-health impacts on health service categories | | | | | | | | | | | | | | | | |
|--|---------------------------------------|----------------------------------|-------------------------------|-------------------------------|----------------|----------------------|--------------------------------------|-------------------------------------|------------------------|-----------|----------------------------------|--|------------------------------|---------------------------|---------------------------------|--------------------|
| 1. Score (H/M/L) relative magnitude of health impact 2. Score (H/M/L) relative likelihood of health impact 3. Score (H/M/L) current/expected coping capacity of service category 4. Within each cell, traffic light score for overall impact on the service category - needs to consider the magnitude and likelihood of the health impact itself AND the current/expected coping capacity of that service category AND the extent to which it will put pressure on 5. In final column, provide overall assessment of the level of concern for each service category | | | | | | | | | | | | | | | | |
| | | Health impacts of climate change | Temperature-related mortality | Temperature-related morbidity | Food poisoning | Vector-borne disease | AQ/Ozone related respiratory disease | UV related skin cancer & eye damage | Water borne disease | Allergies | Extreme weather related injuries | Weather related mental health problems | Buildings and infrastructure | Transport / Accessibility | Availability of power and water | Overall assessment |
| | | Magnitude | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | Medium | High | High | |
| | | Likelihood | Medium | High | High | Low | High | High | Medium | Medium | Medium | Medium | Medium | High | Low | |
| Service category | Sub category | Coping capacity | | | | | | | | | | | | | | |
| NHS PCT | GP / DOC | Low | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | Medium | High | High | High |
| | Childrens Services | Low | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | Medium | High | High | High |
| | Community health services | Low | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | Medium | High | High | High |
| ACS | Older people and physical disability | Low | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | Medium | High | High | High |
| | Learning disability and mental health | Low | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | Medium | High | High | High |
| | Commissioned services | Low | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | Medium | High | High | High |
| Acute NHS Trusts | A&E | Low | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | Medium | High | High | High |
| | Specialist delivery | Low | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | Medium | High | High | High |
| | Wards | Low | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | Medium | High | High | High |
| Ambulance Trust | | Medium | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | High | High | High | High |
| Public Health | | Medium | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | High | High | High | High |
| Emergency Planning | Across all categories | High | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | High | High | High | High |
| Voluntary and private sector | | Medium | High | High | High | Low | Medium | Medium | Medium | Low | Medium | Medium | High | High | High | High |
| Specialist delivery units affected | | | | | Pathology | | Respiratory services | Oncology and ophthalmology | Pathology, dermatology | | | | | | | |

| Key to identify magnitude of impact | |
|-------------------------------------|--------|
| High | High |
| Medium | Medium |
| Low | Low |

Source: Impacts of Climate Change on Hertfordshire's Health and Adult Care Services Final Report to Hertfordshire County Council and Hertfordshire NHS Environment Group, on behalf of the Hertfordshire Environment Forum (January 2009) AEA.

Figure: Healthcare, adaptation and sustainable development



Source: The health impact of climate change: promoting sustainable communities – guidance document (2008) Department of Health.

Kent County Council: Promoting adaptation of biodiversity in Kent and across Northwest Europe

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Summary

Kent County Council worked with spatial planners, policy makers and scientists across England, France and the Netherlands to promote the importance of helping biodiversity to adapt to climate change through spatial planning.

The BRANCH project (Biodiversity Requires Adaptation in Northwest Europe under a CHanging climate) has shown that Europe's fragmented landscape is likely to prevent many species from moving with shifting climate conditions into new areas. As Senior Biodiversity Projects Officer Sarah Taylor "the project confirmed what conservationists would like to see to make habitats robust in any circumstances, but particularly in the face of climate change – we need to conserve, enhance and connect biodiversity". The project's recommendations, as well as detailed modelling and case studies provide useful evidence for integrating biodiversity and climate change adaptation into spatial planning policy for other local authorities, and have already been used to inform Local Development Frameworks amongst Kent's district authorities.

Background to the BRANCH project

Kent County Council was a partner in the BRANCH Project which worked with spatial planners, policy makers and scientists across England, France and the Netherlands to promote the importance of helping biodiversity to adapt to climate change through spatial planning. The BRANCH project (Biodiversity Requires Adaptation in Northwest Europe under a CHanging climate) emerged from previous work on biodiversity opportunity mapping for Kent which was part funded by Natural England's Lifescapes programme. The results of this work created biodiversity opportunity mapping and supplementary planning guidance for the Counties structure plan. However, according to the lead officer at the time, Laurence Tricker, 'the opportunity maps were felt to be driven by what information Kent County Council had on the current species/habitat distribution rather than what might be appropriate in a changing climate, and the vulnerability of wildlife in the south east of England as suggested by climate change scenarios produced by the Hadley Centre in 2002.

According to Climate Change Project Officer, Sarah Anderson, the BRANCH project is likely to inform Kent County Council's internal Climate Change Programme, and Kent Partnership's 'KA2 Climate Change Indicators Delivery' plan for National Indicator 188. The Kent Partnership has reported achieving Level 1 of NI188 by 2009, and is striving to achieve Level 3 by 2011.

The BRANCH project, led by Natural England was funded as part of an INTERREG IIIB funded partnership. It started in May 2004 and was completed in September 2007 and had 9 partner organisations. The aims of the project were to:



- Review existing spatial planning policies and recommend a new policy framework providing greater resilience for our biodiversity in the face of climate change (undertaken by Oxford Brookes University)
- Model how European wildlife will respond to climate change (undertaken by the Environmental Change Institute, University of Oxford; the Tyndall Institute, University of East Anglia; Alterra, Wageningen University and Research Centre; and the University of Southampton)
- Develop planning options and tools to help tackle the impacts of climate change on our coasts
- Assess the impact of climate change on inland ecosystems and ecological networks
- Engage stakeholders so that adaptation to climate change is integrated at all planning levels.

Identifying opportunities for biodiversity adaptation



BRANCH modelling assessed projected changes in suitable 'climate spaces' (locations of favourable climatic conditions) for 389 terrestrial and coastal species, and then simulated how nine of these species might move across forests, wetlands or grassland ecosystems in the face of climate change. The project identified areas in need of adaptation measures across Northwest Europe, which could be used to inform planning policy, see figure below. It also makes a number of recommendations for European and Northwest Europe policy and planning.



Figure: Areas needing adaptation measures in North West Europe

BRANCH also examined the impacts of sea-level rise on coastal habitat distribution and space for individual species. It found that the coastal protection provided by some habitats such as saltmarshes may be reduced by climate change, and that the mix of species that they support will change.

The project involved a number of case studies, including one in Kent. The scientific modelling carried out for Europe, using the Parallel Climate Model, the Hadley Centre Model and projections for global carbon emissions to assess likely changes in climate

spaces for the 2020s, 2050s and 2080s, was utilised in the Kent case study to assess the existing connectivity of terrestrial habitats through the SPECIES model. This modelling showed that Kent's habitats are not sufficiently connected to allow some species to adapt to climate change and identified areas where action is needed to re-connect habitats and restrict further fragmentation. For example, modelling of the Adonis Blue butterfly – an indicator species chosen to represent chalk grassland species with low dispersal capabilities, showed that, although the climate in Kent is likely to become more favourable for this species, that the present habitat is isolated in several unconnected networks.

The Kent case study involved workshops with stakeholders and helped create connections between policy makers, planners and scientists and helped to bring in local knowledge and expertise.

Overall the BRANCH project found that Europe's fragmented landscape is likely to prevent many species from moving with shifting climate conditions into new areas, without adaptation measures to create connected habitats. "The BRANCH Project's work contributes to an evidence base that tells us adaptation for wildlife in the face of climate change is necessary" comments Sarah Taylor, Senior Biodiversity Projects Officer at Kent County Council. "BRANCH confirmed what conservationists would like to see to make habitats robust in any circumstances, but particularly in the face of climate change – we need to conserve, enhance and connect biodiversity".

Planners helped BRANCH identify a number of barriers as to why planning is not sufficiently taking into account climate change and biodiversity, including:

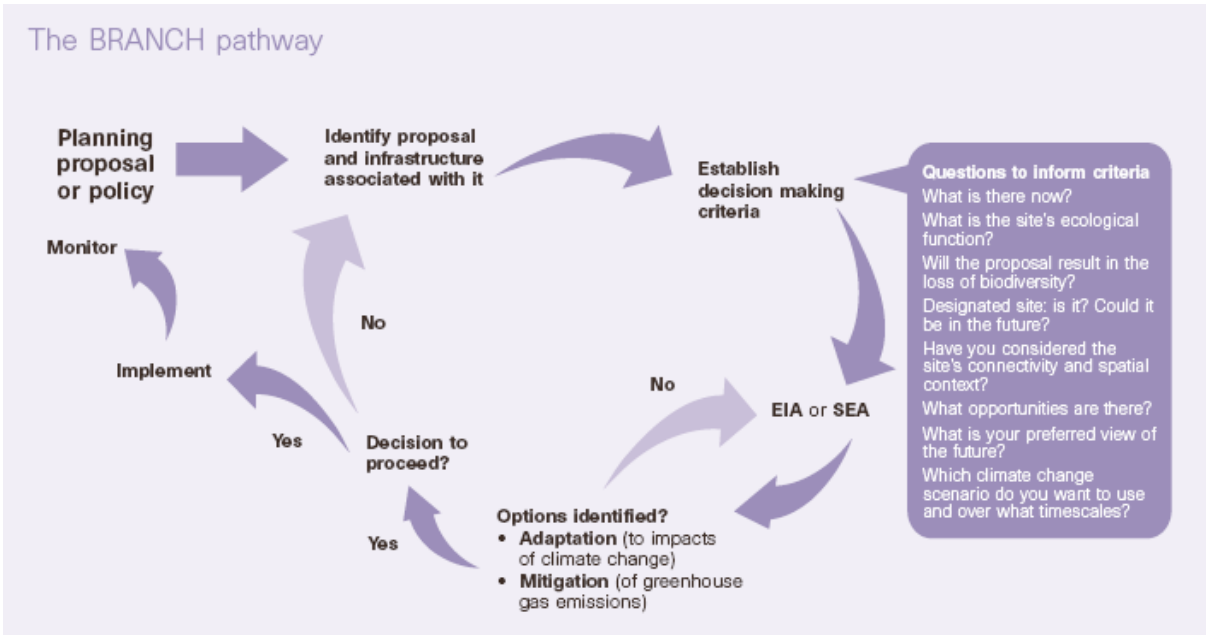
- Lack of clear leadership and allocated responsibility for biodiversity
- Lack of capacity to implement change and safeguard future sites for biodiversity
- Timescales for responding to climate change are longer than planning timescales
- Conflicting aims for land in the spatial plans for different sectors e.g. between biodiversity and infrastructure plans
- Insufficient information e.g. on the best places to safeguard or enhance for wildlife.

The BRANCH project concluded that spatial planning is instrumental in making strategic choices and implementing measures to help biodiversity to adapt to climate change. Tools such as Strategic Environmental Assessment of plans and Environmental Impact Assessment of projects are critical in informing decision-making, as illustrated by the framework below, which is based on the UK Climate Impacts Programme's Risk, Uncertainty and Decision making Framework.

The project also concluded that new policies will be needed to promote biodiversity adaptation to climate change such as longer spatial planning timescales (of 50 to 100 years), increased integration of different policy sectors and across boundaries, a planning system that permits a sequence of land changes over time which favours wildlife, and legal and financial measures that promote the adaptation potential of biodiversity.

The BRANCH project has informed the [South East Plan](#) and will form part of the evidence base which will inform [Kent County Council's Environment Strategy](#) and, through close working between the County and district councils, is also being used to inform Local Development Frameworks. For example Tonbridge and Malling Borough Council's draft '[Managing Development and the Environment](#)' development plan document recognises that 'climate change will present threats and opportunities to natural habitats and species' and that 'opportunities will need to exist for them and their habitats to migrate' (para. 4.3.13).

Figure: The BRANCH pathway for embedding biodiversity and climate change in policy and planning



Source: BRANCH partnership (2007), 'Planning for biodiversity in a changing climate – BRANCH Project Final Report', Natural England, UK.

BRANCH's findings and recommendations are transferable throughout the UK, Europe and beyond. The BRANCH project has been "a very good opportunity for working with other local authorities", says Sarah Taylor. The County Council has been working with Canterbury City Council to engage planners in biodiversity adaptation, and was also involved in developing a 'how to' guide to [Biodiversity and climate change workshops for planners](#) developed by Futerra Communications, which would be useful to other local authorities and organisations to engage planners in the issues.

For more information:



[BRANCH project](#)

[BRANCH: Creating networks for nature in Kent](#)

[Biodiversity and climate change workshops for planners. A 'how to' guide \(Futerra Communications, 2007\)](#)

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Leeds City Council: Developing a detailed LCLIP

[Return to NI188 matrix](#)

Summary

Leeds City Council has prepared a detailed Local Climate Impact Profile (LCLIP). This has involved analysis of local weather data for the past 25 years, obtained through its own air quality monitoring system and the archives of the former Leeds Weather Station. Extreme weather events in recent years were also identified through careful analysis of local newspaper reports. These events have been graded in severity, and further research has been undertaken to explore the consequences of the most significant events for Council services and the wider community. The findings of the LCLIP have been presented in a draft report (not yet publicly available).

The Council is also working with consultants on the early stages of an approach called 'vulnerability mapping'. It is envisaged that this will combine a 3-D model of the city with successive layers of information on future climate change risks (e.g. flooding, drought, high winds, heat wave and so on). A new approach to sustainability appraisal is also being developed, using the 'Natural Steps' framework.

The Council has already undertaken a number of actions to reduce climate change risks related to highways and infrastructure. Officers are working with UKCIP to develop a climate change template for new projects and to roll out a programme of risk assessment and adaptation planning across all services areas over the next two years.

Background

Leeds City Council is one of the major metropolitan district councils in the Yorkshire and Humber region. The Council has been strongly committed to sustainability issues since the 1990's and is accredited by the 'Eco-Management and Audit Scheme' (EMAS). Leeds has had a climate change officer since 2006 and has developed a draft Climate Change Strategy for Leeds. Around 2005, the Council began to consider action on climate change adaptation.

The initial catalyst for adaptation work was officer membership of the UKCIP English Stakeholders Forum. This group generated officer commitment to adaptation issues, which helped to drive the Council's early adaptation work. Development of the adaptation strategy was strengthened by the establishment of internal and external adaptation working groups. The Leeds Initiative (the Local Strategic Partnership) worked closely with the Council to select NI188 as one of its 35 indicators and made a commitment to reach level 3 by March 2011. Dave Cherry, Environment Assessment Manager, comments that "This is the most important local indicator. If local authorities ignore what is going on regarding climate change, the cost implications will be huge. Sooner or later, we'll get hammered. So the Council needs to take suitable precautions."

Adaptation has now been incorporated into the Leeds Strategic Plan, the highest-level plan for Leeds, as well as the Leeds Local Development Framework, the Sustainable Communities Strategy and the Council's Environmental Policy.

Undertaking a detailed LCLIP

The Local Climate Impacts Profile (LCLIP) aims to identify the threats and opportunities presented by climate change in Leeds. The LCLIP does not assume that weather events that have occurred in recent years are as a result of climate change. However, climate models widely predict more extremes in the future weather. The LCLIP has examined the effects of recent severe weather in Leeds, and looking at the way in which communities and authorities have responded to help reduce existing and future vulnerability to weather patterns expected as a result of climate change and what lessons if any could be learned.

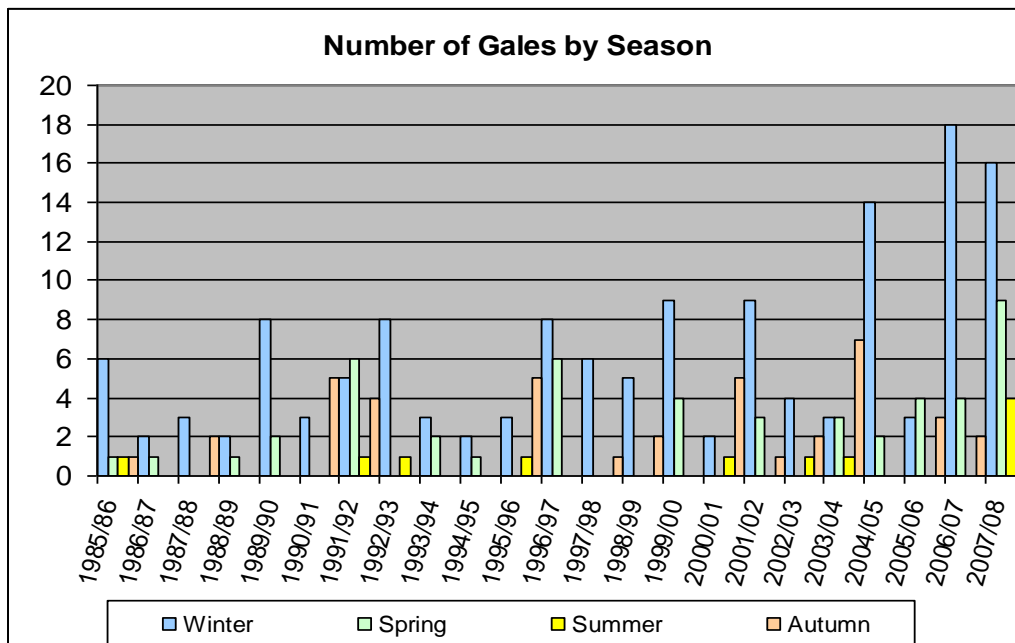
The Council initially commissioned 2 students to conduct a media trawl of local newspapers for severe weather events, between 2002 to 2008. This information was analysed by officers who prepared a detailed 'Local Climate Impacts Profile' (LCLIP) for the city, going beyond the original LCLIP guidelines from UKCIP. A draft report written by Julia Corfield (Principal Environmental Technician) on the Council's LCLIP work is nearing completion but is not yet publicly available.

One of the initial drivers for the LCLIP was the Council's own meteorological station, developed to support air quality management. Analysis of this data and the former Leeds Weather Centre archives, covering the past 25 years⁹, has provided nuggets of information which have raised awareness of climate change across the Council. The analysis has identified climatic fluctuations within Leeds which are consistent with climate change. For example, the frequency of air frosts and snowfall days has decreased, while high winds appear to be on the increase¹⁰ (see Figure below).

⁹ The LCLIP analyses weather data over a period of 25 years, although it is generally accepted that a time series of at least 30 years is required to reflect climatic trends.

¹⁰ It is not yet clear how increased wind speeds relate to climate change.

Figure: Number of gales by season (Source: Leeds Weather Centre and Leeds City Council archives)



In addition to analysing past meteorological data, the LCLIP research included a review of local newspaper archives, to identify extreme weather events that have occurred within the city of Leeds district. For each event, researchers have checked that the news report related to a real weather event in Leeds (as opposed to a Met Office warning or an event in a neighbouring area), have gone through what happened, found relevant pictures and, for more serious events, spoken to relevant experts within the Council. Using this information, they have analysed the impacts of these events in terms of a 'hierarchy of disruption' – first order (Paralysing) to fourth order (Nuisance) (Rooney, 1967)¹¹. Impacts are also analysed according to the sectors affected (e.g. health, housing, retail, transport and so on). The LCLIP information is presented in accessible format, using symbols for different categories of event, ranging from 'strong winds', 'flooding', 'heavy rains' and 'lightning strikes' to 'heat wave conditions'. More detailed analysis is presented for more serious (level 1 events), examining what the Council has done and how it has learnt from these events.

The LCLIP study also draws on work done in the regional adaptation study for Yorkshire and Humberside, and looks at potential future actions (e.g. drought plan, with Environment Agency; national heat wave plans with PCTs). The LCLIP report, when finalised, will be presented to the Leeds Corporate Leadership Team, and will be used to inform future priorities for action on adaptation, based on existing climate risks.

¹¹ The Urban Snow Hazard in the United States: An Appraisal of Disruption, John F Rooney, Jr, Geographical Review, Vol 57, No.4, (Oct 1967) pp 528-559.

Vulnerability mapping

Another tool that Leeds is currently developing is 'vulnerability mapping'. This will use 3-D mapping and modelling of the city to store and analyse information on future risks from climate change. While the LCLIP looks at past impacts, vulnerability mapping will be more forward looking – enabling planners, developers and policy-makers to identify potential future impacts. It is envisaged that the mapping system would enable presentation and analysis of successive layers of information on different aspects of risk (e.g. drought, heat, high winds, flooding and so on). It would help emergency planners to understand how quickly events might develop and how to improve warning systems and reactive measures to deal with such events.

The Council is working with ARUP and the Environment Agency on the early stages of developing this methodology. Preliminary work will be aided by the involvement of masters students from Leeds University. Vulnerability mapping will help gain a better understanding of how compounding factors may exacerbate the impacts of climate risks. For example, the severity of flooding does not simply depend on how much rain falls. Other factors affect the overall response of the catchment area, including rainfall intensity, ground conditions and types of drainage.

Developing adaptation actions for infrastructure

In parallel with the LCLIP work, the Council is progressing a number of adaptation actions related to infrastructure and highways:

- **Measures to reducing flood risks:** these include monitoring of rainfall intensity in particular catchments, and identification of flood hot spots; more frequent cleansing of flood hot spots (e.g. watercourse grids and highway gulleys); flood protection measures for properties at risk, including flood boards, air brick covers; improvements in flood warnings, communication and coordination; and the incorporation of Sustainable Urban Drainage Systems (SUDS) into new developments (e.g. the East Leeds Link Road);

Figure: Cleansing of watercourses in Leeds (Source: Leeds City Council)



- **Measures to reduce heatwave damage:** including investigation of issues relating to localised melting and rutting of road surfaces and the failure of traffic light controllers in hot weather, for example, painting control boxes black helps heat to radiate out of the enclosure and improved reliability; and
- **Measures to reduce risks from high winds:** including installation of safety railings at specific junctions near high-rise buildings that are known to cause wind turbulence, to prevent pedestrians and cyclists from being blown into the path of oncoming traffic by high winds; planning requirement for developers to test designs for wind effects, and where necessary to include wind diffusers within designs at pavement level; and measures to improve the foundations and fixing of street furniture, to reduce problems caused by high winds.

Building adaptive capacity at a corporate level

At a strategic level, the Council has strong links to the Climate Change Working Group (CCWG), Adaptation is one of the eight working groups of the Leeds Initiative CCWG. At a corporate level, the Council is incorporating climate change adaptation in a number of ways including:

- Development of a draft climate proofing template for new plans and major projects, with support from UKCIP;
- Development of a new approach to sustainability appraisal which makes use of the 'Natural Step' approach, combined with separate climate proofing for adaptation; and
- Identification of flooding and high winds as high annual risks within the corporate risk register.

With support from UKCIP, the Council will train a small team to lead risk assessment work across all service areas over the next two years, helping each area to review its options for adaptation responses. These actions will progressively be built into the Council's mainstream plans and strategies.

Lessons learned

NI188 has acted as a good driver for the Council's adaptation work. Other enabling factors include support from UKCIP and the involvement of students on LCLIP and vulnerability mapping work.

Individual commitment has sparked off a great deal of the Council's work on climate change adaptation, particularly in relation to ideas such as vulnerability mapping and new approaches to sustainability appraisal. This enthusiasm has meant that some officers have been working on adaptation issues in addition to their main responsibilities.

Lack of resources and staff have been key limiting factors. Further resources now need to be identified, with buy-in from senior management. In the current era of efficiency

cuts, there is a risk that climate change work will be vulnerable to cuts. This would be unwise given the risks that lie ahead for the Council and the city as a whole.

For more information:

[Presentation on Leeds LCLIP findings and methodology](#)

Leeds LCLIP report (forthcoming)

[The Natural Step Framework](#)

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Leicester City Council: Developing a climate change adaptation action plan

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Summary

Leicester City Council, a unitary authority for the most populous city in the East Midlands, has a long history of pioneering work on the sustainable development agenda. In 2008, Leicester City Council published a [Climate Change Adaptation Action Plan](#) to prepare the Council's services to adapt to future climate change.

One of the successes of the process was linking the adaptation work with existing environmental (EMAS) and corporate arrangements (the corporate risk matrix). This has helped to mainstream the adaptation agenda into the Council's existing work, rather than making 'another thing to do'.

Each action in the Action Plan has been assessed and rated (High, Medium or Low) as to its impact. The plan also indicates the resource requirements for each action - i.e. whether they are 'no regret', 'low regret' or 'win win' measures - and gives a timescale for reviewing whether the actions have been achieved.

The Action Plan, and Leicester's development of an LCLIP, has also allowed the Council to make good progress in achieving its Local Area Agreement target of getting to Level 4 on . The Council now estimates that it has reached Level 2 and is well on the way to achieving Level 3 this year.

Background

Leicester City Council, a unitary authority for the most populous city in the East Midlands, has a long history of pioneering work on the sustainable development agenda. Over the years, the agenda has benefitted from strong political commitment, with councillors who genuinely want to deliver on sustainability. It had an Energy Strategy as early as 1994 and produced its first [Climate Change Strategy](#) in October 2003, setting a 50% CO₂ reduction target from 1990 levels by 2025.

Whilst the city itself has not had the type of damaging floods that, say, Gloucestershire has experienced in the past, the potential impacts of extreme weather events to the city are still significant. A former drainage officer at the Council had commented that if Leicester had had similar amounts of rain as Gloucestershire in 2007, then there Leicester could also have suffered from very serious flooding. So the Council are very aware of the potential risks that climate change may bring to the city.

The Council signed the Nottingham Declaration in 2006 and, as a result, begun work on a [Climate Change Adaptation Action Plan](#) in September 2007. It had already developed a [Climate Change Action Plan](#) for mitigation that year, so the development of an adaptation action plan was seen as 'part two' of the commitment made through the Declaration to develop climate change plans within two years of signing.



This commitment is further reflected in the development of Leicester's Sustainable Community Strategy, [One Leicester](#) that focuses on a 25-year vision to make Leicester Britain's sustainable city. The aim is to create a great place and one "that does not place a burden on the planet that we will come to regret in future years."



Figure: Leicester City Council's Climate Change Adaptation Action Plan

The Council has signed up to as local indicator through Leicester Partnership's [Local Area Agreement](#) (LAA) and plans to be a Level 4 by the end of the LAA period.

Developing an adaptation action plan

Leicester City Council's Climate Change Adaptation Action Plan, published in 2008, aims to prepare the Council's services to adapt to future climate change.

To develop the plan, there was widespread consultation, including a number of workshops with key officers and senior managers of the Council's services. The consultation helped to establish how climate change would affect the Council, thinking through the risks services to Council services, and an Adaptation Risk Register was developed.

These risks were then scored using a risk assessment methodology, a combination of the Council's Corporate Risk Assessment and the Eco-Management and Audit Scheme (EMAS) Significance Matrix. From this process emerged a number of issues that were considered to require immediate attention to reduce the impact of future climate change. These issues were categorised under three 'Significant Effects':

- Flood Risk
- Summer Heatwaves and Prolonged Periods of Increased Average Temperatures
- Water Availability

'Key Objectives' were developed for each of the Significant Effects, underpinned by a series of service level actions or responses. One of the Key Objectives, for example, is to "reduce the risk and impact of flooding across the city wide road network." This is supported with actions such as: reviewing the maintenance regimes for clearance of roadside gullies, culverts and the drainage assets; developing a Supplementary Planning Document relating to climate change and sustainable development; and identifying and mapping flash flood hotspots within Leicester and identifying the causes of flooding.

Each action has been assessed and rated (High, Medium or Low) as to its impact on the Significant Effect. The plan also indicates the resource requirements for each action - i.e. whether they are 'no regret', 'low regret' or 'win win' measures - and gives a timescale for reviewing whether the actions have been achieved. No regret measures are ones that will have benefits regardless of the impacts of climate change, low regret measures deliver the greatest benefits as climate change unfolds and win win measures deliver additional benefits other than climate change adaptation.

The adaptation action plan will be managed through the Council's EMAS system and the Significant Effects and Key Objectives have been incorporated into the Council's EMAS Significant Effects Register.

According to Anna Dodd, Environment Manager at Leicester City Council, many of the actions set out in the plan have already been achieved, "The Council has made good progress, for example, on developing Supplementary Planning Guidance on climate change and sustainable development - currently under development - which will inform the new Local Development Framework. And much of the planned drainage work is flying ahead. The drainage assets are continuing to be mapped and we should have a complete record by autumn 2009. Then we will target areas of greatest flood risk."



Figure: Implementation of Abbey Lane Sustainable Urban Drainage System in Leicester

Developing the LCLIP: taking adaptation Leicester-wide

Since the plan has been written, the Council has been working on the development of a Local Climate Impacts Profile (LCLIP). This is being done through East Midlands Regional Assembly (EMRA), Government Office for the East Midlands, the Environment Agency and

Defra, who are supporting councils and other public sector bodies across the East Midlands to conduct LCLIPs in order to assess their vulnerability to extreme weather and inform their adaptation planning.

For Anna Dodd, the development of the LCLIP has been a really interesting process: “We have discovered through the process that parts of the organisation have not been systematically recording the effects of weather damage. So we have now identified the need to improve our recording systems”. The process has also had real benefits in promoting the adaptation action plan and encouraging other key partners to consider climate change impacts. Developing the LCLIP necessarily involves the cooperation and involvement of key organisations, such as the local health trust, the police and fire and rescue service. So the Council has used the opportunity to introduce its adaptation plan to them and to encourage them to consider developing their own organisational adaptation action plan.

The work has also allowed the Council to make good progress in achieving its LAA target of getting to Level 4 on NI188. As a result of the adaptation action plan and the LCLIP work, the Council now estimates that it has reached Level 2 and is well on the way to achieving Level 3 this year.

Work on adaptation has brought a number of wider benefits too. New and constructive links have been made with other bodies, including the [Local Resilience Forum](#), which has become very interested in the climate change agenda. A knock-on effect has been that representatives on the forum have taken the adaptation back into their organisations, especially the Primary Care Trust, as well as the fire and rescue service.

A key next step for the Council will be to work with the Leicester Partnership to look at the Partnership’s objectives and work out the risks that climate change might pose to achievement of these.

Lessons Learned

Leicester City Council is pleased to have been one of the first councils in the UK to develop a climate change adaptation action plan. As Anna Dodd points out, however, that councils who plan to follow suit need to remember that that is only half the task, “the adaptation action plan is good, but actually the bigger challenge now is to implement it and generate the enthusiasm for delivering it!”

One of the successes of the process has been being able to tie in the adaptation work with existing environmental (EMAS) and corporate arrangements (the corporate risk matrix). This has helped to mainstream the adaptation agenda into the Council’s existing work, rather making ‘another thing to do’.

Anna Dodd does note, however, that there is still a danger that climate change adaptation can get squeezed out by mitigation work. For her, this is a potential problem for all local authorities, rather than a specific issue for Leicester: “adaptation is the poor relation to mitigation and needs more resource. The national indicator, 188, is more of a

process, so doesn't have the resources, focus, awareness or 'teeth' and can be overwhelmed by the mitigation agenda."

For local authorities developing their own adaptation plans, Anna's advice to other local authorities would be to "build on the work that local authorities have already done. Look at other people's plans and work and develop your own work from there."

"It is also important to tie your adaptation work with other, more mainstream organisations and structures, such as your Local Resilience Forum, if you have one, and your corporate risk management work. This will support and increase buy-in for your adaptation work."

For more information:

[Leicester City Council's climate change work – The Adaptation Action Plan and the Climate Change Action Plan](#)
[Leicester City Council's 2003 Climate Change Strategy](#)

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Lincolnshire County Council: Working in partnership on climate change

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Summary

Lincolnshire County Council (LCC, and key partners such as the Environment Agency, EA) have developed a partnership working approach to deliver climate change adaptation measures within the County. Initially, through their Local Strategic Partnership (LSP), the Lincolnshire Environment and Climate Change Action Partnership (LECCAP) was formed to deliver Local Area Agreement (LAA) targets. This resulted in a higher level 'Climate Change Priorities' group being formed. This partnership approach has produced or influenced a range of adaptation focussed or relevant work including coastal management initiatives, Catchment Flood Management Plans, Water Cycle Strategies, Integrated Drainage Studies and green infrastructure projects. In particular, the current Coastal Study is perhaps a unique initiative bringing together the social, economic and environmental aspects of climate change and growth: putting development on hold whilst implications of growth are investigated.

Background

Initial engagement started with negotiations for Lincolnshire's 1st LAA (LAA1 pilot) in the autumn of 2006. This resulted in the formation of the Lincolnshire Environment and Climate Change Action Partnership (LECCAP) whose initial task was to rally key stakeholders to identify potential environmental priorities for the LAA. Climate change was one priority – initial targets included all districts signing the Nottingham Declaration. A high profile signing event was held (where several chief executives and council leaders signed the declaration) including the screening of Al Gore's climate change film 'An Inconvenient Truth' to officers and members of the local authorities and a panel discussion (with the Environment Agency amongst others).

Following on from this a Nottingham Declaration task group was established – the LAA 'Climate Change Priority' group: this brought together nominated high level representatives of all councils with the objective of delivering the commitments made by signing of the declaration. The group shared experiences, pooled knowledge, supported each other and identified areas for joint working. Experience varied from those with an existing carbon management plan to those whose experience was fuel poverty or flood risk and development.

Action

The work is now into the delivery stage of LAA2. Effectively the LAA Climate Change Priority group acts as a programme board to ensure that actions allocated to all stakeholders are completed, and enables works to unblock areas that are proving difficult. LECCAP continues to play a role in networking, communicating and coordinating stakeholders activity in the delivery of targets. Key mechanisms to deliver adaptation and the NI188 indicator include:



- **A Local Climates Impact Profile (LCLIP)**, with additional funding has been provided by the EA, LCC and some district councils (through LECCAP) to extend the LCLIP to enable greater focus at a district level. This will allow for a more informed discussion with heads of service.
- **Catchment Flood Management Plans / Shoreline Management Plans / Humber Strategy** which provides good opportunities partnership working between the LCC and the Environment Agency EA which will help adapt the county to climate change, and deliver on commitments for NI189 (Flood Risk Management and Coastal Erosion).
- **Lincolnshire Assembly** (Local Strategic Partnership for Lincolnshire, producing their Sustainable Community Strategy for the County). Flood Risk has been identified as a priority. There are proposals that the Assembly acts as the umbrella body for all things related to flood risk and Lincolnshire. LCC and the EA are currently developing a formal partnership framework, 'Lincolnshire Flood and Drainage Framework' through which the duties placed upon them by the recent Pitt Review and Flood and Water Bill will be delivered.
- **Water Cycle Strategies / Integrated Urban Drainage Study**:-The EA is working with those local authorities bidding for growth point status on the first stage of assessing the ability of environmental infrastructure to facilitate the proposed levels of growth.

Green Infrastructure projects: LCC is working in partnership on the following:

- Lincolnshire Coastal Grazing Marshes – these are vital for farmers, but investment in flood protection and land drainage has made them too dry for wildlife to flourish. LCC is working with the Wildlife Trust to preserve remaining grassland and to restore intensive arable to traditional grazing marsh involving raising of water levels. This should assist adaptation by providing areas for the temporary storage of water in times of flood. Whilst this originated as a biodiversity project, partners are now appreciating the climate change adaptation benefits;
- Coastal Country Park – linked through, but broader than the grazing marshes project. This project aims to provide high quality facilities for visitors and better protection for wildlife, by creating enhanced, extensive and interconnected nature reserves and wildlife areas;
- Sub Regional Country Park for Lincoln – gaining environmental benefit out of the proposed and expected minerals extractions needed to support projected growth in Lincolnshire by developing a green infrastructure network which will provide multiple benefits including flood risk, biodiversity, and water resources;

- Green Infrastructure Master Plan for the Wash – identify what is already there, what the gaps are and opportunities for improvement. The area that the GIMP covers includes parts of the coastal communities where growth, planning and climate change are a major issue; and
- Groundwork Climate Changing Programme – this programme works with local communities to raise awareness of climate change and produce a green action plan. Groundwork are a key stakeholder on the LAA Climate Change Priority Group, taking the lead in developing a plan to deliver the local indicator NI186. There are a number of projects running in Lincolnshire, for example the EA are funding a project at Manby (rural, ex military brownfield) which has a specific focus on adaptation.

Alongside this climate change has been embedded as a priority within all sustainable community strategies as they have been revised. The provision of evidence on what the issues are and why they are important for each district was important in getting this accepted. Again the LAA was an important tool in achieving this.

Coastal Study

The Report of the Panel on the East Midlands Regional Plan (RSS8) recognised the conflict between development and flood risk on the Lincolnshire coast. One of the recommendations of the Panel was that the Lincolnshire Coast should be the subject of a sub-regional study considering all flood risk management and sustainable development issues, and that its conclusions be included in the Regional Plan. The study will consider the future of coastal flood defences in response to climate change as well as other social, economic and environmental considerations with a view to preparing a vision for sustainable development.

This resulted in a moratorium on new major development (not including granted permissions) in the Lincolnshire coastal authorities while this multi agency coastal study focused on delivering sustainable development along the Lincolnshire Coast (taking into account climate change) is produced.

The Lincolnshire Coastal Strategy Study will be asking people living along the coast for their views on how to cope with flooding and erosion over the next 100 years as part of this twelve month strategic review. The study will look at an area of over one third of the county where over 100,000 homes and businesses are at risk from flooding from the sea.



The Lincolnshire Coastal Study Group includes the LCC, Government Office for the East Midlands, the East Midlands Development Agency, East Midlands Regional Assembly, various local councils, the EA, Natural England and the Internal Drainage Boards. The study is taking place between January 2009 and March 2010. It will produce a number of options looking forward 20, 50 and 100 years about how the coastal communities can be developed sustainably in the face of sea level rise. This is a unique study, falling outside of the usual Shoreline Management Plan and Coastal Management Plan remits. It brings together the social, economic and environmental aspects of climate change and growth: development has been capped pending its reporting. The Study covers the districts of East Lindsey, South Holland and Boston Borough.

Outcomes

Local authorities in the county remain at Level 0 of NI188 at the time of writing. As Steve Williams at South Holland Planning Department, who is the LAA Climate Change Priority Group lead for NI188 explains, "the LCLIP work looking at the impact of climate change on services was intended to help us reach Level 1 by the end of March 2009. Lack of resources to prepare the risk assessments has delayed this being achieved. We are all making gradual progress towards Level 1, but plan to reach Level 2 by March 2010".

The partnership approach is now embedded in local authorities and other key stakeholders and organisations across the county are committed to working towards mitigating and adapting to climate change. The Local Area Agreement and the Climate Change Priority Group is recognised as the primary tool for delivery, with LECCAP playing a key networking and communication role at all levels within all organisations.

Learning

The partnership approach, developing a network of relevant people at the right organisation working together on common objectives has played a key role. LCC's focus and leadership on this issue, coupled with central government direction for two tier authorities to work better together has overcome political barriers to working together at this level.

This work involves making tough decisions, so it is important to have the right people around the table. For example, the Coastal Study involves County Council Directors, District Council Chief Executives, the Environment Agency Area Manager, and directors of regional bodies such as the East Midlands Government Office, Development Agency and Regional Assembly, as well as Natural England and the Internal Drainage Board.

Working with key stakeholders in partnership is the only way to achieve successful outcomes that make a real difference to people and communities. It offers the opportunity to share resources, knowledge, passion and in some cases authority. The collective carries more weight.

For more information:

[Lincolnshire Coastal Study](#)

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Liverpool City Council: Involving stakeholders in developing a risk-based adaptation framework

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Summary

Liverpool City Council has led development of a risk-based adaptation framework, on behalf of Liverpool First, the city's Local Strategic Partnership. Climate change is now a focus of the partnership's new Sustainable Communities Strategy, and the Local Area Agreement includes a commitment to National Indicator 188.

Liverpool City Council commissioned external support to develop a 'climate impacts and vulnerabilities' framework in November 2008. This framework was developed through a process involving a wide range of stakeholders including 100 senior officers within the Council and partner organisations. At these workshops, the stakeholders assessed and prioritised climate change risks for their service area, using the Council's own 'risk management' methodology, and identified existing and potential adaptation responses.

The outputs from the stakeholder workshops, combined with desk research, informed an analysis of climate change impacts, risks and vulnerabilities. A draft report, presented in March 2009, identified priority risks and set out a 'framework for action' to meet successive levels of NI188 over the next few years. Following a consultation period, the report will be finalised in June 2009.

This work has already enabled Liverpool City Council to reach 'Level 1' on NI188, and has established a framework for reaching Levels 2-4 in future years. The stakeholder workshops served multiple roles in raising awareness of the issues within and outside the Council, bringing in local, service-based expertise, and generating ownership of the emerging framework for action.

Background

Liverpool City Council is a unitary metropolitan authority, within the North West region. While Liverpool has been the subject of major regeneration initiatives, and has recently developed a high profile as 'European City of Culture 2008', many parts of the city are still relatively deprived. Liverpool First, the city's Local Strategic Partnership, has recently refreshed its Sustainable Communities Strategy to include more emphasis on tackling climate change. The partnership's 'Environmental and Sustainability Task Group' is developing an overarching climate change strategy, covering both mitigation and adaptation. And the city's commitment to 2009 as 'Year of the Environment' provides useful opportunities to promote climate change work in the coming year.

National Indicator 188 has been selected as one of the top 35 indicators in the city's Local Area Agreement. Adaptation was seen as an important new topic area, which would give Liverpool the opportunity to show leadership and also to work closely with partners on a clearly identified climate change task. Liverpool City Council has been



leading development of an 'adaptation framework', on behalf of Liverpool First. Climate change work has strong support from the Leader and a number of keen elected members, and is being led by the Chief Executive.

Initial desk research

In November 2008, the Council commissioned consultants to develop a 'climate impacts and vulnerabilities' framework. The first phase of the study involved desk research including a mini-LCLIP (Local Climate Impacts Profile), analysis of UKCIP02 and future flood risk scenarios, research on Liverpool City Council's current approach to climate change and risk management, a review of good practice and a benchmarking process on adaptation work by other local authorities.

The Council had already begun the process of identifying and prioritising climate change risks and impacts. Some of the initiatives which were already underway or in place included: the formation of a Liverpool City Council Severe Weather and Flood group by the Emergency Planning Unit; work on the recommendations of the Pitt Review; participation in the Local Resilience Forum; the development of risk registers at corporate, service and business unit levels; preparation of business/service continuity plans for all business units across the council; preparation of a Strategic Flood Risk Assessment (SFRA), which considers how flood risk zones are likely to expand as climate change proceeds; and participation in workshops on parks and highways/transport run by UKCIP for the Core Cities group.

Developing a fuller risk assessment

This desk research, and CAG's own service-based 'climate change performance benchmark', were used to prepare briefings for key service areas across the City Council in January 2009. A series of 5 interactive workshops were held, involving around 100 council officers, members and representatives from partner organizations. At these workshops, the stakeholders assessed and prioritised climate change risks for their service area, using the Council's own 'risk management' methodology. This involved use of a risk management matrix as shown below, combined with the Council's own definition of 'impact' and 'likelihood' on a scale of 1 to 4. These scorings were used to identify the priority risks for each service area. At the workshops, stakeholders also identified existing and potential responses to reduce priority risks.

Key risks and opportunities

The outputs from these workshops formed the basis of the consultant's analysis of climate change impacts, risks, vulnerabilities and potential responses, as presented in a draft report in March 2009.

Figure: Liverpool City Council’s matrix for risk assessment

| | | | | | |
|-------------------|-------------------------|-----------------|-----------------------|-------------------|-----------------|
| LIKELIHOOD | 4. Very Likely | LOW 4 | MEDIUM 8 | HIGH 12 | HIGH 16 |
| | 3. Likely | LOW 3 | MEDIUM 6 | MEDIUM 9 | HIGH 12 |
| | 2. Unlikely | LOW 2 | LOW 4 | MEDIUM 6 | MEDIUM 8 |
| | 1. Very Unlikely | LOW 1 | LOW 2 | LOW 3 | LOW 4 |
| | | 1. Minor | 2. Significant | 3. Serious | 4. Major |
| | | IMPACT | | | |

In addition to risks and opportunities common to other parts of the UK, the study identified a number of issues specific to Liverpool, including:

- Liverpool is relatively well located for future water supplies and natural cooling, by virtue of its maritime location close to the Cumbrian mountains;
- Given the city’s historically declining population, inward migration associated with climate change refugees may have some advantages for the city;
- Current risks from flooding (tidal, river-related and rain-related) are significant, but lower than some other parts of Merseyside;
- Rising sea-level will increase future tidal flooding risks, with implications for the spatial development and regeneration of the city’s waterfront; and
- High winds and storms already cause damage to buildings and occasional personal injury/deaths within the city, and climate change may increase these risks;
- Climate change presents opportunities for local businesses, particularly through increased tourism, leisure and the low-carbon economy (including wind or tidal power in the Mersey estuary).

The adaptation framework

The report sets out a ‘framework for action’ to meet successive levels of NI188 over the next few years, and identifies priority areas for further risk assessment and detailed action planning. Immediate priority areas for 2009/10 include: Corporate management; Risk management; Communications; Planning; Infrastructure; Parks and green spaces; Environmental protection; Community resilience; and services for older people and

vulnerable adults. Themes for work in subsequent years include: Estate management and capital projects; Children's services; Housing; Tourism, culture and sport; and Business and the economy. A strong theme emerging from the study has been the need to raise awareness of climate change, both within and outside the Council and its partners, on mitigation and adaptation issues.

Stakeholders and senior decision-makers within the Council and Liverpool First have been consulted on the draft report, through presentations and a further stakeholder workshop at the end of April. The report will be finalized during May 2009. The study has enabled Liverpool City Council to reach 'Level 1' of NI188, and has also established the framework for reaching Level 3 by March 2011 and Level 4 thereafter.

Lessons learned

Stakeholder involvement at a senior level helped to generate commitment in this new area of work. Strong support from the Chief Executive and the lead Council Executive Member for the Environment were particularly important in motivating officers to take the subject seriously. The workshops played a useful role in raising awareness, gaining ownership and identifying priorities. And the involvement of partners from the outset helped to provide a broader perspective on the issues, and to identify areas for joint working. Other success factors were the integration of the methodology with the Council's existing business/risk management activities, and effective briefing of workshop participants prior to each workshop. Christine Darbyshire, leading the study within the Council's Regeneration Policy Business Unit, says that: 'The process we have been through has been comprehensive and effective and has generated a high level interest and positive feedback from other public sector bodies'.

Enabling factors included the leadership provided by a newly appointed Assistant Director for the Environment, as a member of the City Council Leadership Group, working closely with the Chief Executive. Financial resources from the Area Based Grant were used to procure assistance, which was needed both in terms of capacity and expertise. Management of the project from within the Regeneration Policy section enabled wider spread of influence than management from a separate environment department. And recent work on adapting to climate change with the Core Cities group and UKCIP had created an initial platform of knowledge within the Council, which could be built upon during the study.

Greater clarity is needed going forwards on the extent to which adaptation can be developed on its own (primarily focusing on the NI188 indicator and targets), or how much it needs to develop within the context of high level support for sustainable development and climate change generally. Clearer messages on climate change mitigation could have been delivered at the same time if there had been better synchronicity of timing between this work and the emerging City Council Carbon Trust management programme on mitigation, but this was not practical at the time.

The study identified potential conflicts between the longer term needs of adapting to climate change and shorter-term financial considerations. Challenges for the Council

include forthcoming development proposals for coastal areas which may face long-term flooding risks, and the potential cost of incorporating resilience measures into new housing and renovation projects. Further work is likely to be needed on the robustness of local and national climate predictions, to enable responsible management of long term financial risks.

It was hard to close down the debate on how extensive and representative initial partner involvement should be. Some partners have, inevitably, not yet been included. And, as the work develops, operational boundaries will need to be kept under review: some of the work may need to be led by the City Council initially, to maintain a positive momentum, but may ultimately be best tackled at a City Region level.

For more information:

[The Sustainable Communities Strategy](#)

[Climate impacts and vulnerabilities report for Liverpool City](#)

[The North West Climate Change Action Plan](#)

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London Borough of Barking and Dagenham: Integrating climate change within policies and regeneration

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Summary

The London Borough of Barking and Dagenham is integrating climate change adaptation into its overarching climate change strategy, council policies and its specific regeneration activities. The Borough has become a Beacon Council for Tackling Climate Change and demonstrates determination to incorporate sustainability principles into the major regeneration opportunity of Barking Riverside and Barking Town Centre notwithstanding issues of development slowdown raised by the recent downturn.

Barking and Dagenham's climate change activities

The London Borough of Barking and Dagenham in east London is undertaking a range of climate change adaptation activities through its economic development and regeneration functions. For example, the Borough has developed a climate change strategy, which provides it with a framework for action on climate change mitigation and adaptation. 'One of the most important drivers behind Barking and Dagenham's green regeneration is a clear vision for the future of the borough. In the last few years the council has embedded environmental sustainability in all its most important strategies, thus ensuring that projects targeting carbon emissions both within the council and across the borough always receive support by Council staff at all levels'¹².

The [Council's website](#) summarises what the Council is doing to respond to adaptation requirements in the following way:

- 'We are also taking measures to adapt to climatic changes that are already happening. We are assessing the risk to Barking and Dagenham from flooding and making sure existing as well as new communities are protected against this risk.
- We are also thinking about the risk of overheating during future hotter summers and design our public spaces with cooling in mind, for example by using cool light coloured materials and using trees for shading.
- Finally, we are reducing water consumption both in the council by dealing with leaking pipes and educating staff to save water, and are encouraging residents to do likewise'.

This has been prefigured in the Borough's [Core Strategy](#) which states that the Council will produce 'a Climate Change Strategy which will set out how the Council and its key partners will manage its own impact on climate change and undertake climate change adaptation measures'). The local authority has signed the Nottingham Declaration and has decided that no target will be set in 2008/09 in relation to National Indicator 188

¹² Tackling Climate Change Theme Guide, IDeA and WWF, Undated, p. 13

as they are going through the process of executive agreement as a basis for reaching higher indicator levels in future. They aim to achieve Level 2 of by March 2010.

Redeveloping Barking Riverside and Barking Town Centre

An area of climate change adaptation being recognised and responded to by Barking and Dagenham is in regard to the Borough's ongoing spatial development and regeneration. Its policy on Climate Change and Environmental Management says as part of its justification that 'the growth of the borough over the next 20 years provides an excellent opportunity for building 'climate-friendly' neighbourhoods. There is an opportunity to build a new kind of borough with energy-efficient buildings and technology, which relies on renewable energy, as well as buildings, which can easily cope with the impacts of climate change. Such impacts include hotter summers and the increased likelihood of extreme weather events including flooding, water shortages and heat waves. Climate change also brings with it positive impacts such as a warmer climate which is more conducive to outdoor activity and will be suitable for additionally types of plant species and wildlife. It is important new development is designed so that such opportunities can be fully utilised'¹³.

Two regeneration projects where these climate change adaptation points are highly relevant are the major redevelopment site of Barking Riverside and the low carbon approach to renewal of Barking Town Centre. Barking Riverside is situated between the A13 and the River Thames, it is one of the largest development sites in London at just over 800 acres, and is the largest housing development in the Thames Gateway. The vision is for Barking Riverside to provide a model for sustainable living in the 21st century where best practice is used throughout.

As a large brownfield site Barking Riverside has required very substantial remediation, including as low lying land, to deal with possible flooding in future, a scenario made more likely due to climate change. It is therefore intended that the area showcase innovative solutions in terms of climate change adaptation, such as over 40% open space, green roofs and rain water harvesting. For example, the Council notes "Barking Riverside Limited has set forward comprehensive surface water attenuation proposals", which should help adapt to flooding effects caused by climate change. In fact, many of its design components have combined adaptation and mitigation features. An extensive network and variety of living roofs is planned which will include green and brown roofs. As the Council points out 'Installing a green roof can dramatically reduce energy use and costs as well as supporting biodiversity, reducing flooding and combating climate change, by reducing the urban heat island effect, so reducing overheating' (Barking Riverside Summary, LBBD, Undated).

Reducing overheating will be increasingly important in adapting to the hotter summers that climate change will bring. To this end, Barking Riverside is undertaking the first national research in the UK on green roofs in a collaborative project with the

¹³ http://barking-dagenham-consult.limehouse.co.uk/portal/planning_policy/cs/pscs?pointId=1224700278011

Environment Agency, University of East London (UEL) and Dusty Gedge, founder of Living Roofs. This is 'to measure the water run-off from varying living roofs with different substrate depths, to measure their effectiveness at water attenuation. This will also assess level of biodiversity on different types of roofs' (Barking Riverside Summary, LBBD, Undated). The results will be used more widely in local housing development.

Also at Barking Riverside, a wide range of sustainable drainage systems (SUDS) will be incorporated, 'including marsh plants and reeds, permeable paving; raingardens; swales; and attenuation ponds'. These will help with adaptation to flooding events expected to be more frequent in future by slowing down flows, offering more opportunities for surface water runoff, and for local water capture and storage to deal with expected shortages in future. The Council explains that 'The future maintenance burden of SUDS has also been considered and a Community Development Trust will be formed to help manage and maintain certain services, including all SUDS systems'.



Figure: Artist's impression of Barking Riverside (Source: <http://www.barkingriverside.co.uk/projectdescription.htm>)

LB Barking and Dagenham has also been working for some time on the renewal of Barking Town Centre, taking into account the need for climate change adaptation measures, in particular to deal with hotter conditions and the availability of less fuel for journeys by car. The new town square being developed acknowledges the need to adapt to climate change by locating work, services and cultural activities activity closer to home. It is doing so by designing shared facilities, and a fine grain of vertical mixed use in the town square. Another adaptation feature is that the square will be paved with light coloured granite to reduce heating effects. Moreover, a new arboretum is

planned which will provide more shade in the town square in the expected hotter conditions. Also in the town centre, green roofs will help cool buildings in hotter summers. The Council explains their planning advice note on green roofs has been commended by the Nottingham Declaration Partnership.

Lessons learned

Lessons learned by the Borough in relation to awareness raising on climate change adaptation include that more groups could have been consulted. The Council nominated stakeholders such as schools, healthcare professionals, patients, and support groups as groups they could have included. On this basis, they point out that the scope of the consultation was determined more by timescales and officers availability than by opportunities for engagement. They explain that the next steps will be to try and monitor the effect of this initiative from an awareness-raising point of view. The aim is to increase community involvement through events and schemes.

A second area of learning is the need to provide clear and detailed guidance to all stakeholders on how to address climate change adaptation in their field of work. The Tackling Climate Change Theme Guide judges Barking's approach to have proved very successful. They note that taking the Borough's planning service as an example, 'unambiguous and technically sound guidelines in the form of planning policies, planning advice notes and in general all support provided by council staff throughout the planning process have ensured developers were aware of the Council requirements with regard to climate change from the very beginning, at the design stage. The information provided by the Council is on the other hand always user-friendly, so that also small developers can easily comply'.

The Theme Guide also suggests that working with local, regional, national and international partners has ensured the Borough 'has access to a wider range of opportunities in terms of funding and support, thus making it possible for Barking and Dagenham to embark in ambitious projects that would otherwise be out of reach'.

The Council suggests that dealing with climate change adaptation is about providing people with proper advice on what they can do. They cite their planning advice note on green roofs as an example. They also note that adaptation strategies and advice should not be approached in isolation but more holistically, demonstrating to people that action on adaptation has other benefits in relation to climate change mitigation and in the aesthetics of building and area design.

For more information:

[LB Barking and Dagenham's Beacon Council case study on 'community awareness](#)

[LB Barking and Dagenham's climate change adaptation actions](#)

[Barking Riverside development](#)

[LBBD planning advice note on green roofs](#)

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London Rivers Action Plan

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Summary

The London Rivers Action Plan (LRAP) is a partnership approach to strategy development, demonstrating a city-wide approach to the restoration of Thames tributaries, with a strong green infrastructure focus. Whilst the original driver was biodiversity conservation, the partnership approach allowed other significant issues like climate change adaptation to be considered.

This has led to a better understanding of climate change adaptation amongst the partners and recognition that, for some stakeholders, climate change adaptation provides a more compelling argument for river restoration. The Plan and the associated website highlight opportunities and provide practical guidance to local authorities, developers, NGOs, community groups and others.

It was developed in partnership with organisations including the Environment Agency, the Greater London Authority, WWF-UK, the London Wildlife Trust, The River Restoration Centre, Natural England and the Thames Rivers Restoration Trust. Isabel Dedring, Director of Environmental Policy for the Mayor of London, said: "This plan will deliver aesthetic benefits but will also help us prepare for our changing climate. Restoring our rivers will play a part in making London a more attractive place for people to come to live and invest."

Background

River quality in the River Thames has improved greatly since the industrial revolution, but its many tributaries still suffer from the 20th century legacy of confining rivers in concrete channels to combat flooding and enable urban development. Today's aspiration is to restore and improve London's rivers in ways that improve flood risk management; support sustainable regeneration; enhance wildlife habitat; help the city adapt to a changing climate and, by so doing, contribute to a better quality of life for Londoners. The London Rivers Action Plan (LRAP) aims to restore these rivers to their natural state, creating a more sustainable city, as well as reduce flood risk and improving the environment for all. To date, extreme flood and drought events have been relatively infrequent in London and river systems usually recover. However, if the frequency and intensity of these events increase as predicted, then the cumulative impacts will reduce the ability of river systems to recover, especially where they are confined to a narrow corridor.

The original driver for the development of the Plan was to promote river restoration works in order to meet London Biodiversity Action Plan targets. However, the wide partnership approach resulted in a broadening of the agenda to encompass other issues like climate change adaptation. River restoration in London is also a policy in the Thames Catchment Flood Management Plan.



LRAP's aim is to restore 15 kilometres of Thames tributaries by 2015, on rivers such as the Roding, Wandle, Colne and many others. The Plan Partnership includes the Greater London Authority, Environment Agency, Natural England and voluntary organisations including the Thames Rivers Restoration Trust, London Wildlife Trust and WWF UK. It aims to help all organisations such as government agencies, private developers and voluntary groups work together to achieve improved rivers.



Figure: Open water providing space to manage flood risk and provide access to nature (Source: The London Rivers Action Plan)

The Plan will have strong links to the emerging Mayor of London's Climate Change Adaptation Strategy, which includes a significant urban greening initiative. It also flows from the Water Framework Directive.

Thames catchment flood management

- Up to 80% of the floodplain in the Thames area is developed and flood risk will increase unless we take radical steps to improve flood management;
- There are approximately 45,000 properties at risk from a flood that, on average, would be expected to occur every 100 years;
- Most of these flood-prone properties are located in socially-deprived areas;
- When flooding occurs it results in surface water, sewer and fluvial flooding often within minutes of heavy rainfall;
- Because of these rapid occurrences at any time of the year, flood warning time is short;
- The UK Climate Impacts Programme (UKCIP) predicts that flood risk in the Thames basin will increase due to climate change.

The Action Plan

The Plan has been developed as a delivery mechanism to take forward London's river restoration strategies. One of its main aims is to provide a forum for identifying stretches of river that can be brought back to life. Two of its five key aspirations are:

- To improve flood management using more natural processes;

- To reduce the likely negative impacts of climate change.

Flood risk managers are now committed to creating space for floodwater where possible through river restoration activities, in line with government policy outlined in the DEFRA document "Making Space for Water". DEFRA's Planning Policy Statement 25 (PPS25) provides a policy framework to enable the Environment Agency, the London boroughs, developers and local communities to work together to ensure that flood risk is taken into account at all stages of the planning process and help to direct development away from areas of highest risk.

River restoration, as part of a package of changes to the way green spaces are designed and managed, can make a significant contribution to lessening the unpleasant impacts of climate change for both humans near rivers and the wildlife that relies on the habitats they provide. Building climate change adaptation into river restoration projects can produce multiple benefits including:

- Better flood management;
- Improving habitats and corridors for river wildlife; and
- Ensuring that urban development recognises that rivers and associated green spaces are an important part of urban regeneration.

A key objective of the LRAP is to provide a central, strategic and updateable resource of information which documents the opportunities available for restoring London's rivers. To help achieve this, a webpage (hosted by The River Restoration Centre) has been set up. The webpage enables all interested parties to examine options for river restoration in London today, which should help to ensure they are incorporated into the planning process and deliver London Plan targets. The webpage provides a view of the river catchments in the Greater London area. Within each catchment, completed and proposed schemes are shown via a series of geo-referenced dots indicating their location along the river.

One of the key aspects of this document is to help planners, developers, landowners and others recognise where restoration opportunities exist during the early stages of the planning process. Knowledge of the 'status' of a proposed project is therefore a vital piece of information. Status has been divided into four categories as follows:

- Concept only - where a place has been identified as having potential for river restoration but no funding has been allocated to scope these ideas.
- Early preparation - where initial scoping plans exist identifying constraints and outline proposals.
- Planned and designed - projects that have designs in place and sufficient technical detail to deliver works on the ground.
- Funding and commitment to deliver - projects to start with known timescales for completion.

Outcomes

The main outcome of the Plan in relation to climate change adaptation has been awareness raising about adaptation issues. Whilst the original driver was biodiversity improvements, the partnership approach enabled climate change adaptation to be also used as a key driver (and beneficiary) of river restoration projects. Pete Massini (Natural England) saw the benefit of this approach: “we encouraged people to think about river restoration from a different angle, in many ways climate change can be seen as a more powerful driver than biodiversity”. This is leading to adaptation being used to justify new restoration projects.

The Plan highlights existing schemes that have had adaptation benefits, as well as identifying new adaptation opportunities. Sutcliffe Park in Greenwich on the River Quaggy was an area where floodwaters could be stored and is an example of where wetland and river habitat have been added as part of river restoration with benefits for local residents. The Mayes Brook, Barking, Essex has been identified as an opportunity to demonstrate best practice river restoration principles that integrate climate proofing with other key aspirations.



Figure: Sutcliffe Park (Copyright: David Hatch)

The restoration of habitats and physical processes improves resilience of systems to extreme events and strengthens the green network within London by reducing habitat fragmentation. There is also evidence from user studies which shows that restoration projects have resulted increased park usage, i.e. an action to address long-term pressures delivers immediate gains.

Learning

The partnership approach resulted in the river restoration agenda broadening from biodiversity into other areas, including adaptation. The process has highlighted that the benefits of interventions like river restoration can be seen in more broader terms encompassing climate change adaptation. A number of green infrastructure interventions can thus be additionally justified on adaptation grounds (e.g. green roofs), creating broader synergies. This is seen as a potential advantage for those promoting such schemes.

Conversely, a broadening of agendas can lead to 'motherhood and apple pie solutions', where every scheme is said to have adaptation benefits. The Plan sets out various examples of current and future river restoration projects and has identified some where climate change adaptation will be the principal driver. Whilst this is seen as strengthening the case for restoration, it can be difficult to demonstrate in practice.

The Plan benefits from the emergence of the Mayor's Climate Change Adaptation Strategy: the development of such a Plan in isolation from a similar statutory or overarching strategy would not be so powerful.

Implementation remains a key challenge. The formation of a London River Restoration Group is seen to be critical in this regard.

For more information see:

[London Rivers Action Plan](#)

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Manchester City Council: Undertaking a 'Mini-Stern' report and delivering adaptation actions

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Summary

Manchester City Council has been working with partners across the Greater Manchester area to take forward a coordinated programme of action on climate change adaptation.

In August 2008, the Commission for the New Economy published a 'Mini-Stern' report, a groundbreaking piece of work that found that failure to adapt to the legislative, policy and physical aspects of the climate change agenda could have profound effects, with potential losses of £20bn to the economy of the City Region by 2020 and £70bn for the North West as a whole.

Sparked in part by the conclusions from this Mini-Stern report, Manchester City Council is now taking forward a three-year programme of action on climate change adaptation, working with experts in climate change from the University of Manchester and Red Rose Forest.

The Council is also taking forward a green roofs programme, which has led to the installation of 25 green roofs since 2005 and now has plans to help roll this out much further.

This adaptation work has benefitted from the partnership work with leading climate change experts, as well as the involvement of councils from the Greater Manchester area. It has also been driven by high-level leadership from the Council's Chief Executive.

Background

At the beginning of 2009, Manchester City Council published [Manchester Climate Change: Call to Action](#). This document demonstrates Manchester's commitment to turn the challenges of climate change into an opportunity to improve the city. This will be achieved through a process of wide ranging engagement with Manchester's residents, local strategic partners, and relevant local interest groups including charities, private sector organisations and other stakeholders. The aim of the process is to bring together local, community-based action with the influence, capacity and resources of organisations in government and business.

There are a number of drivers for the City Council's work on climate change:

- New Government legislation and initiatives, particularly the Climate Change Act.
- Political support for action on climate change at a senior and Chief Executive level.
- Manchester City Council's desire to be at the forefront of climate change activity.

- The City Council's awareness, via the mini-stern findings, of the 'first mover' economic advantage of taking early action to adapt to climate change.

The City Council's work on climate change adaptation is part of a three-year programme of activity and is linked, via a number of projects with the University of Manchester's Centre for Urban Regional Ecology (CURE), to a wider plan for the whole of the Greater Manchester area, which encompasses nine other Local Authorities.

An Environmental Strategy Programme Board oversees Manchester City Council's wider environmental strategy, including work on adaptation. The board is a task-oriented project management vehicle chaired by the Council's Chief Executive. The board, which also includes representatives from the local transport authority, the joint health unit and the airport, has helped to drive the Council's climate change work, ensuring that there is high-level buy-in and support to all its adaptation projects.

The 'Mini-Stern' Report

The *'Mini-Stern for Manchester': Assessing the economic impact of EU and UK climate change legislation on Manchester City Region and the North West* report, was published in August 2008. It was commissioned by [Commission for the New Economy](#), a body responsible for leading on economic development, employment and skills on behalf of the Manchester city region.

The report was initiated following debate amongst senior public sector figures across the city region.

The report:



- Focuses on what could be done in the short-to-medium term to develop strategies to respond to the impact of climate change legislation in the Manchester City Region and the wider North West.
- Assesses economic opportunities for the area and identifies areas where mitigation response would be required to safeguard against potential negative impacts.
- Considers how policy-makers in the City Region and the wider North West could best intervene to assist and promote economic growth in the context of an emerging new low carbon economy.

Figure: 'Mini-Stern for Manchester report cover, 2008

The headline conclusion of the report is that failure to adapt to the legislative, policy and physical aspects of the climate change agenda could have profound effects, with potential losses of £20bn to the economy of the City Region by 2020 and £70bn for the North West as a whole. At the same time, however, the report found that the agenda could also present a significant economic opportunity for the City Region if it takes early action.

This world first report has received widespread national and international interest. It is also spurring a raft of the further work in Greater Manchester region on both mitigation and adaptation, including a piece of work to examine how new and existing businesses can be supported to adapt to climate change.

Partnership-working on climate change adaptation

Further to the findings of the mini-stern report, a major driver behind Manchester's climate change adaptation work has been the introduction of National Indicator 188. While NI188 has not been adopted as a priority in Manchester's Local Area Agreement, the development of the indicator has assisted in raising awareness of the need for work around adaptation.

One of the strengths of the City Council's work on climate change adaptation has been its success in developing partnerships with key local organisations. The Council is working with leading experts from the University of Manchester's Centre for Urban Regional Ecology (CURE) and the urban forestry charity Red Rose Forest to assess:

- How the climate in Manchester and Greater Manchester is likely to change over the next 75 years.
- How these changes to weather and climate are likely to affect Council and partner services to the public.
- How to plan to make sure that Council and partner services continue to operate and improve in a changing climate.

As part of this work, Professor Nigel Lawson, from CURE, is leading the development of the Greater Manchester Local Climate Impacts Profile (GM-LCLIP). The GM-LCLIP will identify the principal weather related impacts that have occurred in the Greater Manchester area over the past 50 years. This information could then be used to predict, using climate change modelling techniques from the UK Climate Impacts Programme, likely weather and climate related impacts over the next 75 years.

The university, in conjunction with the City Council, elected to complete an LCLIP at a Greater Manchester level. This decision met both the City Council's strategic aim to work in a joined up way with other GM authorities, and satisfied the University's scientific basis that weather and climate events would impact across the conurbation.

The LCLIP has generated interest from across Greater Manchester, including those Local Authorities who have NI188 in their LAA. A number of local authorities in the

area have submitted data as part of the process, which has helped to develop a much richer and more meaningful picture of past weather related impacts than would have otherwise been possible

Red Rose Forest, meanwhile have helped the City Council to develop a vulnerability assessment of priority services. To do this, it has undertaken an analysis of six critical service areas, including a registered social landlord, corporate technology services, adult social care, environmental services, Leisure & Parks services, and highways. Advice and input has also been gained from Manchester City Council's head of business continuity, head of risk management, and head of civil contingencies. The analysis has examined the potential impacts on each service of an increase in the frequency and intensity of extreme weather events, as well as more slowly changing climatic effects. The results of this work will be shared across Greater Manchester Local Authorities.

Work will shortly begin on planning to achieve levels 2 - 4 of NI188. Part of the work to reach Level 2 will look at the feasibility of objectively costing the risks and impacts. For example, it will look at whether it would be possible to cost the damage and disruption caused by fallen or hung trees, such as working hours lost, property damage and so on. This work will be delivered in partnership with the University of Manchester.

The work has had unexpected benefits. These include helping to raise awareness of the need for risk management as a core competency for all service managers in the Council. New, successful, working relationships have also been developed between the Environmental Strategy and Business Continuity Departments, the latter having helped to bring a structured approach to the Council's work on adaptation. More broadly the work on NI188 is starting to raise awareness across council services and partner organisations of the impacts that climate change may bring.

Corin Bell, Green City Project Officer, has also found that individual interest has been a driver for the work. It is felt that issues such as climate change are more likely to be driven, in part, by the passions of individuals, and this has certainly been the case for adaptation. It was particularly noted that the consultants at both the University of Manchester and Red Rose Forest had gone "above and beyond the call of duty."

The Green Roofs Projects

One of the very practical ways that Manchester is adapting to climate change is through its work on green roofs.¹⁴ There are currently two broad green roof projects ongoing:

1. The first is a localised project that focuses on getting communities involved in the process. One example is a collaboration with SureStart centres around Manchester whereby the Council is helping to put a green roof on one of its buildings and using this as a training event to enable other, similarly built,

¹⁴ A green roof is any roof space that can be used to grow plants, crops, grasses, moss or any other vegetation the roof can support.

SureStart centres to do the same. The project has led to 25 green roofs being installed since 2005.

2. The second project focuses on developing a Green Roof Programme for Greater Manchester. The overall aim is to increase the number of green roofs across GM. This will be achieved in the first instance by conducting a number of feasibility studies to enable the installation of practical examples of green roofs within Manchester City Centre. The programme intends to assess the barriers that currently exist to the installation of green roofs in existing buildings, and to develop practical guidance for use by developers, architects, planners and other building professionals.



Figure: Manchester is adapting to climate change is through its work on green roofs. (Source: Wild About Manchester, Green Roof Studies)

Manchester City Council also seeks to raise awareness of the benefits of Green Roofs; including reduced storm water run off, reduced air pollution and dust, a reduction in the urban heat island effect, increased wildlife habitats, improved health and attractive open spaces, protection of the buildings roof from damage and reduced heating and cooling costs.

Lessons learned

Expertise provided by the University of Manchester and Red Rose Forest has been invaluable. In particular, engaging an external contractor to conduct the assessment of current levels of preparedness of MCC services to the effects of climate change has ensured that the process has been undertaken in an objective manner.

A critical factor in the success of the work to date has also been the senior-level support from the Environmental Strategy Programme Board. Having the Chief Executive as Chair of the Board has brought with it a level of engagement that would not have been possible otherwise.

A real challenge for Corin and her colleagues, nevertheless, has been mainstreaming the adaptation work across the Council, “Engaging service managers has been far more difficult than they realised – they are really busy people, and the agenda does not always seem automatically relevant to them.”

Corin also offers some thoughts about what might have made mainstreaming work on NI188 easier, “The title of the indicator has been something of a barrier. Calling anything climate change can side line it as a “green issue”. I would suggest that this indicator falls better under the heading of ‘continued service provision under a changing environment’”.

Scoping the work on adaptation has also been a problem. “Adaptation is a massive agenda, we had to be very clear on defining the focus of this project in order to achieve something tangible and practical”, said Corin. “There are a number of risks at the national and international level that are related to climate change adaptation, but far beyond the scope of the project. For example the risk of future increased pressure on resources through movement of large numbers of people from places such as sub-Saharan Africa towards places like Manchester. Global issues such as this are unpredictable and too big for this project, although we do need keep an eye on them at the same time.”

For more information:

[Manchester Green City](#)

'[Mini-Stern for Manchester](#)': Assessing the economic impact of EU and UK climate change legislation on Manchester City Region and the North West, August 2008.

[Commission for a New Economy](#)

[Manchester Climate Change: Call to Action](#)

[Red Rose Forest](#)

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Middlesbrough Council: Developing a climate change community action plan

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Summary

Middlesbrough Council engaged partners and community groups in developing a Climate Change Community Action Plan (MCCAP), covering both mitigation and adaptation, over the period 2002-2004. The Action Plan was developed through an extensive engagement and consultation process with a range of different partners and sections of the community. This process had top-level support from the town's elected Mayor and key Executive Members.



Figure: Middlesbrough's Climate Change Community Action Plan (Source: www.middlesbrough.gov.uk)

Since the plan's publication in 2004, a series of annual work programmes have ensured that progress has been made against the MCCAP's priority objectives. Adaptation actions have included physical measures to reduce flood risks, changes to home-care systems to reduce the risks of heat waves for vulnerable service users, and the incorporation of climate change issues into the Council's environmental management system.

The MCCAP has provided a useful community-wide framework over the past 5 years, but current activity by the Council and its partners goes beyond the original action plan. MCCAP will shortly be reviewed and a more comprehensive adaptation strategy will be developed with partners, responding to the requirements of NI188.

Background

Middlesbrough Council is a unitary authority, in a predominantly urban area bordering the River Tees. Deprivation levels are relatively high in national terms. The Council has prioritised sustainability issues over a long period: Middlesbrough has been an 'Environment City' since 1992 and has had a dedicated climate change officer in place since 2002 – possibly the first in the country. Over the period 2002 to 2004, the

Council engaged partners and community groups in developing a Climate Change Community Action Plan, covering both mitigation and adaptation.

Over the years, the Council and its partners have undertaken a great deal of work on climate change issues. The Middlesbrough Partnership prioritised as one of the top 35 indicators in its LAA because of the sense that more needed to be done on adaptation. The Council judges itself to be at Level 2 of NI188 (as at March 2009), and is aiming to reach Level 3 by March 2010 and Level 4 the following year. The Council and Partnership have allowed this extended period of time to ensure that skills and knowledge are built up within both the Council and partner organisations, and that measures are effectively embedded in strategies and business plans.

Development of the Climate Change Community Action Plan

Middlesbrough signed the Nottingham Declaration on Climate Change in 2002, stimulated by the election of a new Mayor committed to climate change issues. A climate change officer was appointed to take forward the commitments involved in the Declaration. From the start, it was clear that adaptation would be a vitally important aspect of climate change work: flooding was already a priority issue for the town, following severe floods during 2000.

The first step for the Environmental Sustainability Team was to hold a series of meetings and workshops involving key people from different partners and sections of the community (e.g. Community Councils, Environment Agency, Tees Valley Wildlife Trust, and the University of Teesside). These meetings placed as much emphasis on adaptation as on mitigation. Through these initial meetings, a formal Climate Change Partnership was established, which then oversaw the preparation of a public consultation document on climate change. The Local Strategic Partnership – the ‘Middlesbrough Partnership’ – was supportive of this process.

An extensive public consultation process led to the development of the Middlesbrough Climate Change Community Action Plan (MCCCAP) in 2004. This process had top-level support, from the Mayor and the Executive Member for Community Protection, who chaired the public meetings during this process. The MCCCAP presents a number of key actions for the Council and its Partners on ‘Coping with the Weather’, as well as accompanying recommendations on climate change mitigation. Since the Plan’s publication in 2004, a series of annual work programmes has ensured that progress has been made against the MCCCAP’s priority objectives. The following sections discuss how adaptation actions have been taken forward in three key areas: reducing flooding risks; taking action on heatwaves; and incorporating climate change into the Council’s environmental management system.

Reducing flood risks

Severe floods in 2000 led to high awareness of flood risks within the town. A Scrutiny Panel reviewed flooding problems in Middlesbrough, and identified all major sites of

flood risk. The Council and its partners were aware that climate change impacts would increase the risk of flooding.

One flood risk area was adjacent to Albert Park. Several flooding incidents, involving the beck (stream) running along the edge of the park, had caused damage to local businesses and houses. A renovation programme for the park as a whole was developed, using lottery funding. The opportunity was taken to incorporate works to the beck and lake in the park, to increase water-holding capacity. Flood risks to downstream properties were reduced by enabling the lake to store an extra 20,000 cubic metres of storm water. Since these works have been put in place, prior to 2004, they have provided adequate flood protection for the Albert Park area.

Another initiative has been the reinstatement of 'meanders' on Ormesby Beck, in partnership with the Environment Agency and the Tees Valley Wildlife Trust. The meanders have been improved, and where necessary reinstated, so that they will hold more water and reduce flood risks downstream. This has also regenerated the area for wildlife. The current MCCCAP work programme includes work relating to management of several other becks in the town, as well as work on surface water management, in line with the recommendations of the Pitt Review.

Taking action on heatwaves

Middlesbrough Council's social care services have been working with the Primary Care Trust to implement national 'Heat-Health Watch System', which forms part of the Department of Health's Heatwave Plan for England (2008). Within Middlesbrough, procedures have been put in place to ensure that vulnerable groups in the community are properly looked after in the event of a heatwave. Social Care teams identify 'vulnerable service users' who are defined using five criteria: those who are housebound; have complex health needs and medical conditions; have complex physical and mental health needs; live alone and have no informal support; and those who are part of a family which is vulnerable as a whole. Additional support during extreme weather conditions is targeted at service users who are vulnerable under these criteria and who normally receive contact only once a week or less. Each Social Worker has gone through their caseload and matched service users against the matrix and recorded on each case file whether or not the service user is considered 'vulnerable' to extreme weather.

Integrating climate change into the Council's environmental management systems

The Council has developed its own ISO14001-compatible environmental management system (EMS), with support over the years from Forum for the Future. The Council's EMS manager, Peter Kettlewell, has worked with a wide range of EMS groups drawn from services identified as having significant environmental impacts (e.g. pest control).

Since 2004, a climate change impacts module has been incorporated into the environmental management system. Through a long-standing partnership with Forum

for the Future, a Forum Scholar helped to develop this module. As well as raising awareness of climate change issues, this module involves individual EMS groups in identifying potential climate change impacts, and assessing the likelihood and severity of the impact. It then helps the EMS group to identify potential actions. This process complements the Council's wider Risk Management procedures. The Risk Register identifies 'not reacting to climate change' as a key risk for the authority, and incorporates climate change risks into Business Continuity Plans.

So far, at least 25 of the Council's 30 EMS groups have used the climate change module. Within EMS, priority has been given to those areas with the most significant environmental impacts. Council officers have also provided training and support to encourage partners and suppliers to improve their own environmental management. EMS partners completing the climate change module have included Middlesbrough Environment City (MEC), Mouchel's ICT team, and Groundwork South Tees.

Next steps

The MCCCAP is now nearly 5 years old, and has helped trigger a Council-wide Carbon Reduction and Climate Adaptation (CRACA) action plan. The MCCCAP has provided a useful community-wide framework, but current activity by the Council and its partners goes beyond the action plan presented in the original document. In progressing towards NI188, the Council is reviewing the MCCCAP, and developing a more comprehensive adaptation strategy which covers all areas of activity.

Lessons learned

Early consultation and political support were key to Middlesbrough's success on climate change adaptation. Engagement of key partners helped to identify initial priorities, and extensive public consultation resulted in a strategy which had broad ownership and support. The high level of political support provided by Middlesbrough's elected Mayor and lead councillors has given Middlesbrough the edge to become a leading authority.

The engagement process was helped by the involvement of 'Middlesbrough Environment City' (MEC), a community-based organisation which actively involves local people on a range of environmental improvement projects. Given the levels of deprivation in Middlesbrough, it has been important that MEC and the Council promote sustainability in its widest sense. Activities may not be 'badged' as climate change initiatives, but emphasise improvements to local people's health or quality of life.

Council officers recognise that business involvement in climate change work could be stronger. While there is some representation on the Climate Change Partnership, it is difficult for business people to give up their time to attend meetings and events, particularly in the current economic downturn. Work to extend business involvement is underway, involving RENEW, the Green Business Network (led by the Environment Agency) and the Council's Economic Development and Environment Departments.

An early enabling factor for Middlesbrough's work was its involvement in the national 'Environment City' programme. Like the more recent 'Beacon Council' award, this recognised the Council's emerging work on environmental issues, helped to generate a sense of pride and thereby acted as a stimulus for further action.

The Council's long-standing membership of Forum for the Future has also been a positive influence. The Forum has provided 'Forum Scholars', who have undertaken useful work on sustainability issues. It has also provided high level support and helped the Council to run two national conferences and other events on climate change issues.

Bob King, Environmental Sustainability Coordinator, believes that the National Indicators are helping to integrate climate change concerns into corporate policy development, and that it is helpful to have the focus on NI188 within the top 35 indicators for Middlesbrough's LAA. But he feels that there is a risk of 'guidance overload' on climate change issues and that more coordination of guidance is needed.

For more information:

[The Middlesbrough Climate Change Community Action Plan](#)
[IDeA 'Tackling Climate Change' theme guide](#)

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Newcastle City Council: Developing an adaptation action plan

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Summary

Newcastle City Council is in the process of developing their adaptation action plan to support the delivery of their Climate Change Strategy (2008). Climate change scenarios, tools and briefings have been used to raise awareness of climate change across Council service areas, while flooding in the city has helped focus attention on the local impacts of the issues. Member and senior officer leadership has been critical to progress to date and their engagement is likely to be critical to the development of a city-wide strategy with the recently formed Newcastle Climate Change Partnership.

Background

Newcastle City Council is in the process of developing a climate change adaptation action plan and a more complex city-wide strategy and action plan.

Newcastle City Council signed the Nottingham Declaration in September 2006 and in January 2007, the City Council Executive agreed to implement its obligations. To demonstrate the Council's commitment, the Council, through a dividend from the City Airport funded a dedicated officer for 2 years and a 5 year funding package for climate change.

The Climate Change Officer currently co-ordinates the Council's work on climate change, as well as providing co-ordination for Newcastle Climate Change Partnership – a sub-partnership of the Housing & Environment Partnership of the Local Strategic Partnership. While the Newcastle Partnership has not signed up to NI188 under the Local Area Agreement 2008-11 due to local priorities, adaptation has been a fundamental part of the Council's Climate Change Strategy.

Understanding the risks of climate change

To inform the Strategy, the Climate Change Officer used a number of tools to understand and communicate the risks and impacts of climate change to officers around the Council. These tools included the UK Climate Impacts Programme BACLIAT (Business Areas Climate Impacts Assessment Tool), guidance on the Nottingham Declaration Partnership website for Council service areas and UKCIP02 climate change scenarios. "The UKCIP02 scenarios were useful, and the 2009 Climate Projections are likely to be even more useful with information on the probability of climate change risks", says Adrian McLoughlin, "but we don't have the expertise to translate these risks into likely impacts on service areas, for which Service Managers don't really think in timescales of 2050 or on a macro-level". The forthcoming UKCIP training programme on the new Climate Projections is expected to help improve understanding of climate change risks and impacts.

Newcastle City Council also helped fund the [North East Adaptation Study](#) which included local analysis of the city using the Environment Agency's Rainfall and Weather Impact Generator (EARWIG). While the model operates at 5km by 5km scale of resolution, City Council services' intelligence continues to inform service planning. Previous studies, such as the 2006 report on Climate Change Adaptation on the River Wear have also helped inform the Council's adaptation responses. The Council has decided against undertaking a Local Climate Impact Profile as it is not sure that it would add value to these studies and to the understanding of adaptation responses by individual Council services. An initial assessment of local newspapers articles from the North east study shows a patchy coverage of past known severe weather events.

"What's happening now – that's what people are concerned about ... people aren't that worried about the impacts of climate change yet, but recent flooding certainly raised people's eyebrows", says Adrian McLoughlin. Flooding has been the primary driving force behind Newcastle City Council's work on climate change adaptation. On the 5th and 6th September 2008 the city received 1.8 times the average monthly rainfall in 24 hours causing flash flooding along the Ouse catchment in the Red House Farm (Fawdon), Brunton Park and Whitebridge areas of Newcastle. Around 80 properties were flooded and roads were closed, see pictures below.



Figure: Flooding in Celandine Close, September 2008 (Source: Recent Flash Flooding Incidents in Newcastle – Preliminary Report, 2008)



Figure: Brandling subway, September 2008 (Source: Recent Flash Flooding Incidents in Newcastle – Preliminary Report, 2008)

The flooding raised awareness across officers and councillors of the likely impacts of current and future climate change, while *The Pitt Review: Lessons learned from the 2007 floods* and Planning Policy Statement 25: Development and Flood Risk prompted a more proactive approach to flooding and drainage management and greater collaboration between the Environment Agency, Northumberland Water, WSP contractors and the City Council.

Integrating climate change adaptation within Council services

The Climate Change Officer has worked to raise awareness of the risks and potential impacts of climate change across the Council by preparing and disseminating guidance to Head of Service. Work with officers across the Council to agree priorities and objectives for climate change adaptation culminated in the setting of three core work programmes as part of the City Council's Climate Change Strategy:

- Integrated drainage and flood management
- Buildings infrastructure and warmer weather
- Green spaces

A fourth priority 'Resilience planning and community awareness', was to be integrated across the three working group.

Detailed action plans for each work programme have been developed with input from officers across the Council and include actions to:

- Consider water management, flood risk and sustainable urban drainage systems within new developments
- Minimise disruption to the transport system from high intensity rainfall through collaborative working with partners
- Ensure that the design of new buildings, bridges, culverts and surface drainage systems take account of extreme summer temperatures, the risk of subsidence in drier summers and autumns
- Create and maintain an urban network of trees, green spaces and habitats that is robust to climate extremes and minimises danger to property or human life
- Improve awareness of climate change risks and the actions that communities can take to reduce their exposure to risk, and to develop flood and heat wave response plans.

Published in February 2008, the Strategy recognises that the 'adaptation agenda requires a more long-term perspective, and is 'less well developed within the Council'. Adrian McLoughlin agrees that this action planning is a developing process and is not yet a perfect model. The Council's action plans have primarily focused on the three themes and types of climatic change.

In a move to develop a city-wide Climate Change Adaptation & Mitigation Programme on behalf of newly formed Newcastle Climate Change Partnership, new internal and external working groups are being formed and will be co-ordinated under the Council's internal Environment & Regeneration Programme Board and the (external) Environment & Housing Partnership, see draft structure below.

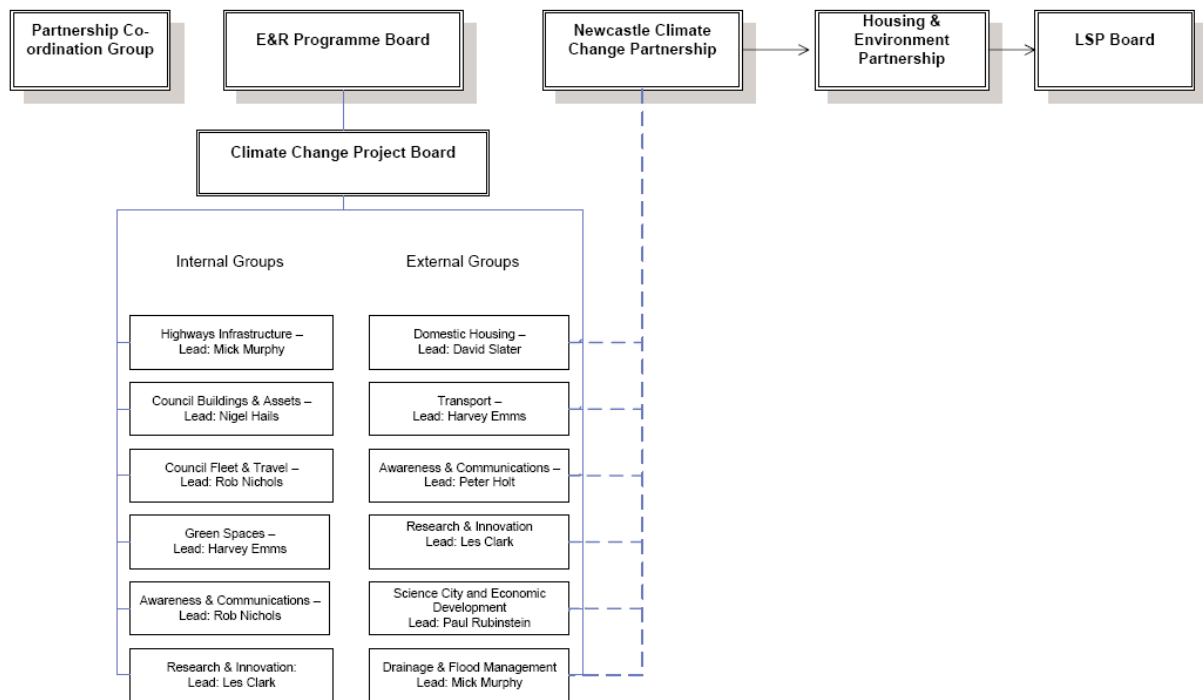


Figure: Climate change adaptation and mitigation response programme structure

This new structure is intended to increase the pace of delivery on both mitigation and adaptation, whilst also helping to formalise the work programme, for which leadership and delivery has largely depended on the good will of individuals. The City Council report that, with its public commitment to climate change adaptation, assessment of climate change risks and vulnerabilities and forthcoming Climate Change Adaptation Action Plan to be published in the autumn of 2009 it hopes to reach Level 1 of NI188 by the end of 2009/10, Level 2 by 2010/11 and Level 3 by 2011/12.

Lessons learned

Reflecting on progress to date, the Climate Change Officer considers that members have provided a strong steer to the Council's climate change work. "We are fortunate that we have dedicated, well informed councillors who continually challenge officers about our response to climate change through the procurement and planning process" says Adrian McLoughlin.

His suggestion to other local authorities is to identify leaders at a senior level within each service area and gain their engagement from the outset. "As a Climate Change Officer you have to build up a fairly detailed picture of what services are already doing and planning, and have to identify how you can add value".

Scenarios and tools have been useful in raising awareness of potential climate change, but, according to McLoughlin, people do not yet see climate change as a significant

threat. But as understanding develops, he has no concerns that it will not rise up the political and strategic agendas.

For more information:

[Newcastle City Council's climate change work](#)

[Newcastle City Council Climate Change Strategy \(February 2008\)](#)

[Climate Change Adaptation on the River Wear, Summary Report](#)

[Update on progress on city-wide Climate Change Strategy \(29 January 2009\)](#)

[Report on flooding in Newcastle \(September 2008\)](#)

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North East Climate Change Adaptation Study

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Summary

The award-winning North East climate change adaptation study was led and funded by a wide range of regional bodies working in partnership, with expert input from a number of technical specialisms, supplemented by local expertise and knowledge from officers working for various organisations across the region. It provides high resolution data on future climate changes and sector-specific analysis of the impacts and necessary responses. It is acting as a catalyst for adaptation action across the region, including meeting the challenges of NI188.

Although there are benefits in carrying out such a study at the regional level, particularly in terms of economies of scale, the approach is highly scaleable and, with some expert input, could prove particularly useful at the local level in responding to the demands of NI188.

Background



The North East region is made up of the four sub-regions of Northumberland, Tyne & Wear, County Durham and Tees Valley. Northumberland and County Durham are principally rural areas with market towns and some small urban conurbations. Tyne & Wear and Tees Valley are major urban conurbations and heavily dominated by various commercial and industrial centres. Following local government reorganisation in 2009, the region is now made up of 12 unitary local

authorities.

The North East Climate Change Adaptation Study was launched in 2008. ClimateNE, the regional climate change partnership, led the study, which is intended to provide a catalyst and focus for adaptation action across all sectors – public, business and voluntary – throughout the region. In April 2009 it gained a Special Award for Sustainability from the Institute of Civil Engineers North East.

Developing high resolution data to support local adaptive action

The impetus for the study stemmed from a growing awareness in the region that local organisations, particularly local authorities, were beginning to develop adaptive responses to climate change but were doing so with low resolution data about future

climate changes which limited the extent to which they could confidently develop locally specific action plans. A previous Environment Agency and Regional Flood Defence Committee [study](#) examining potential climate change impacts on the River Wear catchment highlighted the benefits of developing higher resolution data. A decision was therefore taken to extend this approach across the region in order to provide a catalyst for widespread and effective adaptive action at the local level.

Collaborative development of the study

This was a truly collaborative study, led and funded by a wide range of regional bodies working in partnership, with expert input from a number of technical specialisms, supplemented by local expertise and knowledge from officers working for various organisations across the region.

Adrian Hilton, the Regional Climate Change Coordinator, suggests that this collaborative approach underpins the success of the study: "The study shows the benefits of an independent and representative group (ClimateNE) working in close partnership across the region towards a common aim". Dr Nick Cooper from Royal Haskoning, the consultancy appointed to develop the study, concurs: "The project success is mainly due to the excellent collaboration of the Partners involved and to the combination of state-of-the art science with the practical 'on-the-ground' knowledge and experience of those involved."

The study was managed by a Steering Group involving:

- ClimateNE, the regional climate change partnership;
- Government Office for the North East;
- One North East, the regional development agency;
- North East Regional Assembly, which closed in March 2009;
- Environment Agency;
- Northumberland Strategic Partnership;
- Association of North East Councils;
- Newcastle City Council;
- Gateshead Council; and
- United Kingdom Climate Impacts Programme.



engineers.

This study was undertaken by consultants Royal Haskoning, with specialist support from Newcastle University. Technical expertise from a number of different disciplines was utilised in the assessment of climate impacts, including: climatologists; hydrologists; river, coastal and drainage engineers; mast and tower engineers; transport and highways engineers; structural engineers, geomorphologists; and geotechnical

A wide range of organisations, including local authorities and infrastructure and transport providers amongst others, also contributed local knowledge through consultation and through a series of four workshops that were held across the region in October 2007. The workshops were a key building block for the study, with each one being used to:

- identify the assets managed or services provided by each organisation, noting locations, maintenance regimes, conditions, design standards, etc., where available;
- identify any recorded or anecdotal trends in weather patterns over time;
- consider historic impacts associated with weather events and assess how these may change over time with respect to climate change; and
- consider adaptation that has taken place to date, and what might need to be done in the future.

A wide range of organisations provided funding for the study. One North East, the regional development agency, contributed significant funding and other key funders included ClimateNE, the Northumbrian Flood Defence Committee via the Environment Agency, Northumberland Strategic Partnership, Tees Valley Climate Change Partnership, Newcastle City Council, Gateshead Council and the County Durham Sustainability and Environment Partnership.

Producing a detailed web-based resource

The North East Climate Change Adaptation Study projects weather changes in the region to the 2050s, using the Rainfall and Weather Impact Generator (EARWIG) model, developed by the Environment Agency and Newcastle University. The EARWIG model operates at a 5km by 5km scale of resolution (compared to the 50km by 50km resolution of UKCIP02 data), which has enabled more detail to be provided than has ever previously been available across the region. EARWIG is one of the suite of models due to be included with the UKCP09 projections.

The study examines the impacts of these weather changes on current services, assets, communities, business and infrastructure in the region, identifies what should be done to adapt to this and recommends the action that needs to be taken by different organisations.

Information on climate changes, impacts and the necessary responses is provided at three different levels:

- regional;
- sub-regional; and
- local authority (including at the level of the former lower-tier authorities).

At the local authority level, detailed information on impacts and adaptation responses is provided for the following sectors:

- transport;
- public services;
- utilities;
- industry and business; and
- heritage, tourism and leisure.

Information on impacts and adaptation responses is also provided in relation to the following environmental consequences:

- flooding and drainage;
- coastal erosion; and
- groundwater and mine water.

In providing such a high level of detail, the study seeks to enable organisations and businesses from the public, private and voluntary sector across the region to respond more confidently when identifying what they need to do to adapt to climate changes. To illustrate some of the recommended adaptation responses, the study also provides four case studies of adaptation in practice.

In order to maximise accessibility, the findings of the study are presented on a dedicated project website, www.adaptne.org.

Outcomes

The study appears to have acted as a catalyst for local adaptive action. Eight of the twelve local authorities in the region have included NI188 (Planning to Adapt to Climate Change) in their Local Area Agreements and testing stretch targets have been set. For example, one local authority has set a target of reaching level four in the NI188 guidance in the next three years.

The outputs of the study appear to be being widely used in the development of Local Climate Impacts Profiles (LCLIPs) and adaptation action planning. A good example of this is the production of a strategic framework for adaptation produced by the Local Strategic Partnership for Northumberland. Drawing on the findings and recommendations of the regional study, the [Heat is On](#) sets out a strategic framework for climate change adaptation for Northumberland. As well as identifying strategic priorities for the county, the framework includes a detailed agenda for action for each of the six themes in the Sustainable Communities Action Plan. The framework is now being used by service heads in the new unitary authority for Northumberland.

The outputs of the study are also being utilised by local authorities to inform the development of their Local Development Frameworks and Local Transport Plans.

In addition, the study is influencing wider action within and outside the region. Drawing on the findings of the study, an analysis of the economic impacts of climate change on the North East is now being conducted. In the neighbouring region of Yorkshire &

Humber, a regional adaptation study has recently been conducted utilising the same methodology as the North East study.

Lessons learned

The multi-agency approach to the study, overseen by an independent steering group and chair (the regional climate change coordinator), has been critical to its success. The engagement of a wide range of bodies not only enabled sufficient funding to be secured for the study but also ensured that the outputs from the study are relevant to agencies working at different levels and with different interests across the North East.

Producing a study for such a wide audience also presented the greatest challenge. In particular, designing the project website in such a way that it met the requirements of all of the interested parties has proven difficult. However, the fact that the study has driven adaptive activity across the region has justified further investment in the study, including ongoing development of the project website and further promotion of the outputs.

There are obvious benefits in carrying out such a study at the regional level in terms of economies of scale and the ability to draw in expertise from a very wide range of interests and specialisms. However, the approach is also highly scaleable and, with some expert input in applying the EARWIG model, could prove particularly useful at the local level in responding to the demands of NI188.

For more information:

[North East Climate Change Adaptation](#)

[Summary of the North East Climate Change Adaptation Study](#)

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Preston Water Efficiency Initiative

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Summary

The Preston Water Efficiency Initiative aims to reduce water demand in social housing. It is a partnership project between Reigate and Banstead Borough Council, Raven Housing Trust, Sutton and East Surrey Water, the Environment Agency and Surrey County Council, with funding from the Government's New Growth Points Programme. Through a programme of refurbishment and retrofitting of individual dwellings and a local school and leisure centre, it found substantial water savings could be made through the installation of water efficiency devices despite there being no financial incentive for tenants and other users to reduce their consumption. It concluded that any future Decent Homes programme should include such devices as standard as should RSLs in building new housing stock and undertaking renewal of their stock.

Aims of the Preston Water Efficiency Initiative

The Preston Water Efficiency Initiative is a Surrey based project that focuses on reducing water demand in social housing. The overall aim is to reduce water consumption. The Final Report (March, 2009) explains that its principal aim 'was to pilot an innovative water demand management project that reduced levels of water consumption of tenants living in social housing through the installation of a pilot rainwater harvesting system, refurbishing bathrooms and retrofitting water efficiency equipment and devices to existing properties; and a small scale and complementary awareness campaign to help change people's attitudes towards water consumption. It provided a series of lessons learnt and recommendations for future retrofitting of water efficiency measures in social housing'. The original project aims were to:

1. make housing association customers aware of domestic water use;
2. help customers to reduce their domestic water use;
3. introduce a range of water saving appliances to customers;
4. test a rainwater harvesting retrofit programme;
5. install water efficiency appliances when re-furbishing properties;
6. provide an education programme for customers and schools;
7. reduce demand in the secondary and primary school in the area;
8. measure the successes and failures in the programme



Figure: Installing energy efficient bathroom fittings (Source: Preston Water Efficiency Initiative, Final Report, March 2009)

The project was undertaken on the Preston Estate, in the Reigate & Banstead Borough Council area, which contains a mixture of private and social housing, including about 500 houses and flats owned and run by Raven Housing Trust. The partners who took part in the project were Reigate and Banstead Borough Council, Raven Housing Trust, Sutton and East Surrey Water, Environment Agency and Surrey County Council. A steering group was set up to provide overall strategic guidance while a project team ran the day-to-day delivery.

The water efficiency initiative was funded by national government’s New Growth Points scheme, which is intended to ‘encourage local authorities (in the East, South East, South West, West Midlands and East Midlands) who wish to grow, to put forward and agree strategic growth proposals with Government which are sustainable, well planned, acceptable environmentally and realistic in terms of infrastructure’.

The main areas of activity

This project has been undertaken using a range of water saving appliances. Raven Housing Trust was, in any case, refurbishing bathrooms to meet the Decent Homes Standard and the project provided an opportunity to install more sustainable fittings including showers and state of the art toilets (which use 50% less water to flush than a standard new toilet) to 160 houses and flats; innovative work to collect and recycle rainwater for toilet flushing and running washing machines, and offering vouchers to local residents to buy a washing machine that uses water and energy very efficiently. Tenants with gardens were also offered water butts so they could save rainwater.

Meanwhile, approximately 340 further properties which were not due to be refurbished also had alternative water efficiency devices installed. Waterwise explains that the retrofit programme was carried out by the Housing Trust contractors and plumbers, and included fitting an Ecobeta dual flush kit and a leakage alarm. The tenants were also offered a water butt and a discount voucher for a water efficient washing machine. Any leaks and dripping taps were also fixed. Provisional water savings were in the region of 15%.

Figure: Installing rainwater harvesting tank beside block of flats (Source: Preston Water Efficiency Initiative, Final Report, March 2009)



The Initiative's Final Report notes that another key part of the initiative was the piloting of a retrofit rainwater harvesting system in order to provide water that could be used in toilets. The rainwater-harvesting pilot was reported by Waterwise to be a major undertaking, with several contractors involved in diverting the rain collection pipe work, undertaking ground works, installing collection tank, and installing electrics and secondary pipe work to the toilets.

A further component was a retrofit of a local school and a leisure centre to install water efficiency devices. As noted by Waterwise, the school had a range of new fittings installed: urinal controls, push taps to replace existing taps, flow regulators on washbasins, ecobeta dual flush kits and the replacement of high level cisterns with close-coupled dual flush cisterns. Water savings were of the order of approximately 30%.

Additionally, an educational and communication programme was put in place to support the physical improvements. As part of the Initiative a small-scale and complementary promotional and awareness campaign was delivered in an attempt to encourage people to take up the Initiative and reduce their water consumption. Together these actions were intended to help offset water demand expected from the new homes that will be built in the area.

In the category of *Increasing environmental sustainability* the Preston water efficiency initiative was a finalist in the Chartered Institute of Housing UK Housing Awards 2007.

Water savings achieved

Waterwise explains that measuring water consumption and evaluation are major parts of the project. None of the homes had water meters fitted. Therefore, water use was measured at three levels: in individual homes, in blocks of flats and small areas such as cul-de-sacs, and at the school. Residents completed questionnaires to assess the way they use water and their opinion on the need for water saving.

The Initiative's Final Report reports that substantial water savings that were achieved through the initiative, particularly within those properties which were refurbished rather than those which experienced a more minor retrofit. Refurbished properties' water consumption declined by 41.25 litres per day while retrofitted properties declined by 23.00 litres.

Figure: Table illustrating water savings achieved (Source: Preston Water Efficiency Initiative, Final Report, March 2009)

| Programme | People | | | | House | | |
|----------------|------------|-----------------|-------------|-------------|-------------|-------------|------------|
| | Occupancy | % with children | % working | % retired | % flats | % terraced | % semi |
| Refurbishment | 2.9 | 29.7 | 33.5 | 10.9 | 48 | 29 | 21 |
| Retrofit | 1.8 | 27.6 | 28.5 | 17.5 | 78 | 14 | 2 |
| Rainwater | 1.7 | 0.0 | 20.0 | 20.0 | 100 | 0 | 0 |
| Average | 2.2 | 19.1 | 27.3 | 16.1 | 75.3 | 14.3 | 7.7 |

For the school water efficiency devices, the Final Report (March, 2009) reported that the overall water use was reduced by 30 percent or over 1,000 litres per day. The reduction was greatest at the weekends and school holidays (36 percent), due to the changes made to the urinal controls, although the building is occupied during some of this time.

Lessons learned

The Initiative concluded that significant water savings could be made through installing water efficiency devices – with greater savings achievable through whole house refurbishment for water efficiency than through retrofitting with a small number of devices. This could occur without tenants having a financial incentive to reduce water consumption. The dual flush toilet and shower were both very effective devices in reducing water consumption. As the Final Report noted ‘the bathroom refurbishment also included the installation of the first time low volume showers as part of Raven’s Decent Homes programme. The showers were very popular with tenants and had the added benefit of reducing the energy used by households in heating hot water’ while the most successful retrofit device was the ecoBETA, which converts a single flush siphon to a dual flush. It is worth noting that the rainwater harvesting system was technically difficult to install; had many technical installation and maintenance issues that have had to be resolved; and represented poor value for money - suggesting not all adaptation techniques have yet reached a ‘tipping point’ from a value for money perspective. Interestingly, the Report concluded that ‘all water savings made by tenants came from using water efficient devices and equipment that did not alter the lifestyle of tenants and in some cases actually enhanced it’.

The Final Report made a number of useful recommendations for wider practice including that the installation of water efficiency measures such as showers and dual flush toilets should be provided as standard as part of any future Decent Homes programme. They also made suggestions about ways Registered Social Landlords could improve their water efficiency practices when undertaking new build or refurbishment, including that they should consider retrofitting of selected water efficiency devices, which are the easiest, quickest and most cost effective to install. Additionally RSLs (and other housing providers) should consider how they can fit water efficiency devices

quickly and efficiently to homes so that there is the least disruption to householders (Preston Water Efficiency Initiative Final Report, March, 2009).

For more information:

[Environmentally sustainable' regeneration of the Preston Estate](#)

[Waterwise information about the project:](#)

[Final Report](#)

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Rotherham Metropolitan Borough Council: Renaissance flood alleviation scheme

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Summary

Rotherham Metropolitan Borough Council is working with funding partners Yorkshire Forward and the Environment Agency to provide greater flood protection and adaptive capacity for future climate change within the town.

The flood alleviation scheme, which is part of a wider regeneration scheme 'Rotherham Renaissance' has safeguarded 30 hectares of brownfield land, protecting over 40 existing businesses, and opening it up for future business and commercial development. The scheme has also involved the creation of a nature park, which, through work with Sheffield Rotherham Wildlife Trust, has improved the town's resilience to flooding, and provided valuable natural spaces for recreation, education and business.

Partnership working has been critical to managing and delivering this complex scheme to date. Complex engineering and land ownership issues have proved challenging, but have been overcome through collaborative work with the Environment Agency, landowners and contractors.

Background to the flood alleviation scheme

Rotherham is one of four metropolitan districts which make up South Yorkshire. The town is built on the confluence of two significant rivers, the Don and the Rother, which are subject to risk of flooding. Recent flooding in 2000 and in June 2007 highlighted the need for a scheme, when Sheffield Road, Templeborough – a successful brownfield Regeneration Area was flooded. The railway and station, and a large number of businesses in the town centre were also affected along with outlying residential areas and the Ulley reservoir.

At the same time, Rotherham Borough Council is driving regeneration of the town through [Rotherham Renaissance](#) – a 25 year vision for improving the economic, environmental and social aspects of the town, which will make a feature of the River Don.

The first step is a flood alleviation scheme which will 'solve an existing constraint on the development of the town centre'¹⁵. According to Partnership Implementation Officer, Greg Lindley, the scheme was driven by "the need to balance these two conflicting policy drivers (the [Town Centre Masterplan](#) and [PPS25: Development and flood risk](#)) in an area where the historical infrastructure of the town had placed itself and must continue to operate alongside the area of flood risk". "Rotherham has

¹⁵<http://www.rotherham.gov.uk/graphics/Environment/Rotherham+Renaissance/The+Riverside+Flood+Defence+Scheme>

historically tended to turn its back to the River and that is changing rapidly, with old industry departing and new mixed use developments on the riverside”.

The riverside flood alleviation scheme

The scheme will create an area for excess water in the event of flooding, and provide a wetland area that is accessible for the public to enjoy. The flood scheme will remove the barriers to the river flow and strengthen and enhance the existing river wall defences. It will also open up the riverside to new brownfield urban development and create riverside access.



Figure: An artist's impression of waterside living in the future (courtesy of Rotherham MBC)

The first phase scheme delivered already is a partnership between Rotherham MBC, the Environment Agency and Yorkshire Forward Renaissance, costing £14.9 million. The Council have led the proposal, and worked in partnership with the funding partners, the community and landowners, who have been critical to freeing up land for the construction of the flood defence.

Phase 1 was started in October 2006 and has been completed. A flood compensation area has been created for

the whole community and provides 1 in 100 annual probability of river flooding protection, as recommended by the Environment Agency. The structures have been designed with adaptive capacity for future climate change, and to be stable at all water levels, including a 'defence overtopped' case and include a freeboard allowance of generally 3-600mm and are capable of being raised further without the need to modify below ground foundations.

The process involved analysis using the Environment Agency's hydrology models, options appraisal, and then the creation of a funding business case, before procuring design and construction partners.

The scheme has involved the construction of flood protection sheet piles and reinforced concrete walls, major landforming, the removal and raising of bridges by 600mm, as well as diversions of massive infrastructure, such as a major Corus gas pipe. Design and built in partnership with the Environment Agency, the scheme will be maintained by the Agency.



Figure: Centenary Riverside Wetland (Source: Babbie Brown & Root, courtesy of Rotherham MBC)

The phase 1 scheme has protected an area of 30 hectares mainly existing commercial development, containing over 40 existing businesses and protecting 1,000 existing jobs, as well as brownfield development and protecting the canal, the main western gateway and rail and road infrastructure from future flooding. The All Saints' Quarter development is creating living, retail and business opportunities along the waterfront. According to the Council, the River Don is therefore already starting to become an important feature to Rotherham building pride and creating vibrancy amongst all facets of its community – the flood scheme will significantly contribute to ensure the safety of the riverside environment from future flood events.

Phase 2 is expected to provide similar protection to the remaining 2km of the Town Centre Renaissance riverside area to defend a further 30 hectares. The Council is working with the Environment Agency Yorkshire Regional Flood Defence Committee to remove the Don Bridge which acts as a barrier to extreme flood water. The partners are also working to protect an area at risk of flooding around the bus station entrance, where a key town centre retail / commercial area was inundated in June 2007.

Delivering wider regeneration and biodiversity benefits

The Council have worked with Sheffield Rotherham Wildlife Trust to create a [wetland nature park at Centenary Riverside](#). The 4.5 hectares, which includes wildflower meadows, woodland and ponds helps protect the town from flooding. The project was funded by RMBC, ERDF Interreg VALUE through South Yorkshire Forest, Natural England, and landfill tax credits from WREN, Biffa and the SITA Trust. Riverside walkways enable the public to access the area, from which they were previously excluded. The park will provide amenity, educational and business opportunities for the local community.

Rotherham MBC is leading the borough's wider work on climate change adaptation. Action on climate change is co-ordinated through the Local Strategic Partnership's Sustainability Partnership. As Emma Bridge, Policy Officer in the Chief Executive's Directorate, comments "although there is a need for the Council to drive climate change adaptation, the most important aspect is strong partnership working, with the drive provided by high level commitment across the Local strategic Partnership and sub-regional joint working with neighbouring South Yorkshire councils".

At an early stage in developing an Environment and Climate Change Action Plan for the borough, the importance of the need to adapt to climate change, rather than concentrating solely on mitigation, was identified. The focus so far has been on awareness raising, and a number of workshops and presentations with Councillors and officers across the Council and Local Strategic Partnership, and with individual meetings with key partners such as Voluntary Action Rotherham and members of the community. These events and wider public consultation will help to ensure that adaptation to climate change is strongly embedded in the Action Plan and that the right actions are identified for the borough. Currently between Levels 0 and 1 of National Indicator 188, Rotherham is now focusing its efforts on embedding climate change (adaptation) within policy, such as the Local Development Framework Core Strategy and Council service plans. The lessons learnt through Rotherham's strong work on flood alleviation will form a key part of the development of a Local Climate Impacts Profile and will enable Rotherham to quickly work towards Levels 2 and 3 of National Indicator 188.

Learning

The partnership approach to the design, construction and management of the scheme has been critical to its success to date, says Greg Lindley, Partnership Implementation Officer. "Yorkshire Forward saw the importance of the scheme and committed land for purchasing and development funding". Indeed, the scheme features as a case study of good practice within the [Planning Policy Statement 25: Development and Flood Risk Practice Guide](#), which recognises the opportunities for combining 'regeneration and environmental improvements within a wider strategy to manage flood risk' which 'requires close collaboration between the key stakeholders such as the LPA [local planning authority], Regional Development Agency and Environment Agency'. According to Greg Lindley, this partnership working has been crucial. He advises any other authorities to build effective partnerships with the funders, the delivery team, and look for opportunities to create new areas for regeneration and environmental improvement.

Recognising the need to manage water and flood risk at a catchment level, the nine local authorities in the Don Catchment area, with Yorkshire Water, the Environment Agency and Yorkshire Forward have set up an Action Alliance to identify common working on water and flood risk.

The difficulties involved in the project have primarily been the complex nature of the scheme. The physical design and engineering of the project has involved major

construction works. Securing the land for the scheme has involved complex licence and access negotiations with landowners. Developing the funding business case was also complex as it involved funding from two major sources – Yorkshire Forward and Objective 1 funding.

Greg Lindley’s advice to other local authorities embarking on schemes of similar scale is to “identify the options and risks early and deal with them as soon as you can or they become a more difficult nut to crack at the last minute when they end up on the critical path of project delivery”.

To consolidate learning from other cities around NorthWest Europe (Sheffield, Bergen, Hannover and Dordrecht), Rotherham MBC are participating in the [MARE project](#) (Managing Adaptive Responses to changing flood risk). The Interreg 1VB Northsea project is intended to develop a shared view of flood risk management and will result in city-wide plans, as well as the development of a Climate Proofing Framework that supports water managers and spatial planners ‘in making and evaluating flood risk management plans that go far beyond Flood Directive requirements’.

For more information:

[The Riverside Flood Defence Scheme](#)

[Riverside Flood Defence Scheme brochure](#)

[PPS25: Development and Flood Risk Practice Guide](#)

[Managing Adaptive Responses to changing flood risk project](#)

[Rotherham MBC’s environmental management and climate change work](#)

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Somerset County Council: Developing more 'climate-resilient' water systems in Somerset

[Return to NI188 matrix](#)

Summary

Somerset County Council has been working with local partners to bid for European funding to address water management issues / climate change adaptation in Somerset.

The project, called 'Water Adaptation is Valuable for Everybody' (WAVE) brings in approximately £875,000 of European Regional Development Fund money into the county from 2008-12 to better understand the likely impacts of climate change and to help develop more climate-resilient water systems in Somerset.

It is early days for the project but some physical results are already starting to be seen. There has been woodland planting on farmland, for instance, and two new Community Woodlands established. The project has also helped to develop very good lines of communication between the partners. "Each of the organisations involved appreciate the need to have measures in place to adapt to the impacts of climate change in Somerset, and through this project are working closely together to achieve this", observes Stephen Dury, Project Manager at Somerset County Council.

Background

Somerset is a rural county in South West England with a large agricultural economy. The landscape is a combination of rolling hills including the Mendip Hills, Quantock Hills and Exmoor National Park, together with the largest area of lowland wet grassland and associated wetland habitat remaining in Britain, the Somerset Levels and Moors. The county also has many rivers, such as the Axe, Brue, Cary, Parrett, Tone and Yeo, and the coastline of the Bristol Channel and Severn Estuary, which forms part of the border.

According to Somerset's [Rising to the Challenge](#) website:

- Somerset has about 235 square miles at, or a few metres above, sea-level
- Sea-levels are expected to rise in the South West by between 20cm and 80cm by the year 2080
- At the moment, there is about a 1 in 200 risk of the M5 in Somerset flooding from the sea. If we continue to burn fossil fuels at the current rate, the risk will be 1 in 17 by the year 2060.

Over the last few years, there has been a growing recognition by Somerset County Council and its partners that climate change should be a priority issue. In February 2008, the Council published its Climate Change Strategy, [Responding to Climate Change in Somerset](#).

The strategy highlighted the risks that climate change poses to Somerset, with sea level rise, changing weather patterns and increased storminess likely to lead to both increased



and prolonged flooding and summer drought. Somerset has more land at risk of flooding than any other county in the South West Region, and the strategy concluded that the increase in flooding risk presents the most urgent of the challenges to be dealt with in adapting to climate change in Somerset. It committed all Group Managers within the Council to preparing service level delivery actions plans to deal with the impacts of climate change on their sector of responsibility by April 2008. The [Somerset Local Area Agreement](#) also recognises climate change as a priority and includes NI188, *Adapting to Climate Change*.

The WAVE project

In 2007 Somerset County Council coordinated a group of local partners and combined with European partners to bid for European funding (via the Interreg IVB North West Europe programme) to help address water and catchment management issues and the need for climate change adaptation measures.

The bid was successful, scoring highest of the 28 bids submitted to [INTERREG](#) during the call, and the resulting project, called 'Water Adaptation is Valuable for Everybody' (WAVE) brings in approximately £875,000 of European Regional Development Fund money into the county from 2008-12 to better understand the likely impacts of climate change and the water management adaptations that will be required to deal with these.

It involves cooperation between the following partners: Somerset Council, Environment Agency (EA), Somerset Drainage Boards Consortium, RSPB, Somerset Wildlife Trust, Farming and Wildlife Advisory Group (FWAG). At a European level, it also brings in partners from The Netherlands, France, Belgium and Germany.

The project will contribute to the development of more climate-resilient water systems in Somerset through a combination of the following:

1. Identify, using predictive modelling, the local effects of climate change in Somerset;
2. Manage the risks, by employing a number of approaches, including:
 - a) sustainable management of excess water
 - b) reduce flood risks
3. Raise awareness, so that landowners and wider local communities are better informed on how they can and will need to adapt to a changing climate.

In addition there are four transnational activities (Joint Actions), which incorporate mutual learning processes which are embedded in the project's action plan. These include joint initiatives on 1) water and spatial planning policies; 2) risk analysis for determining the consequences of climate change; 3) multifunctional land-use for improved water management; and 4) emergency response plans and policies. The action plans for these are jointly implemented and produce common benefits to all partners.

Delivering the WAVE project: local sub-projects

As part of the WAVE project in Somerset, there are a number of sub-projects:

- Environment Agency modelling of climate change and its implications for flood risk management
- The development of a 'sustainable vision' for the Somerset Levels & Moors, that includes the promotion of integrated, sustainable land use, planning and resource management, taking into account impacts of climate change and using the scenarios arising from the Environment Agency's flood modelling project.
- The Brue Valley Living Landscape Project which will combine habitat survey, socio-economic studies and community engagement to develop robust, climate adaptive strategies for the Brue.
- Kings Sedgemoor – New approach to sustainable land and water management: An RSPB and Somerset Drainage Boards project aims to increase the resilience and adaptability of wetland habitats on the Somerset Levels and Moors in response to predicted climate change.



Figure: The RSPB's Greylake reserve in Somerset (David Wootton rspb-images.com)

- FWAG work with farmers to create woodland on key sites in the River Parrett Catchment and surrounding area to reduce the risk of flooding.
- The establishment of at least two community woodlands to create multipurpose open spaces for community use and a tool for explaining the link between woodland and climate change.

- Farm Water Management Plans to looking at ways to save water and create new storage for water on their farms.
- WAVE Communications to raise awareness and improve access for local people to local level information about managing water well and positively adapting to climate change, raise awareness of the WAVE regional programme, and communicate the benefits, progress, outcomes and results of WAVE locally and regionally. Two Water Festivals will be held to entertain and educate local residents.

Outcomes

At the time of writing, the WAVE project is still relatively young. It is a five-year project that got funding half way through 2008, so many of the sub-projects are only just beginning.

Nevertheless, some physical results are already starting to be seen. There has been some woodland planting on farmland, for instance, and two new community woodlands have been established, with two more sites under discussion.

Meanwhile, the Somerset Wildlife Trust has employed a 'Living Landscape' project officer and a Survey and Data officer to help take forward the Brue Valley work, and the RSPB / Drainage Board have collected baseline data on current hydrological and ecological conditions of the Greylake wetland site. A Water Festival has also been organised for Bridgwater in June, with a rich programme of watery events guaranteed to entertain and educate visitors about climate change and water.

The project has helped to develop good lines of communication between the partners. "Each of the organisations involved appreciate the need to have measures in place to adapt to the impacts of climate change in Somerset, and through this project are working closely together to achieve this", observes Stephen Dury, Project Manager at Somerset County Council. "The area has a history of disagreement when trying to resolve the conflicting interests of those involved in the management of the area. SCC has had a long history of involvement facilitating discussion and debate between the numerous agencies, landowners and communities involved. This project brings everyone together, because there is growing realisation that there has to be cooperation and partnership working in order tackle this common issue."

Lessons learned

The WAVE project has begun well. For Stephen Dury, a number of factors have enabled the WAVE project to happen: "There has been strong support from each of the partners, as well as from the Somerset Water Management Partnership, and the climate change strategy has given us the mandate to carry out work on climate change adaptation. Plus, the Council and the other project partners needed to be fairly confident of being able to raise the match funding."

Ironically, with greater sensitivity about carbon footprints and flying overseas, it can be increasingly difficult making the case internally to send more than one or two people to meetings in Europe, particularly for the environmentally-conscious organisations participating in WAVE. Stephen Dury recognises “the need for a balance to be struck between excessive travel and ensuring the necessary high level of transnational cooperation demanded by the funding programme, where frequent partner meetings, exchanges of information, and not least informal dialogue among the partners are considered instrumental to a successful project. The meetings are necessary to help the smooth running of the project, and also allow us to learn an awful from each other. For example The Netherlands are already very advanced in their thinking on sustainable and climate-proof water management, however they have copied the idea of holding a Water Festival from Somerset”.

One of the obstacles faced was that the project was approved subject to the total budget being reduced from €15million to €11million. It was difficult making decisions on which projects should be trimmed or cut entirely, particularly with so many partners involved, both regionally and internationally. However agreement was eventually reached without a falling-out of partners.

For other councils considering putting together a bid for external funding, Stephen Dury advises that there is a huge benefit in getting outside expertise to help write the bid. The lead partner for the WAVE project, a Dutch water board, used a consultancy to work up the bid, without whom the process would have been very time consuming.

Stephen also emphasises the importance of ensuring that good financial management systems are in place: “European grants are quite complex and because we are working with a number of partners in Somerset, and bankrolling some of our NGO partners, spending time building up the capacity of our financial staff really pays dividends.”

For more information:

[WAVE project](#)

[Somerset County Council's climate change work](#)

[Somerset County Council's Climate Change Strategy, 'Responding to Climate Change in Somerset'](#)

[Rising to the Challenge, a Somerset awareness-raising campaign on climate change](#)

[The Somerset Local Area Agreement](#)

[INTERREG IIIC](#)

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Staffordshire County Council: Developing and revising adaptation action plans

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Summary

Staffordshire County Council has developed detailed adaptation action plans for specific services and is already making progress in implementing its high priority actions. The Council has developed guidance for services to develop action plans, as well as a comprehensive process for assessing and prioritising adaptation actions. Reflecting on their model of workshops with individual service areas and meetings with heads of service, the Group Leader for Sustainability and Cultural Environment thinks that their “model has worked well to accommodate the diverse range of Council activities” and has enabled them to identify common issues across the Council.

Progress is already being made to implement actions as well as working with wider partners within, and outside, the county to encourage wider behaviour change. The Council’s award winning [OC₃ project](#) provides a public portal for information about climate change, and has demonstrated the value of working and procuring in partnership with others.

Background

Staffordshire County Council is an upper-tier authority spanning an area which includes 8 district councils. As well as the County town of Stafford, the county includes the market towns of Leek and Uttoxeter, the cathedral City of Lichfield, the brewing town of Burton-upon-Trent and a variety of rural settlements providing homes for a quarter of Staffordshire's population.

In June 2005 a Members' Climate Change Working Group was set up with a representative from each of the Council’s scrutiny committees. The Working Group's first task was to consider evidence on climate change and its implications for Staffordshire, and to report to the County Council with any recommendations. A report was taken to full Council in July 2005 and this resulted in a number of resolutions being adopted, including that the County Council will prepare and implement an internal action plan for climate change, incorporating the following elements:

- a strategy for energy conservation and reductions in greenhouse gas emissions;
- a position statement on renewable energy generation, including wind energy; and
- a strategy for coping with the potential impacts of climate change that cannot be avoided.

The Council's resolution led to the adoption, in October 2005, of *A Hard Rain'*, *Staffordshire County Council's Corporate Climate Change Strategy*.

Developing directorate adaptation action plans




The Action Plan utilises the UKCIP climate change scenarios published in 2002 datasets produced by the Hadley Centre (Met Office) and Tyndall Centre, as well as the findings from a more detailed regional study: 'The Potential Impacts of Climate Change in the West Midlands', prepared for Sustainability West Midlands by Entec. "We didn't want to make any predictions about likely local impacts on service delivery that are not supportable and so we just used the UKCIP02 scenarios to outline the likely trends", comments Ian Wykes, Staffordshire County Council's Group Leader for Sustainability and Cultural Environment.

Noticeably, the Adaptation section of the Action Plan is short in comparison to that for the Council's mitigation action, and sets out the likely priorities for adaptation. However, the document includes a commitment that 'each Directorate will prepare Climate Change Adaptation Plans for its own areas of activity. These will address issues such as the location of new buildings, changes to specifications for new building and property maintenance, evacuation plans for premises at risk of extreme weather events, and contingency plans for service continuity'.

Detailed guidance on the preparation of adaptation plans, drawing on UKCIP guidance, is also included as a technical appendix to the action plan. The suggested process includes three key stages: scoping the impacts of climate change, assessing the risks (using the priority matrix below) and decision making and action plans.

Figure: Priorities matrix for climate change risks

| | | Seriousness of impact | | |
|--------------------------|---|-----------------------|---|---|
| | | 1 | 2 | 3 |
| Likelihood of occurrence | 1 | 1 | 2 | 3 |
| | 2 | 2 | 4 | 6 |
| | 3 | 3 | 6 | 9 |

| | |
|---|-----------------|
|  | Low priority |
|  | Medium priority |
|  | High priority |

The guidance also includes a priorities matrix template to assist directorates in their assessments of the likelihood/seriousness of different impacts under the three headings of 'Continuity of Service', 'Dealing with Emergencies', and 'Planning and Designing for the Future'.

So far the County Council has developed three directorate focused adaptation action plans; the first a [Climate Change Adaptation Action Plan for Development Services](#), a [Climate Change Adaptation Action Plan for Social Care and Health](#) and a plan for the Strategic Core. The Council is also currently preparing an adaptation action plan for Children and Lifelong Learning.

According to Ian Wykes, the County Council's approach has been well received within the Council and regionally, within the West Midlands.

Adaptation actions

Staffordshire County Council are currently progressing all those actions that are of 'high priority' which include:

- Ensuring that climate change is taken account of within all risk assessments, within all HR policies
- Adaptation proofing of all Service Delivery Plans
- Ensuring that Business Continuity Plans and contingency plans are in place in all current social care and health services premises
- Increased monitoring of the quality of food and food complaints within Scientific Services
- Identifying flooding hotspots, ensuring that new office premises is not at risk from flooding, and providing Flood Alert telecare within homebased services.
- Planning for increased mowing costs and reviewing the specification for planting of landscaping works
- Ensuring the safety of all impounding structures

Revising the climate change action plan(s)

The document notes that several factors can trigger the need for a review of adaptation actions, including the following:

- Observable climate change
- Modifications to published climate change scenarios
- Improved knowledge of the impacts of climate change
- Changes in the scope of our service delivery

It suggests that 'in practice it would probably be prudent to review service-based Adaptation Plans annually, as part of the business planning cycle'.

The whole Climate Change Action Plan has subsequently been revised to reflect recent changes in policy. Ian Wykes, title says that the Council reviews the Action Plan on an annual basis as part of its continual process of performance management.

The document has been revised to reflect emerging national guidance and legislation, in particular the 2007 Draft Climate Change Bill, and the emergence of the Local Area Agreement (LAA). It has also been revised as a result of the County Council having successfully completed the Carbon Trust's Local Authority Carbon Management Programme (LACMP).

The Adaptation Action Plans are monitored and reported through the County Council's performance management system and scrutinised the Member Scrutiny Group.

Developing an area-based approach

Although not formally signed up to NI188, Staffordshire County Council is starting to work with partners to “look at adaptation more holistically”. The [Staffordshire Declaration](#) on climate change was signed by all Staffordshire local authorities and the majority of other LAA partners in June 2008.

The Council is working with the district and borough councils, third sector organisations, the two local universities, the Fire & Rescue Service, Police, and Wildlife Trusts through the Staffordshire Climate Change Group, as well as across the border into Stoke. The Group meets quarterly, distributes information to partners and is currently discussing the formation of an adaptation sub-group.

During the refresh of the Local Area Agreement, stakeholders and the public commented on the need for clear and relevant information about the local impacts of climate change and opportunities for local action in Staffordshire. Stakeholders also called for the County Council to take a lead on climate change. The Council’s response was to set up and lead the [OC₃ project](#), “so that people felt could see that we were taking a lead and that action was not happening within a vacuum” says Climate Change Officer, Sarah Fielding. The interactive Staffordshire focused website, which is intended to direct residents to the most relevant up-to-date and reliable information about climate change. The site outlines the predicted changes to the global and local climate, as well as linking to local initiatives such as the [Severe Weather Exhibition](#) which documents severe weather events in Staffordshire in the last few centuries. It also includes wiki technology to enable people to edit and update the website.

In fact, the whole website was funded, procured, designed and written in partnership with local partners and the community, and was commended within the Sustainability category of the Government Business Awards for its contribution to tackling climate change in Staffordshire.

Lessons learned

Reflecting on their progress to date, Ian Wykes thinks that their “model has worked well to accommodate the diverse range of Council activities”. Workshops with individual service areas and meetings with heads of service provided useful insights into the potential impacts on individual services, as well as highlighting the similarities in the types of impacts and adaptation responses needed. These have enabled the identification of common issues to be addressed such as the need for public buildings to be resilient to extremes of temperature and wind.

Council’s priorities are to develop action plans that are fit for purpose and secondly, ensure that their recommendations are being embedded within the performance cycle.

Sarah Fielding also thinks that joint procurement of the OC3 project proved challenging, but that it also proved that “it’s possible to do things in partnership – and

cheaper". Money can be saved by procuring jointly, but that partnership working also generally requires "one partner to take a lead or co-ordinating role".

For more information:

[Staffordshire County Council's climate change work](#)
['A Hard Rain', Staffordshire County Council's Corporate Climate Change Strategy, Second Edition](#)
[Directorate Adaptation Action Plans](#)
[OC₃ project](#)

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[Return to NI188 matrix](#)

Stroud District Council: Working with the Transition Town initiative on adaptation

[Return to NI188 matrix](#)

Summary

A Global Changes Think Tank was created in October 2007 to help the Local Strategic Partnership (LSP) to consider how they should respond to the climate change adaptation agenda. It is made up of LSP Members, Transition Stroud and Council officers.

The Think Tank has been a success. The interim [Sustainable Community Strategy](#) has strong climate change adaptation and peak oil elements and the [Core Strategy Consultation Paper](#) has also been heavily informed by the outputs from the Think Tank.

A key innovation in the work has been involving Transition Stroud. Transition Stroud, part of the global [Transition Initiatives](#) movement, is a network for local people and groups working on the transition to a locally based low carbon lifestyle.

They have built up wider confidence and credibility with the LSP and the Council during the course of their involvement with the Think Tank. As Barry Wyatt observes, "from a policy point of view, being able to tap into a valuable local resource and using their skills and knowledge to drive that agenda has been invaluable. They have helped to inform big questions for the Sustainable Community Strategy and the Core Strategy, provided a grassroots driver and given the Council a huge mandate."

Background

Stroud District is set in the Cotswolds, well known as an Area of Outstanding Beauty, and is situated among valleys, vales and wolds. The District Council is one of six district councils located within Gloucestershire, a county which in 2007 suffered from the worst recorded flooding in British history.

Climate change has risen up the agenda of Stroud District Council (DC) in recent times. It was clear from the Council's consultations in its [Environment Strategy](#) and 2007 budget survey that climate change was a key issue for local people and businesses. As such, one of the commitments within the Strategy was to raise the profile of climate change with the Stroud District Local Strategic Partnership (LSP) and within the sustainable community strategy.

Being a district authority, the Council itself is not signed up to NI188. The County Council, however, is signed up to NI188 through its Local Area Agreement, and Stroud DC has played a leading role in taking forward county-wide efforts on adaptation. It sits on a county-level Adaptation Task Group and has sponsored a 'More Resilient Environment' programme which, according to Peter Wiggins at Gloucestershire County Council, "helped to build good capability and capacity across the County."



The Global Changes Think Tank

The response to the Environment Strategy's commitment to engage the LSP on climate change was twofold. First, a Climate Change Panel was created to look at mitigation. Secondly, an LSP think think-tank – the [Global Changes Think Tank](#) – was set up to look at adaptation.

The Think Tank was created in October 2007 and, as a result of the involvement of [Transition Stroud](#), its remit was expanded to consider the twin impacts of climate change *and* peak oil.¹⁶ It is made up of LSP Members, Transition Stroud and Council officers. Others are invited to Think Tank meetings and to provide evidence.

The work of think-tank has focused on the impacts of climate change and peak oil on a few key areas:

- Producing a general framework for addressing the impacts of climate change and peak oil
- The role of land use planning
- Housing
- Transport
- Food

For each topic, the Think Tank has used a five-step process – involving an inquiry session, a preliminary report and consultation – before arriving at a final report.

For Nigel Riglar, Strategic Director at Stroud DC, the creation of the Think Tank has been invaluable: "We needed a mechanism to get the LSP to focus on the big future issues. They were not going to do this in 2-hour quarterly meetings so we needed something more flexible where time could be taken to consider issues that would inform the sustainable community strategy and, more latterly, the Core Strategy."

STROUD DISTRICT COUNCIL
www.stroud.gov.uk

To this end, the Think Tank has been a success. The interim [Sustainable Community Strategy](#) has a strong climate change adaptation and peak oil elements. These include, for example, commitments to ensure that the Local Development Framework will help to protect agriculture for local food production and help it to adapt to the impacts of climate change and peak oil.

Figure: Front Cover of the Core Strategy Consultation Paper, 2009



¹⁶ The term 'peak oil' is generally used to describe the point in time when the maximum rate of global petroleum extraction is reached, after which the rate of production enters terminal decline.

Equally, [Core Strategy Consultation Paper](#) has also been informed by the outputs from the Think Tank. According to Barry Wyatt, Strategic Head of Development Service, the reports from the Think Tank have acted as an “invaluable evidence base” for the development of the Core Strategy. As a result, questions about how Stroud should adapt to climate change are threaded right through the consultation paper and Barry is confident that these will lead to really progressive policies and actions when the Core Strategy is published.

Involving Transition Stroud

A key innovation in the work of the Global Changes Think Tank has been involving Transition Stroud. Transition Stroud, part of the global [Transition Initiatives](#) movement, is a network for local people and groups working on the transition to a locally based low carbon lifestyle.

Nigel Riglar welcomed their initial involvement, particularly Transition Stroud’s focus on peak oil: “Councillors who might quibble over the science of climate change find it much more difficult to do so with peak oil and on the whole the solutions to both perils are the same.”

Transition Stroud have certainly proved their worth. They have built up wider confidence and credibility with the LSP and the Council during the course of their involvement with the Think Tank.

Having been active and valuable participants in the first four Think Tank inquiry areas, they were asked to lead on the development of the food report with great success in the eyes of the LSP and the Council.



Figure: Stroud Farmers Market. Local food production and consumption was a key issue in Transition Stroud’s food report. (Source: [Shaping the future of Stroud District: key issues discussion paper, 2009](#))

Furthermore, as Barry Wyatt observes, “from a policy point of view, being able to tap into a valuable local resource and using their skills and knowledge to drive that agenda has been invaluable. They have helped to inform big questions for the Sustainable Community Strategy and the Core Strategy, provided a grassroots driver and given the Council a huge mandate.” As a sign of how successful the relationship with Transition Stroud has been, they may now be invited onto the LSP itself.

Lessons learned

Transition Stroud's relationship with both the LSP and the Council has been developed slowly. "One step at a time to build understanding on both sides", explains Nigel Riglar. The Think Tank was seen as the smoothest way of getting Transition Stroud involved in LSP and Council thinking. Working with the LSP through the Think Tank has helped to break down the differences in culture and values. To initially involve Transition Stroud more directly with the Council or the LSP would have been challenging.

For some on the LSP, there has been a steep learning curve. Some of the ideas Transition Stroud have introduced – peak oil – were very new and different. Many, however, have now begun to take their learning back into their own organisations. Stroud College, for instance, has been developing a training course on installations on housing stock of micro-renewables as a result of the awareness raised through the Think Tank.

What about other councils who would like to do the same? Barry Wyatt advises them to "get your Transition group involved at the early stages, at the evidence gathering stage. They need to be part of the policy development, and you need to help develop the capacity on both sides. The benefits of doing so can be huge, we have a great mandate now to take forward some really major actions."

For more information:

[Global Changes Think Tank](#)

[Stroud District Council's 'Environment Strategy 2007-2027'](#)

[The interim Stroud District Sustainable Community Strategy](#)

[The Core Strategy consultation 'key issues discussion paper', Spring 2009:](#)

[Transition Stroud](#)

[Transition Towns wiki](#)

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[Return to NI188 matrix](#)

Wellingborough Partnership: Climate change engagement toolkit

[Return to NI188 matrix](#)

Summary

The Wellingborough Partnership in Northamptonshire has developed a Toolkit to enable interested parties to hold an hour-long event looking at the potential effects of climate change in the Borough of Wellingborough.

The Toolkit was launched at the Annual Meeting of the Wellingborough Partnership on the 4th December, 2006. The Toolkit comprises a range of sections on aspects of climate change, which can be used in live presentations. It also covers topic guides and more passive forms of information dissemination such as leaflets and other written materials. It is available free to voluntary groups and is being offered by the Council to other areas.



Figure: Toolkit materials (Source: Wellingborough District Council)

Wellingborough Council has signed up to the Nottingham Declaration and is working with authorities across the county on responding to NI188. This indicator is found in its Local Area Agreement. Wellingborough is up to Level One and expecting to rise up the indicator levels in due course.

Background to and aims of the climate change engagement toolkit

The [Climate Change Toolkit](#) was developed by the Wellingborough Partnership to help local people explore the issues surrounding climate change. The District Council notes that they “were receiving an increasing number of enquiries related to climate change from borough residents and took the decision to develop materials that could be used to raise awareness of the issues of climate change as they would impact on Wellingborough” (Climate Change Toolkit Fact Sheet, 2009). The aim was to develop a self-help Toolkit that a member of the public could use to present the issues surrounding climate change.

The Wellingborough Partnership meanwhile explains the purpose of the Toolkit as to ‘enable local people to gain a greater understanding of the issues surrounding climate change and how they can personally make a contribution to its mitigation by reducing

carbon emissions, and planning to adapt their lifestyles to cope with changing weather patterns'. Specifically, the Toolkit allows 'interested parties' to hold an hour-long event looking at the potential effects of climate change in the Borough of Wellingborough.

The project to develop the Toolkit began in 2006 when it was expected to last around two years. The Toolkit was launched at the Annual Meeting of the Wellingborough Partnership on the 4th December 2006, and the partnership notes that it attracted a visit from The Secretary of State for the Environment, the Right Honourable David Miliband the following day. The partnership explains that the Toolkit is available free to voluntary groups within the Borough.

The [Wellingborough Borough Council website](#) provides some background to the thinking that led to the development of the climate change engagement Toolkit, stressing adaptation opportunities as well as threats related to climate change. It points out that while 'changes in weather patterns resulting from climate change certainly present challenges, there are also significant opportunities which, in a balanced account of possibilities, should also be taken account of. Thus, the Toolkit project aims to give as balanced account of future scenarios as it is possible to achieve with three main aims, namely to:

- Remove uncertainty about whether climate change is happening by presenting the evidence.
- Inform people of the changes in weather patterns that may result from climate change.
- Give people a vision of what the borough may be like in 75 years under a changed climate.

The Toolkit content and use

The Toolkit comprises a range of sections on aspects of climate change, which can be used in live presentations. It also covers more passive forms of information dissemination such as leaflets and other written materials. The Toolkit presentations are contained on a CD-ROM that comes with the Toolkit. 'This contains all of the essential information needed to explain the basic concepts surrounding climate change and its potential effects locally' (ibid). The Toolkit also includes speaker notes, which give an outline script for those doing presentations. There presentations cover a range of relevant climate change topics that focus to a considerable extent on adaptation issues. These are:

- What is this thing 'climate change'? This presentation looks at the evidence and the mechanisms behind climate change, and its global implications.
- Climate Change: What's it got to do with me? This presentation brings the effects of climate change down to a local level.
- Wellingborough 2080: This is a slideshow looking at what life in the Borough may be like in the year 2080 under the influence of climate change.

The Toolkit also contains a number of fact sheets and leaflets about climate change aspects, with two copies of a fact sheet on a range of topics included in the Toolkit folder. The fact sheets are also contained on the CD-ROM in PDF format. A significant number of topics are climate change adaptation related. These include topics such as the greenhouse effect; reducing water use; rainwater harvesting; health impacts of climate change; keeping cool, including shading; using less energy; renewable energy options; travel and transport; wildlife and climate change; and finally, waste and climate change.

Thirty copies of a leaflet entitled 'Climate Change in Wellingborough - What does it mean for you?' are also included in the folder. This is a summary of the potential effects of climate change as the Wellingborough Partnership sees them in the Borough. As for the fact sheets, a copy in PDF format is included on the CD-ROM. The Council notes that initially they intended to produce large numbers of hard copy materials but given the fast changing climate change context they decided to cut back and instead produce regular material updates to keep pace with the changing field of climate change adaptation. They have found that the Toolkit materials are very useful in a range of public information provision contexts, not confined only to individual presentations.

Support for using the Toolkit

The Toolkit's elements can be downloaded from the Council's website and is intended to be used to stage an event looking at the issues surrounding climate change to a group of up to 30 people. It therefore contains guidance on how to run an event, including a suggested running order. The Council notes that it hopes users will feel confident enough to run their events themselves. However, to support Toolkit users, they will be holding seminars on how to run an event and will also be 'on the end of a telephone' for any queries users may wish to talk about.

The Council says that an explanation of the 'kit' needed for the presentations is provided on the CD-ROM. Users will need a PC or laptop running PowerPoint and a data projector and screen. The Climate Change in Wellingborough Project will be able to lend these to users if they are available. It goes on to say that if users would like to receive a copy of the Toolkit they can complete the application form on the website. If they would like further information about hosting an event, a contact person's details are given at the Borough Council.

Outcomes and lessons learned

The Council points out that making the Toolkit relevant to its audience has been critical to success. They began to compile questions they received on climate change adaptation well before they started to develop the Toolkit. Since being developed, the Toolkit has reached a substantial number of people in the local area. A project impact analysis showed that 27,120 people or 36% of the borough population has been reached directly or indirectly by the project, while the presentations given by the Wellingborough Partnership have been attended by 662 people. Additionally, it was

reported that 12 organisations from around the country, including other local authorities, schools and businesses, have adapted the Toolkit idea for their own area (Climate Change Toolkit Fact Sheet, Wellingborough DC, 2009).

The Council noted that in the autumn of 2008 the Toolkit's contribution to helping people consider the impacts of climate change was recognised nationally when it won a National Green Apple Environment Award, and the Council was invited to join the National Green Heroes scheme for demonstrating their commitment by helping others to follow their environmental lead. In addition, the Toolkit was shortlisted for the National Energy Efficiency Awards in the awareness-raising category. Cllr Lora Lawman, Chairman of the Development Committee made the link to the Council's support for the Nottingham Declaration on Climate Change and suggested that the Toolkit "helps to affirm this Council's commitment to tackle global warming and in promoting sustainability...The Toolkit is widely used locally and we have let other Councils copy the material for their communities. It has ensured that our community understands the impact on our environment that climate change is making, it is a major achievement to receive such a prestigious award and recognition of hard work that has been put into it"¹⁷.

In describing the project for the East Midlands Regional Assembly 'success stories' section of their website, the Council explains that 'the project has received a great deal of interest both locally and nationally and that Wellingborough is getting an increasing number of requests to give the presentation to groups throughout the borough'. On that basis they planned a 'tour' of outlying villages during the autumn 'in order to proactively reach as wide an audience as possible'. They have also given a presentation on the development and use of the Toolkit to Lincolnshire Councils who are investigating similar projects as part of their climate change adaptation activity. Finally, they are also looking into adapting the Toolkit for businesses to use in staff training on climate change.

For more information see:

[The Wellingborough Climate Change Toolkit](#)

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¹⁷http://www.wellingborough.gov.uk/site/scripts/news_article.php?newsID=37

Wolverhampton City Council: Building adaptive capacity in Bilston Urban Village

[Return to NI188 matrix](#)

Summary

Wolverhampton City Council worked with Advantage West Midlands and partners to build climate resilience into a new development – Bilston Urban Village. The drive of individual officers; ownership of the land and process by the key partners and a fortunate co-incidence with work by a regional group, Sustainability West Midlands Climate Change Partnership, ensured that climate change adaptation was considered in the design and early layout and remediation of the site, primarily through sustainable drainage features and attention to detailing of the contouring of the new landform. Although the characteristics and requirements of the site and Bilston Brook have lent themselves to consideration of the site's adaptive capacity, there are clear lessons for other master planning process which need to consider the resilience of whole site and area infrastructure to climate change.

Background to the project

Plans for Bilston Urban Village started in 1998 when Wolverhampton Metropolitan Borough Council and English Partnerships commissioned a draft masterplan for a large mixed use development on old industrial, derelict and under used land south of the Black Country Route in Bilston. The 'urban village' was intended to be a flagship project which demonstrated sustainability through a mixture of housing, employment, retail, leisure and community facilities. The £200 million plus development, principally funded by Wolverhampton City Council, Advantage West Midlands and Places for People (the lead developer) is expected to create 350 jobs during the construction phase and almost 750 jobs once the scheme is completed and will include:

- A state of the art leisure centre,
- 800 new homes and
- 16,900 sq m of new employment accommodation.
- A primary and community care centre
- A new academy school and
- The development of a pedestrian link to the High Street
- Around 900 new homes
- Over 17,000 sq metres of employment space
- Major new green infrastructure



Figure : Artist impression, Bilston Urban Village. (Source: Simon Lucas presentation, Bilston Urban Village, Transformational Change in the Black Country)

According to the current Project Implementation Manager, Simon Lucas, the sustainability and climate change adaptation aspects of the project were largely driven by the enthusiasm of the former Sustainability Officer, and a fortunate co-incidence with work by the regional Sustainability West Midlands Climate Change Partnership in case studies which demonstrated action on climate change and the opportunity to test a new decision-making tool produced by UKCIP (UK Climate Impacts Programme).

The Bilston site also had particular characteristics which meant that issues of flooding and drainage would be otherwise considered. Bilston Brook runs through the middle of the site and, although originally an open watercourse, the Brook had been diverted and enclosed in culverts, which are also fed by existing storm water sewer tributaries. 34 of the 41 hectares of the site were impermeable surfaces and would contribute to storm runoff and could increase incidents of localised and regional flooding if not carefully managed.

Embedding adaptation in risk assessment and project appraisal

The UK Climate Impacts Programme scenarios (2002) and Risk and Uncertainty Framework were used to assess the impacts of future climate change on the site, rather than a business as usual approach in which design decisions are informed by historic rainfall data, and were used to embed climate change considerations into the mainstream risk assessment for the landform proposals, the Environmental Statement and Economic Impacts Appraisal.

The Economic Appraisal and accompanying risk workshop held as part of the process found that climate change was likely to be one of the most significant impacts on the site largely on the basis of its certainty of occurring. The Environmental Statement (2005) recognised the need for a network of open spaces, nature conservation areas, groundworks and infrastructure that is resilient to climate change, and the need for a sustainable urban drainage network to prevent flooding and pollution. According to the [Climate Change Assessment](#), the initial infrastructure and future development could include:

- Sustainable drainage features which meet Severn Trent’s requirements for 1 in 30 year rainfall and Environment Agency guidance for protection against 1 in 100 year flood events
- Highways drainage with runoff from the main road discharging into a pond
- Planting of climate resilient species of trees and shrubs
- Perennial water features to create cooler micro-climates
- Reduction of water requirements for irrigation through species choice, mulching and avoidance of raised beds
- Minimisation of hard surfaced areas within the neighbourhood park (which gain heat).

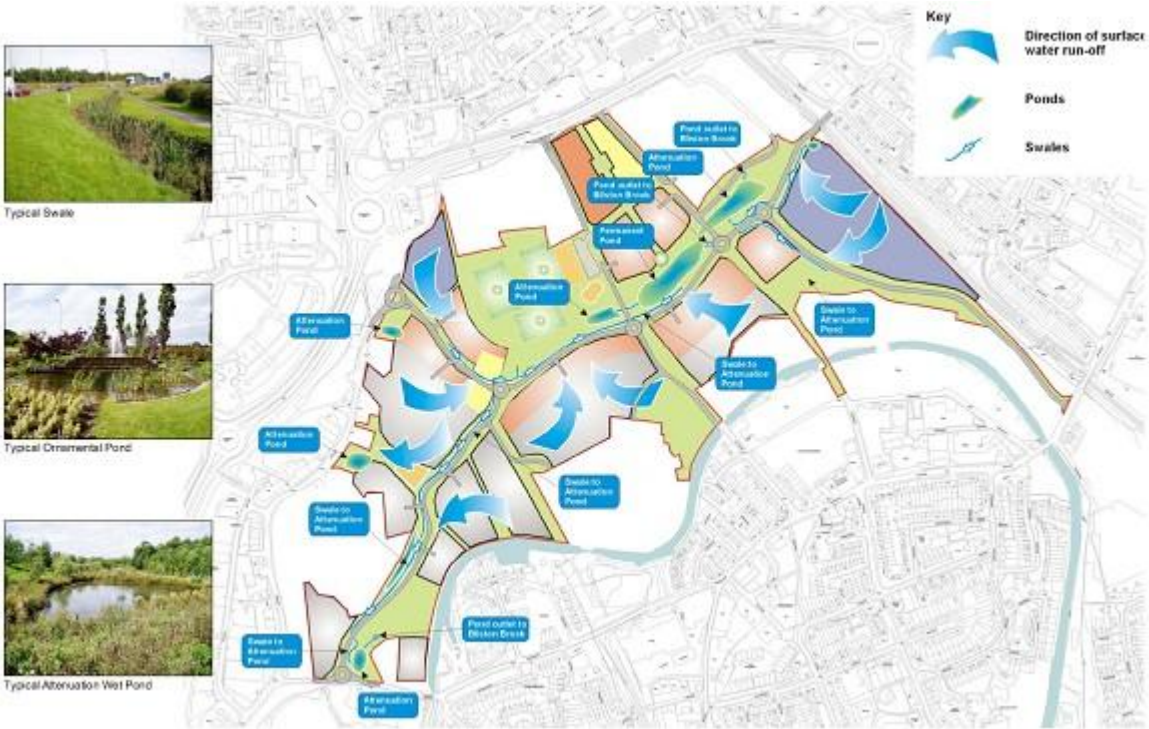


Figure: Proposed drainage features at Bilston Urban Village. (Source: Waterman Civils, Bilston Urban Village, Wolverhampton, Chapter 8: Drainage Strategy, 2004)

Planning adaptation measures

The first area to be developed was Plot A – the site for a potential leisure centre and health centre. The Climate Change Impacts and Adaptation Report for Bilston Leisure Centre (November 2008) states that the development design objectives will include:

- BREEAM rating of 'Very Good' as a minimum throughout the building design
- Incorporation of safe access routes in the event of flooding / extreme climate events
- Decreased run-off from the site
- Drainage systems which are designed to cope with more intense rainfall
- Consideration of planting to provide wind breaks/shelter
- Cladding to withstand increased wind speed
- Strong structure to cope with increased wind speeds and possible subsidence/heave
- Selection of plant species to take account of warmer/dryer climate
- Maximisation of opportunities for outdoor facilities
- Flexibility in the design so uses can alter over the lifetime of the building

Lessons learned

The lessons from the initial stages of the project are encapsulated in the Climate Change Adaptation Toolkit: A guide and checklist for construction. This CD-based resource produced by Wolverhampton City Council outlines the likely risks and impacts of climate change on the West Midlands and Wolverhampton area and the adaptation measures that can be built into development. The Toolkit provides a useful resource for other local authorities' planning and development control officers and developers. The key message from the toolkit is that 'it is essential that climate change adaptation is *explicitly* addressed in the planning, design and construction phases of all new development' and that 'building climate resilience into new developments will help to avoid unnecessary climate-related damage, costs and associated social impacts'.

Rosemary Coyne, Sustainable Design and Construction Policy Manager at Advantage West Midlands, concurs: "it is important to build resilience into the decision-making processes – through feasibility studies and master planning ... and that planning policy is thinking at an area-wide scale about the resilience of infrastructure". Indeed the Bilston project has presented its own challenges in taking a whole site/area approach to infrastructure and drainage, as the project has had to be developed in two distinct phases and processes.

Rosemary is concerned that there is not yet a comprehensive understanding of climate change adaptation issues at master planning stages and what consideration of such issues could achieve. Additionally, "understanding these issues can be a resource-intensive process, which raises the old debate about how much work is reasonable to expect from the developer and the local authority".

Simon Lucas at Wolverhampton City Council admits that, following intensive work to embed climate change adaptation within the outline planning application phase, the last 18 months have been spent procuring the lead contractor, putting the design process on hold. With time lapses and changes to site boundaries, the developer will now be required to re-submit its outline planning application. This re-submission presents challenges for the Council in “maintaining interest, enthusiasm and credibility with the local community”, according to Simon Lucas, but also provides an opportunity to revisit the opportunities for climate change adaptation amidst a more supportive policy and planning system - although past regional sustainability and climate change initiatives proved particularly helpful in providing the context for driving forward adaptation measures within development planning.

The characteristics of the site, ownership of the land and control of the planning process by the City Council and Advantage West Midlands also gave the local authority more control over how the process was undertaken. The City Council and AWM was able to set minimum requirements for the sustainability of the site, and gave the developers the freedom to meet these requirements in the most appropriate ways. This enabled the authority and the Agency to judge developers on their merits and encouraged them to apply higher standards, such as the equivalent of Level 4 for the Code for Sustainable Homes.

The project has also been lucky in that the planned adaptation measures have not incurred any additional costs. “In a way, the climate change assessments confirmed that the good design of the landform would accommodate future climate change”, says Simon Lucas.

While the process has yet to be applied to other large developments, the project complies with the Council’s adoption of the West Midlands Sustainability Checklist as their Sustainable Communities SDP, the regional Collaborative Construction Charter, which pledges to promote sustainable construction, and the Wolverhampton (area-wide) Climate Change Strategy and Action Plan 2009-12. Through its work in undertaking a Local Climate Impact Profile, high-level stock take of policies and work with the Wolverhampton Partnership, the Council is working to achieve Level 1 of NI188 by March 2010.

For more information:

[Bilston Urban Village](#)

[Wolverhampton City Council’s climate change work](#)

[Bilston Urban Village climate change assessment](#)

[Bilston Urban Village Environmental Statement \(October 2005\): Climate change assessment](#)

For copies of the Climate Change Adaptation Toolkit: A guide and checklist for construction, contact Simon Lucas, 01902 555 618, simon.lucas@wolverhampton.gov.uk
[West Midlands Sustainable Planning Checklist](#)



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ⁱ Adapting to Climate Change: guidance notes for NI188. Version 1.6 (Local and Regional Adaptation Partnership, December 2008)