Scrutiny
Final Report

Overview and Scrutiny
Management Committee

Scrutiny Inquiry into the Summer Emergency 2007



Gloucestershire
COUNTY COUNCIL

Scrutiny Inquiry into the Summer Emergency 2007

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Scrutiny Inquiry into the Summer Emergency 2007

Chairman's Foreword

This report is the culmination of the first formal stage of the County Council's Scrutiny Inquiry into the Summer Emergencies of 2007 that were caused by the devastating flooding and subsequent utility failures that affected the county in June and July.

We know that the people of Gloucestershire have had many questions about why the emergency happened and how we all responded, and we hope that we have been able to provide them with some of the answers in this report.

As a result of the summer flooding in different parts of the UK, two national inquiries have been commissioned and the County Council wanted to make sure that the views and interests of the people of Gloucestershire are fully represented at this national level.

In addition, the County Council wished to hold a specific, local inquiry to what happened in our wonderful county during this summer.

I must stress though that the work of this Scrutiny Inquiry is not yet complete. Within the recommendations are calls for ongoing work relating to planning issues and the establishment of a multi agency task force to examine some of the outstanding issues that could not be covered during the period of this stage of the Inquiry. Of particular note is the call for action plans to be produced and monitored which will hold bodies to account for the actions they have promised to take in response to the lessons learned.

It is my firm belief that there is simply no point in having inquires if subsequent recommendations and conclusions are not acted upon.

Even though the summer of 2007 saw the county suffering the worst peace time disaster in living memory, we must remember that there were many examples of individual courage, good neighbourliness, agency co-operation and robust emergency planning that helped prevent the situation from deteriorating into one of civil disorder and total loss of all utilities.

Whilst it is only natural for an inquiry of this nature to arrive at recommendations doing so, by its very nature, gives an impression that agencies did not cope and there were many failings in the response to the emergencies. This is simply not the case and the overwhelming view from the evidence given was that agencies did cope, people did receive drinking water and the power supplies were not lost.

Many agencies, including the emergency services, have already received public recognition for the excellent and professional manner in which they responded and I would like to take this opportunity to echo those remarks. In particular the manner in which BBC Radio Gloucestershire met their public service duty must be held in the highest regard.

Voluntary and charitable organisations, of all descriptions, played a vital role and the good nature and willingness to help shown by so many members of the public greatly assisted the professionals in coping with these demanding circumstances.

These examples of best practise must be recognised but where the response was not as expected this must also be addressed.

Above all it is essential to remember that even some five months after the emergencies many, many people are still living in temporary accommodation, have many personal and emotional worries caused by the emergencies and for them life is far from normal.

The emergencies have long since faded from the news but the enormous pressures upon sections of our communities are only now being realised and we must continue to take action to address these – not in the long term but the immediacy of giving support and answers is crucial.

We must also remember though that three people lost their lives in the emergencies and our sympathies are with the families concerned.

Attempts have been made to account for the full attributable cost of the emergency but little is known regarding the hidden cost to the County. For instance, how do you cost the time off work for people have had to take to cope with the repairs to their homes, the delivery of replacement furniture? The cost given to people to account for the health related problems they face? Who has estimated the business cost of the transport delays and the breakdown in transport infrastructure that has affected parts of the county? Even at this late stage it is becoming clear that there are many hidden costs yet to be realised that have resulted from the summer disaster.

The Inquiry has heard from many professional bodies and witnesses and members of the public and their contribution is very much appreciated. I have to say that I believe all people who appeared before the inquiry co-operated fully and provided honest answers to our questions. The follow up work by the Environment Agency has been particularly valuable to the Inquiry and our understanding of what happened – and indeed the future work they are planning.

It was disappointing though that despite being invited both Bellway Homes (in relation to Cypress Gardens) and Central Networks declined to attend the inquiry.

The Inquiry has produced 75 recommendations dealing with issues covering emergency management, future resilience of critical infrastructure, supporting people and strengthening community resilience and the planning process for new developments. We have also identified lessons to be learnt. I will be providing a copy of the report and findings to the national Inquiries and sharing it with other key influencers to ensure we make the necessary changes and improvements.

I have to thank my fellow members of the Scrutiny Inquiry who have met the many demands upon their time with much patience and worked in a spirit of true cross political party co-operation. Their actions have shown that the local government

scrutiny process can indeed be successful. In making a difference to the public we serve. The contribution by the two co-opted members of the inquiry has been invaluable.

County Council Officer support has been tremendous and I must thank Paul Galland, Richard Thorn, Christine Wray, Nigel Roberts, the Communication team, the Democratic Services team and the Scrutiny Team for the way they have supported this inquiry. In true form there will be some people whom I have neglected to mention but they will know who they are and that I do thank them.

Finally, as Chairman of this Inquiry, and Chairman of the County Council's Scrutiny Management Committee, I make a promise to the people of Gloucestershire that this Inquiry will be receiving follow-up reports and plans of action to be produced which show exactly what is happening to the recommendations we have made, and the conclusions we have reached.

The people of Gloucestershire deserve nothing less.

Cllr Rob Garnham.

Scrutiny Inquiry into the Summer Emergency 2007

Executive Summary

1.0 The Emergency

1.1 The risk of flooding in summer months is normally substantially lower than in other seasons due to the prevailing dry soil conditions, however the summer of 2007 was a notable exception to this rule. Record levels of rain fall in late spring and early summer led to widespread flooding in June, most notably in South Yorkshire and Humberside, but also in pockets within Gloucestershire, including significant flooding in Longlevens in Gloucester. These conditions meant that by early July soils were close to their wettest on record across much of England.

1.2 Exceptionally heavy and persistent rain fell over central and Southern England on 20th July 2007. In that one day, Gloucester received one and a half times the average monthly rainfall for July. Upstream at Worcestershire on the River Severn, and Evesham on the River Avon, the equivalent of two months rain occurred in a day.

1.3 This initial heavy rainfall caused minor rivers to burst their banks and overwhelmed many urban drainage systems producing localised and severe flash flooding. Further flooding occurred from the Rivers Avon, Severn, and Churn in the following days, with some properties experiencing flooding twice over the weekend, initially from flash flooding and then later from rising river levels. In total approximately 4000 homes, and over 500 businesses, were flooded in July.

1.4 On Sunday 22nd July the Mythe Water Treatment Works in Tewkesbury, operated by Severn Trent Water was flooded, leaving 350,000 people in Gloucestershire without water.

1.5 On Monday 23rd July Castlemeads electricity sub-station, operated by Central Networks, was shut down due to surge water, leaving 42,000 without power. The sub-station was not fully restored until 24 hours later. The Walham electricity sub-station was also at high-risk of flooding, which would have left the whole of Gloucestershire, and part of Wales and Herefordshire without power. Only a concerted effort involving the Fire and Rescue Service, the Military, the Environment Agency, and National Grid prevented the loss of this sub-station.

2.0 The Inquiry

2.1 At a national level the Environment, Food and Rural Affairs (EFRA) Select Committee is holding an inquiry into the summer flooding across the whole country. The Select Committee's work is intended to contribute to the conclusions of the independently led 'lessons learnt' parliamentary Inquiry, chaired by Sir Michael Pitt, which the Secretary of State announced on 12th July 2007.

2.2 Gloucestershire was one of the areas hardest hit by the flooding, which caused widespread devastation resulting in loss of electricity, drinking water, and sanitation as well as dislocation of the road and rail network. Furthermore the emergency and its aftermath highlighted the fact that crucial elements of the county's infrastructure are singularly vulnerable, whatever the emergency.

2.3 The County Council, as one of the community leaders, wanted to ensure that the views and interests of the people of Gloucestershire were represented in both of the planned national Inquiries. It also wanted to record local experiences and lessons to help inform improvements and future resilience to such emergencies in the county. In order to inform the Council's response to both the select committee and the parliamentary inquiry, this local Scrutiny Inquiry was therefore set up. This Inquiry was held in public and took evidence from local authorities, a range of partnership bodies, public utilities and other interested parties. The Inquiry set out to investigate the contributory causes of the summer flooding and risks to critical infrastructure, including the loss of water supply, and assess the lessons to be learned from the emergency response and its aftermath, which, amongst other things, will help inform the Council's contribution to the Select Committee and the Parliamentary Inquiry.

3.0 Methodology

3.1 The Inquiry took place over a 11-week period from 29th August 2007, when Gloucestershire County Council's Overview and Scrutiny Management Committee commissioned the Inquiry, to 21st November 2007, when the final report was presented to Council for endorsement.

3.2 The Inquiry followed a Select Committee style. Written evidence was requested from a range of agencies, and a total of 20 individuals and organisations were called as witnesses to answer questions at 4 Inquiry Hearings.

3.3 The Inquiry also sought to gather the views of the public through a public questionnaire, and through a series of 7 public drop-in sessions held at different locations around the county. The Inquiry received a total of 643 responses to its questionnaire, and 150 members of the public attended the drop-in sessions.

4.0 Findings

4.1 The Inquiry's findings can be divided into the following 6 key sections:

- Issues relating to the emergency response
- Issues relating to watercourses, drains and sewers
- Issues relating to the land use planning process
- Issues relating to single points of failure
- Issues relating to communications

- Issues relating to recovery and future resilience, including local people and communities

4.2 The Emergency Response

4.2.1 The Inquiry process has highlighted a number of areas concerning the emergency response. The main issues raised are as follows:

- The adequacy of flood warning systems
- The adequacy of the County Council's Major Flooding Emergency Plan
- Variations in policies for the distribution of sandbags
- Problems with the location of the Emergency Management Service Emergency Response Centre
- The value of the Tri-Service Emergency Centre
- Provision of an alternative water supply

4.3 Watercourses, Drains and Sewers

4.3.1 The Inquiry has highlighted a number of concerns relating to watercourses, drains and sewers, most notably:

- The lack of a body to coordinate/assume overall responsibility for the maintenance of watercourses
- The adequacy of highways drainage and associated maintenance regimes
- The lack of knowledge of the overall capacity of the county's drainage system
- Problems with the adoption of private sewers
- The impact of new developments on existing drainage systems

4.4 The Planning Process

4.4.1 The Inquiry has examined the issue of developments on the floodplain, and the role of the Environment Agency in this process. However, the Inquiry has not been able to investigate this complex issue in detail and is therefore proposing a further task-group to tackle issues related to flood risk, land use planning and new developments.

4.5 Single Points of Failure

4.5.1 The existence of single points of failure within the County's critical infrastructure was highlighted as a result of the loss of the Mythe Water Treatment works, the short-term loss of the Castlemeads Electricity Substation, and the threat to Walham Electricity Substation. The Inquiry has looked at these matters in some detail and has raised a number of issues, most notably:

- The need for utilities to work much more effectively with the Local Resilience Forum and ensure that key agencies are aware of all risks to the County's critical infrastructure and have in place adequate emergency and business continuity plans.

- The need for a secondary piped water supply for Gloucestershire to allow mains supplies to be maintained if the Mythe Water Treatment Works fails.
- The need for utilities' contingency plans to be thoroughly tested through the Local Resilience Forum (LRF)
- The need for utilities to invest in permanent flood defences if key infrastructure is to remain in its current location.

4.6 Communications

4.6.1 Numerous examples were cited of where communications could have been improved, including.

- Engagement of key agencies in the development of the council's emergency flood plan
- Some of the communications through the emergency command structure (especially to and from district Councils)
- Communications with the media (initially)
- Communications with elected members
- Communications to the wider group of council staff
- Misleading communications with the public, from within and outside Gloucestershire, on issues such as the extent of the lack of drinking water and the potential evacuation of Gloucestershire

4.7 Recovery and Resilience

4.7.1 Issues relating to recovery and future resilience from the perspective of local people and communities.

4.7.2 One of the key issues to emerge strongly during the Inquiry is the impact of the flooding on the psychological and emotional well being of individuals and families affected by the flooding. It is clear that more work is needed to address this area to help people recover from this very traumatic set of events

4.7.3 In addition, in terms of future resilience, the ability of individuals and local communities to be more self reliant in situations where emergency services and other responders are occupied beyond the ability to deal with all the calls being made upon them needs to be developed.

5.0 Recommendations

5.1 The Inquiry has made a number of recommendations in this report. For ease of reference these recommendations are summarised on an agency-by-agency basis in Chapter 12.

Scrutiny Inquiry into the Summer Emergency 2007

Chapter 1 - Introduction

1.0 The Emergency

1.1 The risk of flooding in summer months is normally lower than in other seasons due to the prevailing dry soil conditions, however the summer of 2007 was a notable exception to this rule. Record levels of rainfall in late spring and early summer led to widespread flooding in June, most notably in South Yorkshire and Humberside, but also in pockets within Gloucestershire, including significant flooding in Longlevens in Gloucester, and in parts of Cheltenham. These conditions meant that by early July soils were close to their wettest on record across much of England.

1.2 Exceptionally heavy and persistent rain fell over Central and Southern England on 20th July 2007. In that one day, Gloucester received one and a half times the average monthly rainfall for July. Upstream in Worcestershire on the River Severn, and Evesham on the River Avon, the equivalent of two months rain occurred in a day.

1.3 This initial heavy rainfall caused minor rivers to burst their banks and overwhelmed many urban drainage systems producing localised and severe flash flooding. Further flooding occurred from the Rivers Avon, Severn, and Churn in the following days, with some properties experiencing flooding twice over the weekend, initially from flash flooding and then later from rising river levels. In total approximately 4000 homes, and over 500 businesses, were flooded in July.

1.4 The extent of the flooding left many people stranded as critical elements of the transport network ground to a halt – approximately 10,000 people were left stranded on the M5 motorway and roads overnight on 20th July, and an estimated 500 people were left stranded at Gloucester Railway Station as the rail network failed.

1.5 On Sunday 22nd July the Mythe Water Treatment Works in Tewkesbury, operated by Severn Trent Water was flooded, leaving some 350,000 people in Gloucestershire without a mains tap water supply.

1.6 On Monday 23rd July Castlemeads electricity sub-station, operated by Central Networks, was shut down due to flooding, leaving approximately 42,000 people without power. The sub-station was not fully restored until 24 hours later. The Walham electricity sub-station was also at high risk of flooding, which would have left the whole of Gloucestershire, and part of Wales and Herefordshire without power. Only a concerted effort involving the Fire and Rescue Service, the Military, the Environment Agency, and National Grid prevented the flooding of this sub-station.

2.0 The Scrutiny Inquiry

2.1 At a national level the Environment, Food and Rural Affairs (EFRA) Select Committee is holding an inquiry into the summer flooding across the whole country. The Select Committee's work is intended to contribute to the conclusions of the independently led 'lessons learnt' parliamentary inquiry, chaired by Sir Michael Pitt, which the Secretary of State announced on 12th July 2007.

2.2 Gloucestershire was one of the areas hardest hit by the flooding, which caused widespread devastation resulting in loss of electricity, drinking water, and sanitation as well as dislocation of the road and rail network. Furthermore the emergency and its aftermath highlighted the fact that crucial elements of the county's infrastructure are singularly vulnerable.

2.3 The County Council, as one of the community leaders, wanted to ensure that the views and interests of the people of Gloucestershire were represented in both of the planned national Inquiries. In order to inform the Council's response to both the Select committee and the Parliamentary Inquiry, this local Scrutiny Inquiry was therefore set up. The Inquiry was held in public and took evidence from local authorities, a range of partnership bodies, public utilities and other interested parties in order to investigate the contributory causes of the summer flooding and assess the lessons to be learnt from the emergency response and its aftermath, which, amongst other things, will help inform the Council's contribution to the Select Committee and the Parliamentary Inquiry. The Council's initial response to the Select Committee can be seen in appendix 7.

2.4 Specifically the Scrutiny Inquiry was set up to take evidence in order to build up a picture of:

- Types of flooding and the contributory factors that give rise to different types of flooding such as the effectiveness of critical watercourses, the resilience of drainage systems or the efficiency of expensive flood defences.
- Urban flooding and all associated matters e.g. riparian responsibilities, building on the flood plain, the clearance and maintenance of streams, brooks, gullies, and sewers etc. It was agreed that there would be a particular focus on Longlevens as an example of urban flooding, as it experienced significant flooding in both June and July.
- The effect of key Gloucestershire public utilities being sited close to major rivers and what emergency and business continuity plans are in place
- The emergency response by the county council and other agencies involved in the Emergency including the contribution of the Tri-Service Centre and the effectiveness of Gold Command.

In order to:

- Highlight any contributory factors, beyond the exceptional weather conditions, that resulted in the flooding.

- Seek reassurance regarding the resilience of plans to safeguard those utilities that have been identified as *single points of failure* whatever the emergency
- Identify good practice by the council and other agencies in response to the flooding and its aftermath
- Identify aspects of the response that could have been managed more effectively

In order to:

- Identify the lessons that can be learnt from the emergency and responses to it
- Provide the local community with the assurance that there has been a transparent review of all aspects of the emergency and its aftermath to date and that the lessons learnt will both:
    - Inform national agencies about actions needed at that level
    - Enable local agencies to ensure good practice is maintained and to improve their reaction to future emergencies.
- To make recommendations, if appropriate, on measures that could improve the council's and other agencies' response to future emergencies
- To identify, if appropriate, whether there are opportunities in the recovery process to improve the resilience of the county's infrastructure
- To inform the Council's response to the Parliamentary Select Committee on Flooding and the Parliamentary Inquiry on "The Lessons Learnt"

3.0 The Inquiry Team

3.1 Gloucestershire County Council's Overview and Scrutiny Management Committee commissioned the Inquiry to undertake the tasks described above, and agreed that the Inquiry Team would be made up of the following elected members:

- County Councillor Rob Garnham (Landsdown, Park and Warden Hill Division)
- County Councillor Maureen Rutter (Stroud West Division)
- County Councillor Bill Crowther (Hucclecote Division)
- County Councillor Kathy Williams (Longlevens Division)
- County Councillor Bill Evans (West Dean Division)
- County Councillor Roger Brown (Cirencester Division)
- County Councillor Barbara Cromwell (Tewkesbury Division)

3.2 Subsequently the inquiry Team agreed to co-opt an additional two members:

- Gloucester City Councillor Phil Taylor (Barnwood Ward)
- Professor Carolyn Roberts from the University of Gloucestershire.

Professor Roberts was co-opted to provide specialist technical advice to the Inquiry. Professor Roberts' area of expertise is water resources management, and she has a particular interest in Sustainable Urban Drainage Systems (SUDS). She is also the National Chair of the Institution of Environmental Sciences, which is the professional body for practicing environmental scientists.

3.3 County Councillor Rob Garnham was elected to Chair the Inquiry.

3.4 In addition to this it was agreed that the following elected members would act as substitutes in the absence of a full member of the Inquiry Team:

- County Councillor Lesley Williams
- County Councillor John Cordwell

3.5 The Inquiry Team was supported by the following officers from Gloucestershire County Council:

- Paul Galland – Director Environment (Lead Officer)
- Christine Wray – Assistant Director of Law and Administration
- Richard Thorn – Senior Project Officer (Scrutiny)

3.6 Further support was provided by Clare Davis, Deputy Manager of the Research and Intelligence Team, who was responsible for analysing the public feedback; and by Nicola Davies, Media and PR Manager, who was responsible for all communications relating to the Inquiry.

4.0 Methodology

4.1 The Inquiry took place over an 11-week period from 29th August, when Overview and Scrutiny Management Committee commissioned the Inquiry, to 21st November, when the final report was presented to Council for endorsement. This was a very short timescale for such a wide-ranging investigation, but the deadline was dictated by the need to complete the work in time to feed into the national inquiries, and the need to provide reassurance to the public that the issue was being investigated.

4.2 The Inquiry was based on a select committee style investigation. The Inquiry Team asked large number of organisations to provide written evidence to help inform the Inquiry, and then invited key witnesses to attend formal Inquiry Hearings at the Guildhall in Gloucester to answer questions.

4.3 The following organisations and individuals provided formal written submissions to the Inquiry:

- BBC Radio Gloucestershire
- Cheltenham Borough Council
- Cotswold Council for Voluntary Service
- Cotswold District Council
- Councillor Chas Townley on behalf of Stroud Town Council
- Councillor Chris Witts (Gloucester City Council)
- Councillor Phillip Booth on behalf of the Stroud District Green Party
- Councillor Susan Jones (Gloucester City Council)
- David Giles on behalf of the Park Avenue Residents Group (Longlevens, Gloucester)
- Duncan Jordan, Group Director Environment, Gloucestershire County Council
- Forest of Dean District Council
- Geoff Chapman on behalf of Poulton Parish Council

- Gloucester City Council
- Gloucestershire Constabulary
- Gloucestershire County Council's Emergency Management Service
- Gloucestershire Echo
- Gloucestershire Fire and Rescue Service
- Gloucestershire First
- Gloucestershire Highways
- Great Western Ambulance Trust
- Margaret Sheather, Group Director Community and Adult Care, Gloucestershire County Council
- National Grid
- Royal National Lifeboat Institution
- Severn Sound
- Severn Trent Water
- South West Regional Assembly (planning officers)
- Star Radio 107.5
- Tewkesbury Borough Council
- Tewkesbury Town Council
- The Citizen Newspaper
- The Environment Agency
- The National Flood Forum
- Women's Royal Voluntary Service

4.4 In addition to these formal written submissions, the Inquiry received copies of a number of correspondences between other agencies, and was sent copies of other background material and photographs demonstrating the impact of the flooding.

4.5 The following organisations were invited to attend one of the formal Inquiry Hearings to answer questions from the Inquiry Team:

- Inquiry Hearing number 1 – 4th October 2007
    - The Environment Agency
    - Cheltenham Borough Council
    - Cotswold District Council
    - Gloucester City Council
    - Tewkesbury Borough Council
    - Gloucestershire County Council's Emergency Management Service
- Inquiry Hearing number 2 – 11th October 2007
    - Severn Trent Water
    - National Grid
    - Gloucestershire County Council's Community and Adult Care Directorate
    - Gloucestershire Fire and Rescue Service
- Inquiry Hearing number 3 – 17th October 2007
    - Gloucestershire County Council Planning Officers
    - South West Regional Assembly Planning Officers
    - National Flood Forum
    - Gloucestershire Highways
    - Gloucestershire First

    - Tewkesbury Town Council
    - The Environment Agency
- Inquiry Hearing number 4 – 25th October 2007
    - Longlevens Community Groups
    - BBC Radio Gloucestershire
    - Gloucestershire Constabulary
    - Gloucestershire County Council to cover Recovery and Infrastructure Resilience
    - Local Resilience Forum

4.6 Bellway Homes (a housing developer) and Central Networks were also invited to provide written submissions and attend one of the Inquiry Hearings, however Central Networks declined to take part and no response was received from Bellway Homes.

4.7 The Inquiry Team also sought to gather information from local residents about their experiences during the emergency to inform the investigation. This was done in two main ways, firstly through a public questionnaire that was made available on the County Council website, at local libraries, and was distributed to local residents by members of the Inquiry Team and some other Councillors; and secondly via 7 public drop-in sessions held at different venues around the county.

4.8 In total there were 643 responses via the public questionnaire. An analysis of the feedback is provided in Chapter 9 of this report.

4.9 The following public drop-in sessions were also held:

- 6.30pm to 8.30pm on 15th October, in the Council Chamber at the Stroud District Council Offices
- 6.30pm to 8.30pm on 16th October, in Committee Room 1 at the Gloucester City Council Offices
- 6.30pm to 8.30pm on 16th October, in the Pittville Room at the Cheltenham Borough Council Offices
- 7.00pm to 9.00pm on the 17th October, in the Council Chamber at the Cotswold District Council Offices
- 6.00pm to 8.00pm on the 18th October, in Chipping Campden Library
- 6.30pm to 8.30pm on the 22nd October, in Committee Room 1 at the Tewkesbury Borough Council Offices
- 7.00pm to 9.00pm on the 22nd October, in the Council Chamber at the Forest of Dean District Council Offices

These drop-in sessions provided members of the public with the opportunity to speak to members of the Inquiry Team about their experiences during the emergency, and also allowed them to take part in a number of other activities designed to gather information about their experiences. In total approximately 150 people attended these drop in events. A summary of the feedback is available in Chapter 9, and more detailed feedback is available in appendix 4.

4.10 During the Inquiry, some organisations and individuals came forward with questions, recommendations or requests for specific actions which they believed would help to reduce the risks or negative impacts of future flooding

at particular locations. The Inquiry Team does not offer a view on whether these proposals are appropriate or workable in this report, but does feel that the requests should be considered. In some cases these proposals or questions can be referred to a specific agency, however, in others the recommendations would seem to require a multi-agency response. The Inquiry is aware that a multi-agency infrastructure working group has been established by the County Council and suggests that this group is the vehicle to refer these suggestions to the appropriate agencies with a view to providing responses to the matters that have been raised.

Recommendation - *That the recommendations made and questions raised by organisations and individuals during the course of the Inquiry are referred to the appropriate agency for a response and that the multi-agency group established by the County Council be used as a vehicle for addressing these issues where appropriate.*

5.0 Types of flooding

5.1 Throughout this report we refer to two types of flooding – flash flooding and river flooding. In this Inquiry, when we use the term flash flooding we are referring to any incidents of rapidly rising water levels that resulted in flooding, which then usually drained away quickly. This type of flooding could be caused by surface water run-off, overflowing drains, or watercourses bursting their banks. River flooding refers to the more gradual flooding caused as the water levels in the county's larger rivers rose over a number of days and spilled out onto the natural floodplain.

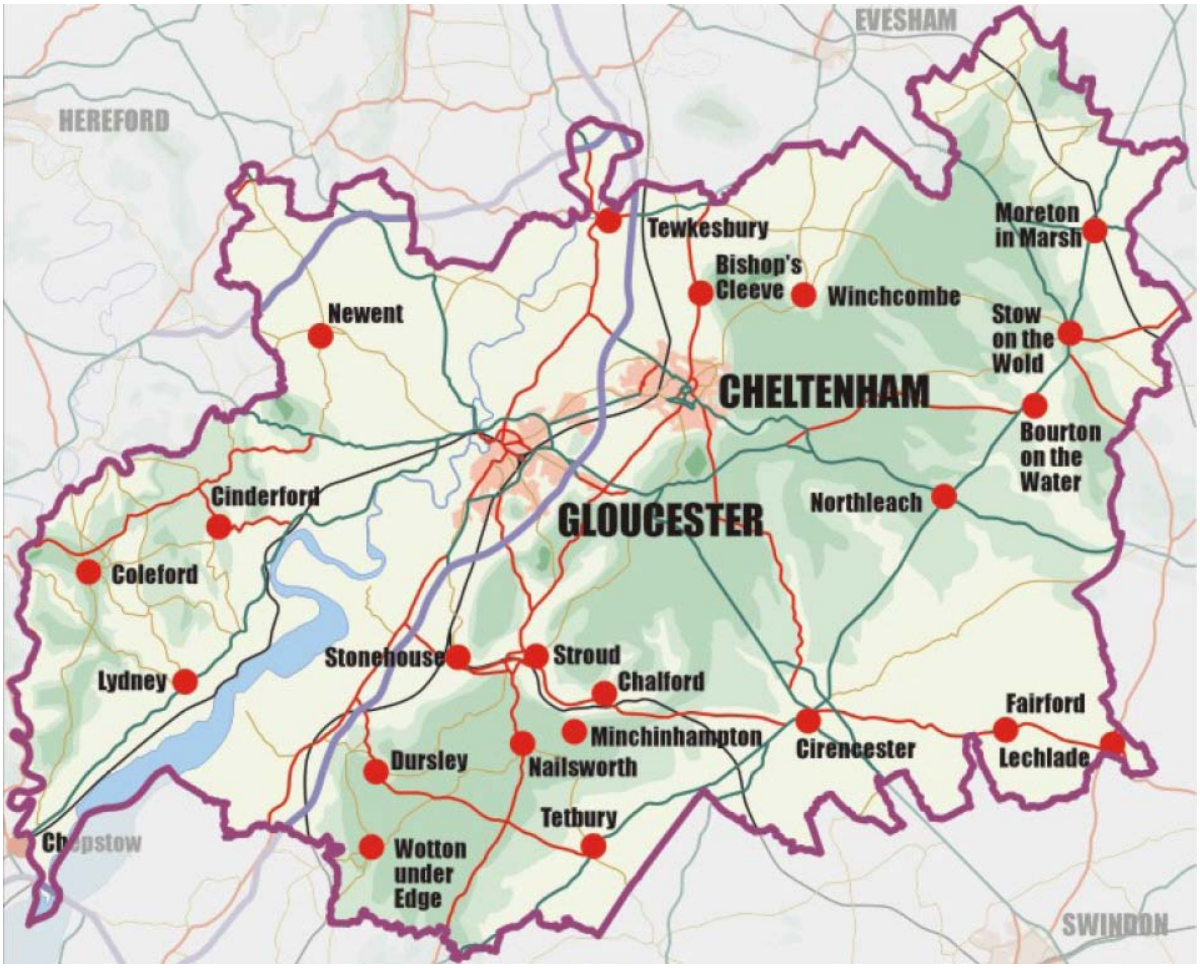
Chapter 2 – The July Floods: The Sequence of Events

1.0 About Gloucestershire

1.1 The county of Gloucestershire covers an area of 1,025 square miles. Geographically, it splits into three areas, the Cotswolds, the Royal Forest of Dean and the Severn Vale with a total population of about 575,200. It is largely a rural county but has two main urban centres, Gloucester and Cheltenham, which are separated by an area of Green Belt. These two urban centres are home to nearly 50% of the counties residents.

1.2 The River Severn divides the county in two parts. Gloucester's location, next to the River Severn makes it vulnerable to river flood events. Tewkesbury, to the north of the county, is also particularly vulnerable to flooding from the River Severn and the River Avon.

1.3 The geography of the county is shown in the map below.



2.0 Friday 20th July 2007

2.1 On Thursday 19th July the Met Office warned that there would be 'a major rainfall event' across Gloucestershire on 20th July. Preparations were therefore made to set up the County Council's emergency management centre in the basement of Shire Hall.

2.2 By the morning of 20th July heavy rain was falling across a large part of Gloucestershire, and throughout the day continuous and at times torrential rain continued to fall, with the Environment Agency reporting that there had been 78mm (over 3 inches) of rain over a 12 hour period. The County Council's emergency centre went live at approximately 2.15pm.

2.3 The volume of rain caused rapid and intense flash flooding across parts of central and northern Gloucestershire, with pockets of flooding elsewhere in the county.

2.4 Initially severe flash flooding was experienced in Chipping Campden and Moreton-in-Marsh, but flooding soon spread to Tewkesbury and parts of Cheltenham and Gloucester. Flash flooding events also occurred in areas such as Bishops Cleeve, Bourton-on-the Water, Swindon Village, Cirencester, Stroud, and Upton-St-Leonards.

2.5 Motorists and public transport users found themselves stranded as the transport network struggled to cope with the conditions – an estimated 10,000 motorists were stranded overnight on the M5 between junctions 10 and 12 and on some other roads, and approximately 500 people were stranded at Gloucester Railway Station as the railway network failed. Rest centres were established in Moreton-in-Marsh, Chipping Campden, Gloucester, Cheltenham, and Tewkesbury to help people that could not get home. These rest centres collectively accommodated around 2000 people at the height of the emergency.

3.0 Saturday 21st July 2007

3.1 The worst of the rain had passed by late evening on 20th July, but problems continued on 21st July, particularly in Tewkesbury, and parts of Chipping Campden, Moreton-in-Marsh, Lechlade, Cirencester, and South Cerney.

3.2 The County Council emergency centre was focused on working with the rest centres to get people mobile, and by the end of the day only 80 people were left at the rest centres.

3.3 The effects of the initial flash flooding were beginning to ease but information provided by the Environment Agency late on Saturday night brought the prospect of further flooding.

4.0 Sunday 22nd July 2007

4.1 A severe flood warning for the River Severn was issued by the Environment Agency on Sunday morning.

4.2 At around 3am Severn Trent Water's Mythe Water Treatment works near Tewkesbury was breached by floodwater from the river and a controlled shut down was carried out and the site was evacuated.

4.3 This was followed by the news that there was a high risk that the Walham electricity sub-station, which serves Gloucestershire and parts of Wales and Herefordshire, could be flooded leading to electricity failure. Gloucestershire Fire and Rescue Service led the efforts to save Walham from flooding, calling in flood defence barriers and additional pumping equipment.

4.4 The potential flooding of the Gloucester Quay in Gloucester led to the decision by the County Council to move the emergency centre from Shire Hall to the Tri-Service Centre in Quedgeley, and to temporarily close Shire Hall.

5.0 Monday 23rd July 2007

5.1 The massive operation continued on 23rd July to prevent serious flooding at Walham sub-station up until the predicted high tide at 3am. The flood defences withstood the high tide and the immediate threat of loss of electricity passed.

5.2 However, at the Castlemeads electricity sub-station, operated by Central Networks, the situation had deteriorated and surge water had overwhelmed the pumps. This led to a controlled switch off of power, initially leaving about 42,000 people in Gloucester without power. By the end of the day the number of homes without power was reduced to 1,800.

5.3 The Environment Agency predicted a 5.1 metre water level at the Quay in Gloucester throughout the night, which meant that Gloucester City was at high risk of further flooding.

6.0 Tuesday 24th July

6.1 Pumping work continued at Walham, although the immediate threat of flooding had passed. Pumping was also underway at the Mythe Water Treatment works, as Severn Trent predicted that re-supply would take anything from 7 to 14 days.

6.2 Distribution of bottled water became a priority with 1 million litres distributed by the end of the day. The number of bowsers across the county was increased to 700 by the end of the day.

7.0 Wednesday 25th July

7.1 Castlemeads and Walham now appeared to be secure. Work to assess the damage at the Mythe Water Treatment works was underway.

7.2 By the end of the day 900 bowsers were deployed across the county, and distribution of bottled water continued.

8.0 Thursday 26th July

8.1 Repair work continued at the Mythe Water Treatment works.

8.2 There were now 1050 bowsers distributed across the county, with 57 tankers on the road replenishing them. A further 2.5 million litres of bottled water were distributed to a range of collection points.

8.3 In mid-afternoon some further localised flash flooding occurred, including further flooding in Cypress Gardens in Longlevens.

8.4 Gloucestershire Highways began a thorough inspection of all of the roads in Gloucestershire.

9.0 Friday 27th July

9.1 A severe weather warning was issued for 8.00pm on Saturday evening, with 40-50mm of rain forecast in a 6 hour period, creating the potential for further flash flooding.

9.2 Bottled water distribution continued, with 2.5/3 million litres being delivered per day. Bowsers continue to be refilled up to 3 times per day.

9.3 Severn Trent Water opened the Strensham valve in order to provide an alternative piped water supply to 9,000 residents in the Tewkesbury area. This water was not of drinking quality.

10.0 Saturday 28th July

10.1 1450 bowsers available across the county, and 2.8 million litres of bottled water distributed.

10.2 Work on enhanced flood defences at the Mythe and Walham now well underway. Sandbags being prepared in preparation for the expected flash-flooding.

10.3 Re-commissioning of the Mythe Water Treatment works underway.

11.0 Sunday 29th July

11.1 Work on the enhanced flood defences at the Mythe Water Treatment Works and Walham Electricity Substation complete. Re-commissioning at the Mythe Water Treatment Works also complete.

11.2 Severn Trent begin to refill the reservoirs.

12.0 Monday 31st July

12.1 Sever Trent Water began to release water to Gloucester, Tewkesbury, and the North Cotswolds, but 'do not drink' warnings were issued as sampling continued to ascertain if the water was of drinking quality.

13.0 Tuesday 31st July to Monday 6th August

13.1 By 1st August 98% of residents had their mains water supply restored. 'Do not drink' advice changed to 'boil before drinking' on Friday 3rd August. Bottled water continued to be made available until Severn Trent confirmed the water was fit to drink.

13.2 On Monday 6th August the Police, Gloucestershire County Council, and Severn Trent formally acknowledged that the situation overall had moved from emergency to recovery, with the County Council now taking on the lead role for recovery.

14.0 The Impact of the Emergency

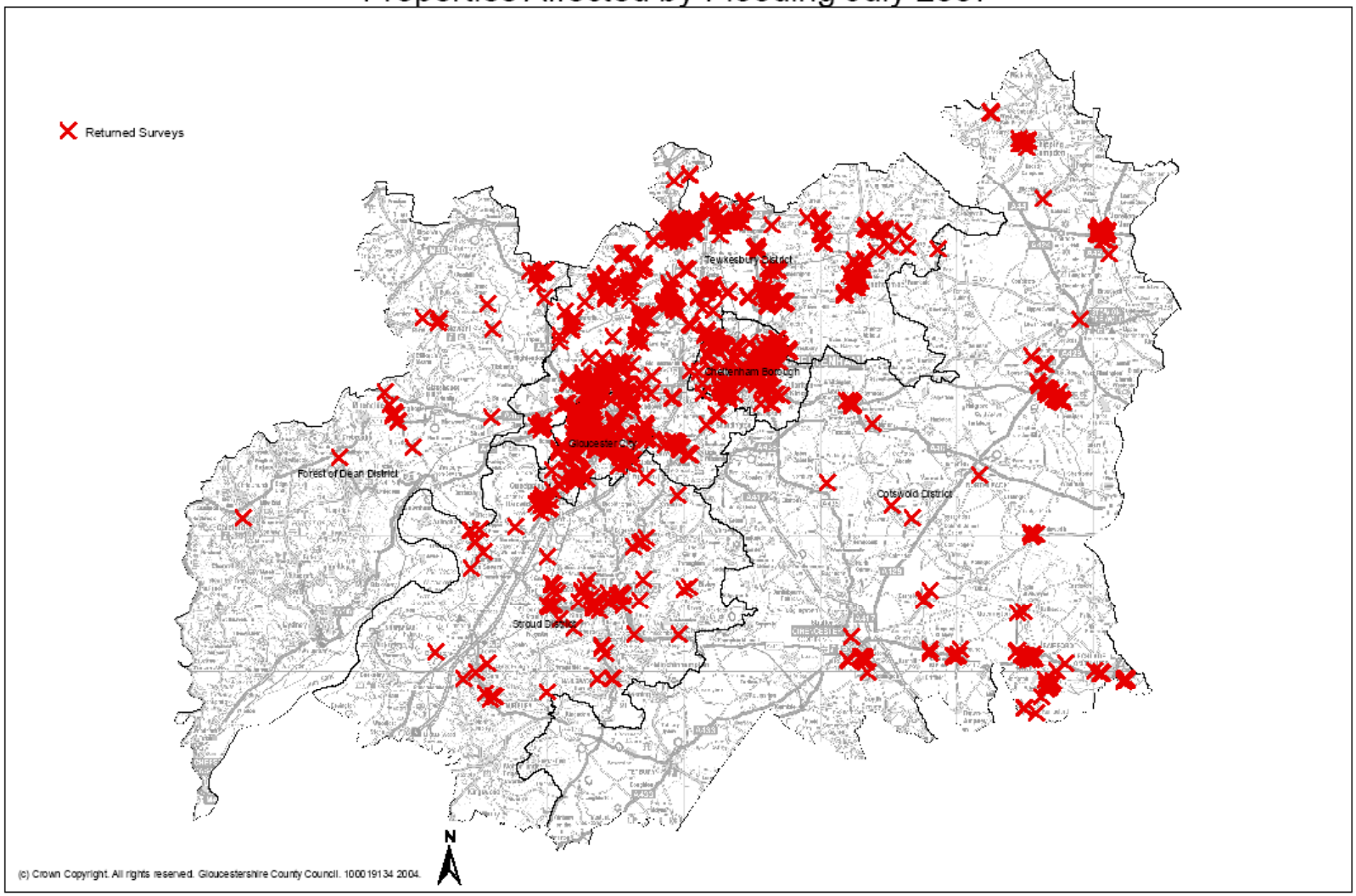
14.1 Residents

14.1.1 As described earlier according to the figures from the District Councils' household surveys approximately 3966 homes were flooded as a result of the July events. Although a great deal of this flooding occurred in Tewkesbury (approximately 1500 homes), Gloucester (approximately 980 homes) and Cheltenham (approximately 650 homes), there were also significant pockets of flooding in other areas across the county, as demonstrated in the map on the following page.

14.1.2 The level of flooding was severe enough to force approximately 825 households to move out of their home for a period of time. This involved approximately 1950 people, including 490 children. Many of these people are still unable to return to their homes and will be living in temporary accommodation for the foreseeable future.

14.1.3 Clearly this degree of flooding will have resulted in significant personal losses. The Household survey indicates that up to 1300 houses experienced loss of possessions – for example 1020 cookers, 1230 fridges, and 1170 washing machines were seriously damaged. Many people also lost sentimental items such as family photographs that cannot be replaced. Of the 1300 properties with significant damage to contents approximately 270 households had no contents insurance

Properties Affected by Flooding July 2007



DATE: 5 September 2007 SCALE: 1:263,329

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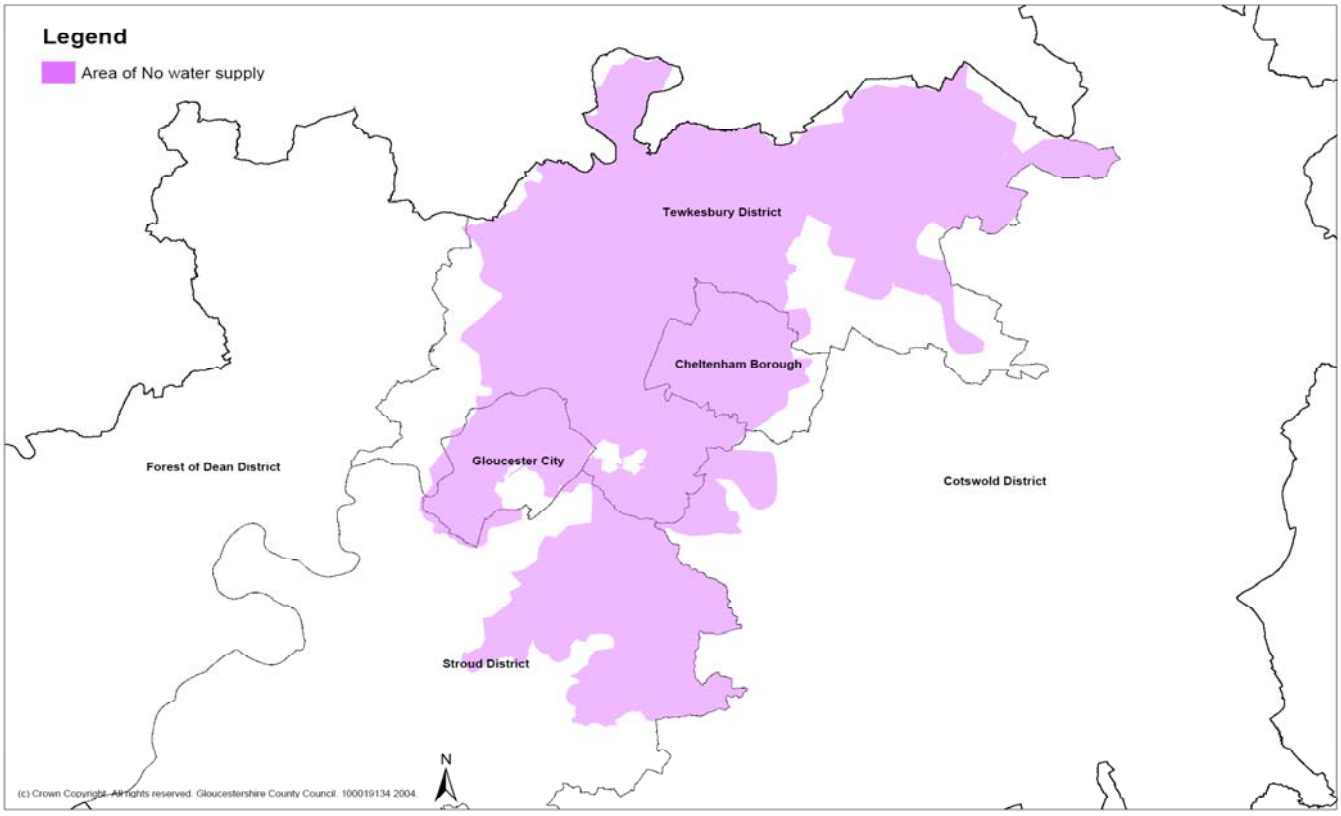
GCC Research Team

14.1.4 The flooding of the Mythe Water Treatment Works in Tewkesbury had a significant impact on the residents of Gloucestershire, as it left 350,000 people without clean running water for up to 18 days. This meant that there was no tap water for drinking, cooking, washing, or sanitation purposes for a prolonged period of time, causing severe difficulties for many people, despite the efforts to provide alternative water through the use of bowsers and bottled water. The loss of water caused particular difficulties for people without access to their own transport, as it was difficult for them to collect bottled water from the distribution points, and also for many elderly residents who experienced difficulty in collecting water from the bowsers, lifting buckets to flush toilets and even opening the bottles of water in some cases. The extent of the water loss is demonstrated in the map below.

Extent of Water Supply Failure



DATE: 17 August 2007 SCALE: 1:87,320

GCC Research Team

Research Team, Chief Executive's Support Unit - email: research@gloucestershire.gov.uk

14.1.5 Feedback at the Inquiry's public drop-in sessions indicated that there may be some longer term impacts on some residents. Members of the Inquiry Team heard stories of residents being fearful every time it rains in case they flood again, and of children being scared of the rain and hiding away at the first sign of rain. In one instance an elderly resident commented that he would rather die than go through the same experience again. This issue is discussed in more detail later in the report.

14.2 The Highways Network

14.2.1 The highways network was badly damaged by the floods, and significant effort went into the clearing up and making safe of roads in the immediate aftermath of the floods. The extent of the damage to highways in Gloucestershire is much worse than in other parts of the country, with an estimated total repair bill of £25 million.

14.3 Schools

14.3.1 The flooding caused damage to 20 schools within Gloucestershire. The most extensive damage was to St David's Primary School in Moreton-in-Marsh, where the cost of repairs is estimated at £1.9 million. The cost of repairs at the other schools in Gloucestershire ranged from £1000 up to £90,000, with a total repair bill of over £2.4 million. However, the timing of the emergency meant that disruption to education was minimised, and pupils were able to return to school on time in September.

14.4 The Economy

14.4.1 Approximately 500 businesses were flooded and over 7,500 temporarily closed or disrupted by loss of water supply. Small and medium-sized businesses that were flooded have been able to apply for recovery grants of £2,500 (up to £2,000 for farmers) from a £2 million fund provided by the South West Regional Development Agency (SWRDA) and administered by Business Link. Approximately £1.2 million worth of support has been provided through this scheme. The balance of the SWRDA fund is being invested in support of recovery plans for the three key sectors of tourism, retail, and agriculture. This includes marketing, promotional events such as the Tall Ships festival in Gloucester at the end of October, and other support for town centres.

14.5.1 Although details are not yet available to confirm this it is understood that the financial loss associated with the summer emergency will have resulted in the closure of some small and medium sized businesses.

14.6 Community Buildings

14.6.1 There was damage to a number of other community facilities including significant damage to Cheltenham Leisure Centre and Cirencester Leisure Centre, damage to Tewkesbury Youth Centre and the Moreton Youth Project, and damage to a number of village halls. The estimated repairs to these facilities is at least £2 million. In addition, buildings that have traditionally been used by local people as the community focus were flooded. This compounded problems faced by people who would have normally gone to their community centre to obtain news and seek help.

Scrutiny Inquiry into the Summer Emergency 2007

Chapter 3 – The Emergency Response

1.0 Introduction

1.1 This Chapter considers specific issues relating to the emergency response that were raised during the inquiry. It focuses on issues related to Flood Warning Systems, the County Council's Major Flooding Emergency Plan, sandbag policies, the Emergency Management Service Emergency Response Centre, the role of the Tri-Service Centre, and water distribution.

2.0 Flood Warning Systems

2.1 The Environment Agency issues flood warnings based on conditions within catchments and around the coast. It uses this data and Meteorological Office information to forecast the impact in Flood Warning Areas. The level of warning issued depends upon the forecast severity of the incident.

2.2 The EA operates a four stage system that includes an 'all-clear' stage when all flood warnings and/or flood watches are removed. The stages are summarised below:

Warning Level	Definition
FLOOD WATCH 	Flooding of low-lying land and roads expected. Be aware! Be prepared! Watch out!
FLOOD WARNING 	Flooding of homes & businesses is expected. Act now!
SEVERE FLOOD WARNING 	Severe flooding is expected. There is extreme danger to life and property. Act NOW!
ALL CLEAR 	Flood Watches or Warnings are no longer in force in this area.

2.3 Flood watches may be issued for entire river catchments or groups of river catchments, whereas the Flood Warning Service applies to specific locations known as 'Flood Warning Areas', which are more closely targeted. A list of the flood watch areas and the flood warning areas within them is below.

Flood Watch Areas	Flood Warning Areas (to and from limits)
River Severn in Gloucestershire (From Tewkesbury to Gloucestershire)	River Severn from Tewkesbury to upstream of Gloucester
	River Severn at Gloucester
	Tidal River Severn at Gloucester
Severn Estuary (from Gloucester to	Severn Estuary between Gloucester and

Aust)	Westbury
	Severn Estuary between Westbury and Aust
Coln Catchment	River Coln – Compton to Lechlade
Leach Catchment	River Leach – Eastleach Martin to Lechlade
Ampney Brook Catchment	Ampney Brook – Ampney Crucis to Cricklade
Churn Catchment	River Churn – Baunton to Cricklade
Evenlode Catchment	Upper Evenlode – Moreton in Marsh to Shipton under Wychwood
Windrush Catchment	Upper Windrush – Bourton on the Water to Worsham
Thames Catchment	River Thames from Cirencester to Lechlade and its tributaries

2.4 The EA also provides a 24-hour flood warning service to individual households who sign up to the scheme. Approximately 1600 properties in Gloucestershire have signed up to receive warnings, which equates to about 25% of the properties at risk from flooding within the area for which the service is provided. It is a weakness that people have to register for the scheme in order to receive the warnings, however the EA do encourage people to sign up and also point out that the scheme is the most advanced and accurate flood warning system in Europe[1].

2.5 During the course of the investigation members of the Inquiry Team have heard conflicting views about the EA's flood warnings, with a number of organisations questioning the accuracy, timeliness, and pro-activeness of the flood warning system. The concern here is perhaps best illustrated by the experience of Severn Trent Water at the Mythe Water Treatment Works. Severn Trent's written submission indicates that they were in contact with the Environment Agency at various intervals from 3.00pm on Saturday 21st July. Between 3.00pm and 11.30pm the EA was consistently warning that river levels would peak at a level below that which would flood the Mythe Water Treatment Works. It was not until midnight that the EA began forecasting a peak level that would result in the flooding of the Mythe – just 1 hour and 30 minutes before Mythe began to flood[2]. However, it should be noted that although this was a point of frustration for Severn Trent they acknowledge that the rapidity of the rise in river levels was completely unexpected, and that earlier warning would probably not have prevented the inundation of the works as they would have needed several days notice to put in flood defences capable of holding back the water levels that were experienced. The Inquiry raised Severn Trent's concerns with the Environment Agency at the 3rd Inquiry Hearing, and they disputed the claims made by Severn Trent saying that they issued a Severe Flood Warning for Mythe at 10.30pm on 20th July and that they were in constant contact with Severn Trent on the

[1] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 3, page 209
[2] The Impact of the July Floods on the Water Infrastructure and Customer Service: Final Report, Severn Trent Water, Page12

Saturday night[3]. However, as the Inquiry understands it issuing a Severe Flood Warning for the Mythe area is not the same as predicting that water levels would reach a level that would inundate the treatment works.

2.6 Whilst it seems apparent that more accurate river level predictions and early warnings would not have prevented the flooding at Mythe, the experiences of the summer do lead to questions about whether anything could be done to improve the EA's predictive capability. The EA argue that within a 12 hour period their forecasting of levels on the River Severn is already very good, usually being accurate to plus of minus 100mm. However, they acknowledge that their predictive capabilities in smaller catchments that tend to rise a lot faster in extreme conditions is considerably less accurate. The Inquiry is not clear on the extent to which the predictive capability of the EA could be improved, but it does appear that some agencies could have received better warnings, which indicates that there is some potential for improvement. Therefore the Inquiry suggests that DEFRA commission independent research to assess if and how the predictive capability of the EA could be enhanced.

Recommendation – *That DEFRA commission independent research to assess whether the flood predictive capability of the Environment Agency could be improved, and to consider the likely costs and benefits of any changes to the current system.*

2.7 A lot of the flooding experienced during the summer was flash flooding rather than river flooding. Although the Meteorological Office issue Severe Weather Warnings based on rainfall predictions there does not appear to be a system for issuing more detailed flash flooding warnings. This type of flooding is likely to be difficult to predict, but it may still be possible to develop a system that is capable of giving a better indication of when a combination of ground conditions and heavy rainfall are likely to result in significant surface water run-off in the event of extreme weather conditions. This would allow for the provision of more detailed indicative flood warnings in areas prone to this type of flooding.

Recommendation – *That DEFRA investigate developing a flooding model that is capable of predicting the probability of flash flooding in extreme weather conditions.*

2.8 The Met Office issued Severe Weather Warnings for Friday 20th July, and the Environment Agency issued Severe Flood Warnings. However, many people and organisations were completely unprepared for the actual severity of the conditions. The highest-level warnings are issued relatively frequently compared to the frequency of severe events of this nature, and for some this has led to questions about whether people have simply become complacent of the warnings. It has been suggested to the Inquiry that the EA should

[3] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 3, pages 223 - 224

consider producing a revised warning system that identifies a higher category of risk that is only issued in exceptional circumstances.

Recommendation – *That the Meteorological Office and the Environment Agency review their existing Severe Weather Warning and Flood Warning systems in order to incorporate an additional category of the highest risk that is only issued in exceptional circumstances. This would avoid the public and organisations becoming complacent of the significance of the warnings.*

3.0 Major Flooding Emergency Plan

3.1 Gloucestershire County Council's Emergency Management Service prepared a Major Flooding Emergency Plan in February 2007, which was used alongside the County Council's generic Emergency Plan to inform the response during the summer emergency.

3.2 Each District Council has its own flood plan that details the district specific arrangements for responding to flood emergencies.

3.3 Whilst the Emergency Management Service believe that the Major Emergency Flood Plan, and the generic Emergency Plan, worked well as a framework for response during the summer emergency, the Inquiry would like to raise a number of issues that we believe may help improve the response to any future emergency.

3.4 During the course of the investigation the Inquiry asked the majority of the witnesses for their views on the Major Flooding Emergency Plan. One issue that did become apparent from these discussions was that a number of agencies were not fully aware of the plan, and had not been consulted on it. This suggests that in future more needs to be done to raise awareness of the plan, and to ensure that key agencies are consulted on the contents.

Recommendation – *That the Emergency Management Service ensure that in future all key agencies are consulted on the contents of the Major Flooding Emergency Plan, and that more is done to raise awareness of the plan, in order that the plan can provide a realistic blueprint for emergency response within Gloucestershire.*

3.5 Following discussions with the District Councils at the first Inquiry Hearing the Inquiry Team was left with the impression that there is some inconsistency in the way that the flood plans are applied across the county. Whilst this is perhaps in part by design, as the district plans are supposed to pick up on district-specific issues, the Inquiry Team did feel that a greater degree of consistency would be beneficial.

3.6 One significant issue that has become apparent during the Inquiry is that the Major Flooding Emergency Plan focuses on river flooding, but does not cover flash flooding. During the summer emergency Gloucestershire suffered from significant flash flooding and river flooding from the River Severn and the River Avon, and therefore it seems apparent that in future the plan must

include a section on responding to areas of the county which are more prone to flash flooding, particularly where the flooding is due to limitations in the county's infrastructure. The Head of the Emergency Management Service has acknowledged that the summer events have shown that the County may face flash flooding, river flooding, or a combination of both, and that the service has a great deal of work to do in order to develop the most appropriate approach to flash flooding[4]. The Inquiry strongly recommends that the Emergency Management Service develops appropriate plans for responding to flash-flooding, and that a section on this be incorporated into the Major Flooding Emergency Plan as soon as possible.

Recommendation – *That the Emergency Management Service develop appropriate plans for dealing with flash flooding, and that a section on this be incorporated into the Major Flooding Emergency Plan as soon as possible.*

3.7 During the emergency it was apparent that local Councillors, at County, District, or Parish level, played a significant part in the emergency response on the ground. Elected members provided a first point of contact for many members of the public, and were able to signpost them towards organisations that could assist them. This role is not currently acknowledged within the Major Flooding Emergency Plan, or the district specific plans. The County Council's Emergency Management Service and the District Councils acknowledge the important role that elected members played in the emergency response. Therefore this role needs to be formally incorporated into the County Plan, and the district plans, so that all agencies are aware of the supportive role that elected members can play.

Recommendation – *That the Emergency Management Service and the District Councils ensure that their emergency plans recognise the role the elected members can play in emergency situations.*

3.8 There is also a need to provide induction and training for elected members in emergency planning so that they are well prepared to play a part in emergency situations. As a starting point, information on emergency planning, including details of who to contact in an emergency situation should be included in the Members' Toolkit, and a Members' Seminar covering emergency planning and emergency procedures should be organised.

Recommendation – *That information on emergency planning, including key contact details, be added to the Members' Toolkit. In addition to this a Members' Seminar should be organised that focussed on emergency planning issues.*

3.9 The Inquiry believes that the summer emergency has demonstrated the utility companies can have an important role to play in responding to emergency situations. Whilst the Major Flooding Emergency Plan does make reference to the responsibilities of utility companies the Inquiry would suggest that this section should be strengthened. In addition to this it is also important to

[4] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 1, page 211

ensure that utility companies attend Gold Command from the beginning of any major future emergency situation.

Recommendation – *That the Emergency Management Service ensures that the Major Flooding Emergency Plan is updated to acknowledge the important role that utility companies may have to play in future flooding emergencies.*

Recommendation – *That the utilities ensure that they send representatives to Gold Command from the outset of any major future emergency situation.*

3.10 The Local Resilience Forum multi-agency and single agency debrief process will highlight a number of lessons that have been learnt following the summer emergency. In addition to addressing the specific issues highlighted above the Inquiry recommends that the Emergency Management Service and the District Councils review their respective emergency plans to incorporate the lessons learnt through the debrief process.

Recommendation – *That the Emergency Management Service and the District Council conduct a full review of their Emergency Response Plans in the light of the lessons learnt through the single-agency and multi-agency Local Resilience Forum debrief process.*

3.11 The Inquiry understands that generally the county's rest centres operated very well and provided an essential service. However, the Inquiry has heard evidence that there was confusion over who supplies blankets to the rest centres. Therefore we recommend that the County Council's Rest Centre Plan is reviewed to show clearly to District and County authorities who has responsibility for stock-piling and issuing blankets.

Recommendation – *That the Emergency Management Service review the County Council's Rest Centre Plan in terms of provision of blankets and suitable bedding in general to cope with all age groups.*

3.12 In order to ensure that Local Authorities are well prepared for future flooding emergencies it is suggested that the County Council and each District Council should ensure that flooding issues are included within one of their Cabinet Member's portfolio, and that each authority nominates a Lead Officer for flooding related issues.

Recommendation – *That the County Council and each District Council ensure that flooding issues are included within the portfolio of one of their Cabinet Members, and that they have a nominated Lead Officer to cover flooding issues.*

4.0 Sandbag Policies

4.1 The Inquiry is aware that there is a debate about the usefulness of sandbags, and that the provision of alternative defences such as door boards may be considered to be more effective. However, there will still be a role for sandbags for the foreseeable future.

4.2 The provision of sandbags is an issue that has been raised on numerous occasions during the course of the inquiry. Specifically there have been a number of concerns raised about the provision of sandbags to individual households, as opposed to the provision of sandbags to key strategic points such as the Mythe Water Treatment Works and Walham Electricity Substation.

4.3 During the emergency the main point of contact for people in need of sandbags was the District Councils. Indeed many organisations, including the County Council, were giving out the District Council contact details to anyone requesting sandbags. However, there are variations in sandbag policy. For example, Cotswold District Council's policy on sandbags is that they will only provide sandbags for use at strategic points, rather than providing them to individual households. This has been their policy since December 2005. According to Cotswold District Council the major reason for this policy is the geography of the area, as it would be very difficult for the council to provide an equitable service across such a large geographic area. Conversely other districts such as Gloucester City and Cheltenham Borough do provide sandbags to individual properties, and indeed it is easier for them to do so as they cover much smaller geographical areas.

4.4 The different policies raise two important issues. Firstly the service is not equitable as people in different areas of the county get a different level of service, and secondly other agencies, particularly the County Council, need to be clear on any differences in policy in order to ensure that they are providing people with the correct information – which was not the case on this occasion.

4.5 Accepting the difficulties that Cotswold District Council would face in providing sandbags across the District the Inquiry still believes that ideally there should be a single countywide policy on the provision of sandbags, that would provide some degree of equity across the county. It has become apparent to the Inquiry that there is an emerging view that encouraging self-reliance and improving local community resilience to future emergencies such as flooding needs to become a higher priority. Distribution of sandbags where possible should be linked to this so that where possible local communities have access to a local supply of sandbags to enable them to support themselves in emergency situations.

Recommendation – *That the Local Resilience Forum take the lead in examining the feasibility of developing a countywide policy on the distribution of sandbags in order to secure a greater degree of equity across the county. This policy should be linked to efforts to improve local community resilience, through the provision of localised sandbag distribution points.*

4.6 Whilst variations remain between District Council sandbag policies it is essential that the County Council, and other key agencies that may be contacted for sandbags in the event of flooding, are clear on the level of support that can be expected in each District so that they can communicate

this accurately to the public in order to avoid raising expectations. The Inquiry suggests that the Emergency Management Service should collate a short briefing paper on the policy in each district, which can then be shared with the key organisations that are likely to be contacted about sandbags in the event of future flooding, so that all agencies are able to give members of the public the correct information.

Recommendation – *That the Emergency Management Service produce a short briefing paper on the different sandbags policies in each district and that they share this with the key organisations that are likely to be contacted about the provision of sandbags in the event of future flooding.*

5.0 The Emergency Management Service Response Centre

5.1 The Emergency Management Service's Emergency Response Centre, known as the 'Bunker', is based within the basement of Block 1, Shire Hall. The response centre acts as the control room for the Emergency Management Service during an emergency. On this occasion the response centre became operational at 2.15pm on Friday 20th July.

5.2 During the Inquiry several agencies have highlighted the fact that flooding at Shire Hall on Sunday 22nd July forced the County Council to relocate the response centre to the Tri-Service Centre in Quedgeley. Whilst the relocation of the centre itself was well managed, from a business continuity point of view it is clearly inappropriate to have the centre located in a basement that is vulnerable to flooding.

5.3 Given the existing Tri-Service arrangements at the Tri-Service Emergency Centre at Waterwells, in Quedgeley, it may be sensible to consider relocating the response centre to that site permanently. However, it is important to note that the response centre is not an efficient use of space as at times of normal activity it is not in use, and cannot be used for other functions. This needs to be factored into any decision about the future location of the centre to ensure that other critical business opportunities are not lost through the relocation.

Recommendation - *That Gloucestershire County Council relocates the Emergency Management Service Emergency Response Centre in order to ensure business continuity in the event of any future emergency. When assessing the feasibility of alternative locations, including the Tri-Service Emergency Centre, consideration should be given to the opportunity cost of the relocation in order to ensure that other critical business opportunities are not lost through the relocation.*

6.0 The Tri-Service Emergency Centre

6.1 Several agencies including Gloucestershire Constabulary, Gloucestershire Fire and Rescue Service, and Severn Trent Water have pointed to the crucial role that the Tri-Service Emergency Centre played in the emergency response. They argue that the events illustrated that the Tri-Service Centre provides an efficient and effective co-ordinated response, and instant

Command and Control infrastructure and that it allows for an informal dialogue that promotes decision-making processes and action. The co-location of the three emergency services therefore put Gold Command in a strong position from the beginning of the emergency.

6.2 Nationally there is some debate about local fire control rooms versus Regional Control Centres. The summer emergency has demonstrated the value of the local Tri-Service Centre, but benefits have been claimed for regional centres. The Inquiry has heard from the County's Chief Fire Officer that local command and control of this incident was vital, and that this could not have been managed from a regional base in Taunton. Therefore it is vital that any regionalisation of fire service control centres, if it goes ahead, ensures that the command and control facilities and staffing for them are maintained at the Tri-Service Centre. The value of national support, particularly the provision of high volume pumps to deal with the emergency needs to be recognised. The assets and their coordination via fire and rescue resources in West Yorkshire are seen as critical to future resilience. The Inquiry therefore recommends that if the Government wishes to continue with its regionalisation policy it looks carefully at the learning points from the summer emergency in Gloucestershire, and ensures that the command and control elements are retained locally.

Recommendation – *That the Government closely examine the learning points from the summer emergency in Gloucestershire and recognises the important role played by the Tri-Service Centre. If the Government wishes to continue with its regionalisation policy in respect of regional fire controls it should ensure that command and control functions are kept locally within the Tri-Service Centre.*

7.0 Water Distribution

7.1 The flooding at the Mythe Water Treatment Works left some 140,000 properties, and 350,000 people without any piped water supply for up to ten days, and without mains water of drinking quality for up to 15 days. During this period limited alternative supplies were provided through bottled water and bowsers.

7.2 At the height of the emergency Severn Trent Water deployed over 1,400 bowsers to more than 1,100 locations around the county, with the bowsers being refilled up to three times per day. There were problems with the distribution of water via bowsers, particularly early on when there were not enough bowsers available to meet demand leading to frequent complaints about empty bowsers. As the emergency continued and Severn Trent was able to bring in additional bowsers from other water companies across the country and improve its arrangements for refilling them the number of problems appears to have reduced, although complaints about empty bowsers do appear to have continued throughout the emergency. Responses to the Inquiry questionnaire demonstrate that people's experience of using bowsers was mixed, with some people indicating that it was easy to get water from bowsers, whilst others indicated that it was difficult. Overall on average

the members of the public who responded to the Inquiry questionnaire gave access to bowsers a score of 6.1 out of 10 (see Chapter 9 for further details).

7.3 Bottled water was sourced and supplied from a number of distribution points around the county alongside the bowser operation. Between 3 and 6 million litres of bottled water were delivered to the logistics centre at Cheltenham Racecourse, and the various distribution points, each day at the height of the emergency. Severn Trent have acknowledged that they found that this operation was easier and worked more smoothly than the bowser operation. The results of the Inquiry questionnaire suggest that this matches the experience of the public, as the results of the Inquiry questionnaire indicate that the majority of people did not experience major problems in accessing drinking water.

7.4 The Inquiry has not looked in detail at the logistical difficulties involved in the water distribution operation, and therefore is not in a position to comment on how that operation could have been improved. It is possible that the Local Resilience Forum debrief process will highlight lessons that were learnt during the operation that can be taken forward to improve the response to any future emergency of this nature.

7.5 The Inquiry would like to take this opportunity to pay tribute the efforts made by various organisations, voluntary groups, and individuals to ensure that vulnerable people had bottled water delivered to them on a regular basis.

7.6 It should be noted that Government guidance, provided in the Security and Emergency Measures Direction 1998, requires water companies to have plans that will enable them to supply 10 litres of water per person per day to an urban population of 50,000, or a rural population of 25,000, for a period of up to 3 days. Local emergency plans were therefore based on these national planning assumptions. However, approximately 350,000 people in Gloucestershire were left without drinking water for up to 15 days, so the emergency went far beyond anything that had been planned for (although it should be noted that enough water was distributed to exceed the 10 litre per person minimum). The Inquiry would also suggest that 10 litres per person per day is insufficient to meet people's basic needs.

7.7 This emergency has therefore demonstrated that the national planning assumptions are completely inadequate for dealing with an emergency of this nature and that they failed to provide a realistic basis for emergency planning. This is a serious concern and the Inquiry therefore recommends that the Government conduct an urgent review of national planning assumptions in order to ensure that there is a realistic basis from which to plan for future emergencies. Through this review the Government should reconsider the number of people that need to be supplied with water, the length of time that an emergency may last, and the minimum level of water required. On this last point Severn Trent have indicated that the experiences of the summer have suggested that the minimum level should be at least 20 litres per person per day, in order to meet people's basic needs for drinking,

cooking and hygiene[5]. This is still a long way below the typical average consumption of 138 litres of water per person per day in normal circumstances.

Recommendation – *That the Government conduct an urgent review of national planning assumptions for water distribution in order to ensure that there is a realistic basis from which to plan for future emergencies. This review must re-examine the number of people that need to be supplied with water as the current guidance of 50,000 people is inadequate; the length of time that alternative supplies will be needed for as the current guidance of 3 days is inadequate; and the minimum amount of water that is required, as experiences in Gloucestershire suggest that the minimum level needs to be at least 20 litres per person per day, rather than 10 litres per person per day.*

7.8 The Inquiry is pleased to note that the County Council's Emergency Management Service is now developing a water distribution plan for the whole county, and that this will be based on a local planning assumption of the need to provide water to 350,000 people for a period of two weeks[6]. The Inquiry would recommend that the Emergency Management Service base its plan on the provision of a minimum of 20 litres of water per person per day, at least until a national review has taken place, as this appears to be a more realistic level based on demand during the summer.

Recommendation – *That the Emergency Management Service ensure that their Water Distribution Plan is based on the assumption that people should be provided with a minimum of 20 litres of water per person per day, rather than 10 litres of water per person per day, and that this is reviewed following the outcome of any national review of planning assumptions.*

8.0 Decision making at Gold Command

8.1 Several District Councils indicated that they felt they were not consulted over the impact of decisions taken at Gold Command, for instance the issuing and use of WAG Bags (WAG bags are a double bag system designed for waste disposal when ordinary water toilets are not available. The bags contain a bioactive gelling powder which gels waste, neutralises odours and accelerate the decomposition process) and the announcement of changes to times of operation of water distribution centres. Implementation of these two policies would have placed severe strain upon the relevant authorities to deliver emergency services. See appendix 8 for an explanation of the Gold, Silver, and Bronze command structure.

Recommendation – *Gold Command must ensure that the subsequent impacts of their decisions are fully understood and must be discussed with those agencies being affected.*

9.0 Vulnerable People

[5] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 2, page 80
[6] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 1, page 227

9.1 During the course of the summer emergency, special arrangements had to be established to provide drinking water to vulnerable groups. Although different agencies had there own lists of vulnerable clients, it was an extremely challenging and time consuming task to produce a definitive and complete, single list of vulnerable people from which the emergency team could plan deliveries. The situation was complicated further by the fact that the nature of the emergency meant that more people were falling into the vulnerable category as time went on. To enable rapid and effective delivery of services and supplies to vulnerable people in the event of future emergencies, it is vitally important that a comprehensive database of all vulnerable people is available, comprising the information held by all agencies. The Inquiry recognises that there may be important considerations around data protection and freedom of information in producing such a database, but believes that the overriding factor should be the future resilience of the emergency management process and the protection of those vulnerable groups.

Recommendation – *That the county council, through the Community and Adult Care Directorate explores with partner agencies the development of a database of all known vulnerable people so that this information can be easily accessed in the event of an emergency*

Chapter 4 – Watercourses, drainage, sewers, and flood defences

1.0 Introduction

1.1 This chapter considers specific issues relating to the maintenance of watercourses, highways drainage, sewers, and the pressures created by new housing developments.

1.2 Responsibility for maintaining and improving drainage systems rest with a number of different agencies and owners. This includes private landowners. Organisations and individuals that have watercourses that run through their properties are known as 'riparian owners' and they also have responsibilities. An outline of the different responsibilities for watercourses is provided below. Further details are available in a legal briefing note from the Director of Law and Administration at Gloucestershire County Council, which is available at appendix 5.

2.0 Responsibilities for watercourses

2.1 Main Rivers

2.1.1 A main river is a watercourse on the Main River Map held by the Environment Agency – it can include large rivers such as the Severn and Avon, and smaller watercourses of local significance.

2.1.2 As a general rule the watercourse is the prime responsibility of the land owner through whose land it flows (known as the riparian owner). Where different people on each side of the watercourse own land, the landowner generally has responsibility up to the middle of the watercourse.

2.1.3 The Environment Agency has responsibility for reducing flooding from sea and some inland watercourses (known as main rivers) and carry out works of maintenance, repair and improvement. The power given to the Environment Agency is a permissive power, which means that they have discretion over whether to carry out any works – they are not obliged to do so.

2.2 Ordinary watercourses

2.2.1 An ordinary watercourse is a watercourse that does not form part of a main river; it includes every other river and stream.

2.2.2 Maintenance is the prime responsibility of the landowner as above, but in this case it is the Internal Drainage Board and/or the District Council that have the power to carry out works, rather than the Environment Agency. However, again the power of the Internal Drainage Board and District Council is a permissive power and they have no obligation to exercise it.

2.3 Public Sewers

2.3.1 These are owned by the local water company, which in Gloucestershire includes Severn Trent Water, Thames Water, and Wessex Water. However, not all sewers are public sewers as some are private sewers that have not been adopted by the water company. A map of publicly owned sewers is available from the water companies.

2.3.2 Responsibility for maintenance of public sewers lies with the water company where the sewers have been adopted as publicly maintainable. This includes combined sewers where foul water and surface water are combined in a single sewer.

2.4 Road drainage

2.4.1 Drainage of trunk roads (i.e. motorways and some of the major A class roads) is the responsibility of the Highways Agency, a central government body. Drainage of most other county roads is the responsibility of the County Council as the highway authority. However, some roads remain in private ownership, having not been adopted by the county council, and as such are not the responsibility of the highways authority.

2.4.2 Roadside ditches are usually the responsibility of the adjoining owner, unless they have been constructed to drain the highway, or fall within land owned by the Highway Authority. The highway authority has powers under section 100 of the Highways Act 1980 to clear them in order to prevent flooding of the highway.

2.4.3 It is common for a complete drainage system in a particular location to involve a number of different bodies and owners meaning that effective drainage and flood alleviation require joint working and co-operation to ensure the whole system is effective.

3.0 Watercourses

3.1 The natural size of watercourses represent a balance between the levels of flow they receive from the catchment areas draining into the channel above the section and the volume and calibre of sediment within the channel bed and banks and being delivered up the flow by run off. A typical channel will overflow at times of high flow, normally once every two to three years. Changes in the upstream catchment will also cause long-term flow adjustments to which the channel will slowly adjust its size.

3.2 As described above, and in more detail in appendix 5, the picture of responsibility for the maintenance of main rivers and watercourses is complex. In general terms the main responsibility for maintenance lies with the riparian owner, with the EA (for main rivers) and the Internal Drainage Board or District Council (for other watercourses) having some permissive powers to carry out maintenance work as well. This picture hides further complexity in that, particularly in more built up areas; a short section of watercourse may have numerous riparian owners as it passes through a

number of property boundaries. In addition to this, organisations including the County Council and the District Councils can also be riparian owners in their own right if a watercourse passed through land that they own.

3.3 The current system means that no single agency has responsibility for the maintenance of watercourses. It also makes it very difficult to ensure that the necessary works are done, as unless all riparian owners for a stretch of watercourse fulfil their obligations in terms of maintenance, problems will still occur.

3.4 The lack of a single agency that could take responsibility for ensuring the maintenance of watercourses was a source of frustration for a number of witnesses during the Inquiry When specific problems were raised with a number agencies, including the EA, the Inquiry was simply met with a response that said the issue was not their responsibility. This had led to a strong perception amongst the wider public of passing the buck, and has left many people frustrated because they do not know where to turn.

3.5 The Inquiry has received a great deal of anecdotal evidence from members of the public at its drop-in sessions that suggests that watercourses have not been properly maintained for years and that they are blocked and choked with debris and vegetation at many places. Photographs have also been shown to members of the Inquiry team that appear to support the view that numerous watercourses are not being properly maintained. There appears to be a fairly widespread lack of knowledge as to who is responsible for what outside the agencies in question and many small landowners and riparian owners have little appreciation of what is expected of them. It is also questionable as to how some private owners (for example the frail and elderly) would carry out their responsibility in practice.

3.6 The Inquiry has been left with the impression that the current system is failing to ensure that watercourses are properly maintained. The transcripts of the Inquiry Hearings demonstrate that when questioned a number of agencies agree that this lack of overall responsibility is a significant issue that needs to be addressed. Conversely, when questioned the Environment Agency indicated that they supported the existing system and felt that generally it should be the responsibility of the landowner to maintain any watercourse within their property[7].

3.7 Using modelling techniques the Environment Agency has demonstrated to the Inquiry that improved maintenance would not have prevented the serious flash flooding that occurred this summer. The EA ran a flood model looking at a site in Cheltenham where Wymans Brook turns into the Swilgate and compared the level of flooding that would be caused by the 1 in 100 year flow rate in normal circumstances, to the flooding that would be caused by the same flow rate if there was a 50% blockage in the watercourse. The Inquiry was shown that there was very little difference in the level of flooding caused as the watercourse simply could not cope with those levels of water and so

[7] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 3, page 243

would flood out into the natural flood plain regardless of the blockage. The EA explained that in simple terms the watercourses cannot retain the quantities of water that we experienced, and that regardless of any maintenance issues flooding out onto the natural flood plain of the watercourse was inevitable[8]. However, despite this modelling evidence the Inquiry believes that the EA have a clear responsibility to lead by example and ensure that appropriate maintenance programmes are fully implemented, which will help prevent flooding in less extreme circumstances.

3.8 Clearly the issue of maintenance of watercourses and drainage systems is a complex issue that cannot be fully addressed within the confines of this Inquiry. However, from the evidence that has been presented to the Inquiry it does seem clear that more needs to be done to maintain our watercourses and drainage, regardless of whether this would have prevented the summer flooding. The Inquiry's conclusion is that a single agency should be given the responsibility of ensuring the maintenance of all watercourses and drainage in order to improve standards of flood defence and ensure greater co-ordination of activity.

Recommendation – *This Inquiry believes that there should be a single agency with overall responsibility for ensuring the maintenance of watercourses, as the current system is not effective, and therefore recommends legislative change to create a single agency with overall responsibility for ensuring the maintenance of watercourses. The new system must include clear signposting for members of the public on how to report problems and on who is responsible for addressing those problems.*

4.0 Highway Drainage

4.1 The maintenance of highway drainage systems is another complex area. Trunk roads are maintained by the Highways Agency, which is, in this case, responsible for cleaning the roads and clearing the drains. When it comes to other roads in the County, the County Council, as the highway authority, through Gloucestershire Highways, is responsible. Highway drainage is necessary to remove water from the roads and pavements. These drainage systems usually consist of pipelines, inspection covers and gullies. Not all drainage in the road is the responsibility of the highway authority. Some may be the responsibility of (amongst others) the water companies. As with sewerage systems some highways and associated drainage remain in private ownership, for example with the developer of a new area of housing and are not therefore the responsibility of the highway authority. An example of this is Cypress Gardens in Longlevens, Gloucester. This is a particular cause of concern to the residents in these areas if the developer is failing to carry out adequate maintenance.

4.2 The Inquiry has received a significant amount of feedback from members of the public concerning the maintenance of highways drainage. Typically these

[8] Scrutiny Inquiry into the Summer Emergenct 2007, Transcript of Proceedings of Day 3, pages 199 - 201

comments suggested that drains are not being cleared regularly enough, including examples of residents saying that they have never seen their drain being cleaned.

4.3 The Head of Gloucestershire Highways was questioned on this point at the third Inquiry Hearing. He explained that Gloucestershire Highways have an annual maintenance programme for cleaning drains once a year, and that further cleansing work is carried out where required on top of this. Clearly there does appear to be some discord between this statement and the public perception and in any event the perception is one of inadequate maintenance. The Inquiry is aware that the County Council has set up an Infrastructure Resilience Working Group that is taking the lead in reviewing a number of issues including undertaking an assessment of the effectiveness of the existing maintenance regime. This is an important piece of work that will hopefully help to address public concerns about the adequacy of maintenance arrangements.

Recommendation – *That the findings of the Infrastructure Resilience Working Group's assessment of the effectiveness of existing maintenance regimes and actions being taken to improve it to be presented to Overview and Scrutiny Management Committee on 25th January 2008 as part of the ongoing monitoring of the issues raised by this Inquiry.*

Recommendation – *That Gloucestershire County Council reviews its maintenance policy and programme for highway drainage maintenance in the light of recent events to ensure that it is appropriate.*

Recommendation – *That Gloucestershire Highways publishes a yearly plan of cleansing and maintenance so that members of the public are clear on what level of maintenance they can expect.*

4.4 The Inquiry is also aware that the Infrastructure Resilience Working Group will be undertaking a review to assess the capacity of the existing highway drainage system, in order to improve existing records of the highways drainage asset. Currently the County Council is not aware of the capacity of the drainage system across a significant part of the highways asset. This is a consequence of the fact that the drainage system has developed over a significant period of time, with some of it being over 100 years old[9]. This is potentially a huge piece of work and it would take a number of years, and cost a great deal to do a thorough investigation of the whole system. The Inquiry is not clear on how detailed this investigation will actually be, and therefore recommends that a detailed explanation of the work that will be carried out be presented to Overview and Scrutiny Management Committee on 25th January 2008.

Recommendation – *That the Infrastructure Resilience Working Group presents details of the work that it plans to carry out to assess the capacity of*

[9] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 3, pages 113-114

the existing drainage system to Overview and Scrutiny Management Committee on 25th January 2008, as part of the ongoing monitoring of issues raised by this Inquiry.

5.0 Sewers

5.1 Responsibility for maintaining public sewers rests with the water companies, however a number of sewers are privately owned and are therefore not the responsibility of the water company. Severn Trent estimates that within their region they are responsible for about 75% of the sewers, with the remaining 25% being privately owned[10].

5.2 Severn Trent have indicated that they are supportive of the adoption of private sewers, however it is possible that a lot of work would need to be done to bring these sewers up to the adequate standard for adoption. The Inquiry understands that the Government is already looking to address this issue through the Adoption of Private Sewers Bill, which would require sewerage companies to adopt private sewers and make sure that they are up to standard.

5.3 There appear to be examples of new developments that have sewers that are not up to a standard that Severn Trent will adopt. The Inquiry understands that there is a Code of Practice in the industry on sewer adoption and that Severn Trent's standards are well known to all developers. However, Severn Trent's standards are higher than the basic standards required by Building Regulations. This anomaly means that Severn Trent will not always adopt the sewers of new developments, unless the developers bring them up to the required standard, which can leave homeowners with sewers that are not adopted. The Inquiry understands that a voluntary protocol was established in 2002 designed to ensure that all sewers were built to a standard that would allow for their adoption by sewerage companies, however as the Inquiry is informed that substandard sewers are still being built, it appears that this voluntary protocol has not been effective in all cases. The Inquiry believes that this anomaly needs to be addressed, as part of the Adoption of Private Sewers Bill, so that developers are required to build sewers up to the standards set by the industry.

Recommendation – *That DEFRA ensure that the Adoption of Private Sewers Bill includes a requirement on developers to ensure that all new sewers are built to at least the minimum standards required for adoption by the water companies, and that the Department for Communities and Local Government ensure that Building Regulations are amended to reflect this enhanced requirement.*

6.0 Pressure from new developments

6.1 New developments can put considerable additional pressure on existing drainage systems, which are often already operating at full capacity. This

[10] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 2, Page 32

leads to questions about whether developers should do more to mitigate their impact on the drainage system.

6.2 The first issue here relates to surface water drainage, and whether developers should have a statutory obligation to account for their impact on surface water and deploy appropriate schemes to deal with surface water, for example through Sustainable Urban Drainage Systems. The second issue relates to sewers. The Inquiry understands that developers have an absolute statutory right to connect to the existing sewerage system, regardless of the age of that system or whether it is reaching capacity. If a new development wishes to connect to a system that is at capacity the onus is then on Severn Trent Water to take steps to increase the capacity of the network in order to deal with the increase in demand. Severn Trent have informed the Inquiry that they run models to assess the impact of new developments in order to assess whether they need to increase the capacity of the network, and then if work is needed they will carry it out. However, the Inquiry is not convinced that the process is this straightforward in practice, particularly given Severn Trent's comments that they only have limited funds available to invest in improvements.

6.3 The Inquiry has raised a number of issues around land use planning and new developments, including developments in the flood plain and consequent adoption of drainage systems. It is felt that this issue requires further scrutiny and it is therefore recommended that a County Council scrutiny task group be established to investigate this particular issue in more depth.

Recommendation – *That the Overview and Scrutiny Management Committee establish a task group to look into the impact on flood risk of land use planning and new developments, including developments in the flood plain and consequent adoption of drainage systems.*

7.0 Flood Defences

7.1 The Environment Agency has powers to carry out schemes to alleviate main river flooding. Using these powers the EA has constructed flood defences and carried out improvements in the following locations in Gloucestershire:

- River Chelt Flood Alleviation Scheme, Cheltenham – designed to provide protection up to the 1 in 100 year flood level
- Alney Island (Pool Meadow) Flood Alleviation Scheme, Gloucester – designed to provide protection up to the 1 in 100 year flood level
- Llanthony, Gloucester – flood wall/embankment designed to provide protection for River Severn Floods between 10 and 20 years.
- Deerhurst Flood Alleviation Scheme – provides protection up to the 1 in 75 year River Severn Flood
- Raised earth levels on the River Severn between Worcester and Gloucester provide protection against low level floods
- Somerford Keynes Flood Alleviation Scheme – provides protection up to the 50 year River Thames flood.
- River Lyd Flood Alleviation Scheme, Lydney – provides protection up to the 1 in 100 year River Lyd flood.

- Raised defences at Saul and Framilode to provide storage from River Frome when tides high in River Severn.
- Raised flood storage area on River Cam, protecting canal.

7.2 A number of comments have been made to the Inquiry about the effectiveness of these flood defence schemes, particularly the River Chelt Flood Alleviation Scheme. The Environment Agency has clearly stated that there were no structural failures of their defences during the summer emergency[11]. However, significantly the defences at Cheltenham, Gloucester and Deerhurst were all overwhelmed as the river flows exceeded the defences design parameters. The Cheltenham and Gloucester schemes were designed to protect against the 1 in 100 year flood levels, and the Deerhurst scheme was designed to protect against a 1 in 75 year flood level. However, the July flooding is estimated to be in excess of a 1 in 120 year event and so these defences were overtopped. Given that instances of extreme weather are expected to increase as a result of climate change the summer flooding does lead to questions about whether flood defences based on the 1 in 100 year flood level will be adequate in future. This Inquiry cannot answer this question but would suggest that there is a need for this issue to be considered carefully at national level.

Recommendation – *That DEFRA consider whether given the recent events and the likely impact of climate change it is appropriate to design flood defences based on the 1 in 100 year flood scenario, or if the standard of flood defences needs to be improved.*

7.3 Although the Environment Agency has stated that there were no failures in the structure of the flood defences, the Inquiry is aware that 50 to 100 properties in Cheltenham were flooded during the June event. As the June event has been assessed at a 1 in 75 year event the scheme should have protected these homes. The Inquiry has not pursued this issue in detail but understands that the Environment Agency will be undertaking an investigation into the scheme's performance in June to understand why this occurred so that any issues can be addressed.

7.4 The Inquiry has posed a number of questions regarding the effectiveness of the Flood Alleviation Scheme to the EA. The list of the questions posed is available in appendix 6. These questions arose mainly from members of the public as a result of this Inquiry and also following the EA seminars held in Cheltenham with the public. The Inquiry recommends that Cheltenham Borough Council's Environment Overview and Scrutiny Management Committee consider the EA's response to these questions and conducts any follow up investigations that are required.

Recommendation – *That Cheltenham Borough Council's Environment Overview and Scrutiny Committee consider the Environment Agency's response to the questions posed by the Inquiry regarding the Cheltenham Flood Alleviation Scheme and conduct any follow up scrutiny work required.*

[11] Environment Agency Written Statement, Page 12

Chapter 5 – Planning Issues

1.0 Planning Policy Statement 25 (PPS 25) – Development and Flood Risk

1.1 Planning Policy Statements set out the Government's national policies on different aspects of land use planning in England. They should be taken into account by regional planning bodies in the preparation of Regional Spatial Strategies. PPS 25 is the key policy statement relating to development and flood risk. Another key planning document in relation to flooding policy is 'Making Space for Water'.

1.2 The aims of the planning policy on development and flood risk are to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding and to direct development away from areas at highest risk. Where new development is exceptionally necessary in such areas, the policy aims to make it safe without increasing flood risk elsewhere and where possible, reducing flood risk overall.

1.3 Regional planning bodies and local planning authorities should prepare and implement planning strategies that help to deliver sustainable development by appraising risk, managing risk and reducing risk. Regional Flood Risk Assessments (RFRA) and Strategic Flood Risk Assessments (SFRA) should be prepared as freestanding assessments that contribute to the Sustainability Appraisal of their plans.

2.0 The Regional Spatial Strategy

2.1 The South West Regional Assembly (SWRA), in its role as regional planning body, has produced the Draft Regional Spatial Strategy (RSS), which sets out the region wide strategy until 2026.

2.2 In planning for the period to 2026 the SWRA has recognised the importance of not locating future developments in areas at risk of flooding. In Cheltenham and Gloucester Flood Risk Assessments have therefore been integral parts of the assessment process.

2.3 The Draft RSS identifies areas of search to accommodate strategic development. These areas of search do not indicate that they will be developed in their entirety, but do offer areas for potential development. It is not expected that areas subject to flood risk within these areas of search would be developed.

3.0 Local Planning Authorities

3.1 Local Planning Authorities are responsible for developing Local Development Plans (LDPs) to deliver the RSS, and are responsible for making the decisions on whether or not development will be permitted in flood risk areas.

They are required to consult the Environment Agency on all proposed developments that are at risk of flooding, but ultimately it is for them to determine the application.

3.2 If the EA objects to an application for major development on flood risk grounds, all parties (Local Planning Authority, EA and the applicant) should attempt to resolve the problem to the EA's satisfaction. If the EA is unable to withdraw its objection and the Local Planning Authority is still resolved to approve the application, then the Local Planning Authority must notify the Secretary of State of the proposal. This provides the Secretary of State with an opportunity to check the application's general compliance with the policies set out in PPS 25 and to consider whether the application should be 'called in' for determination.

4.0 Developments on the Flood Plain

4.1 The flood plain is the area that would naturally be affected by flooding if a river rises above its banks, or high tides and stormy seas cause flooding in coastal areas.

4.2 PPS 25 defines areas with a 1 in 100 year or greater flood risk as being 'High Probability' zones, where specific planning policies apply and where development should only proceed after a flood risk assessment. The floodplain discussed here therefore refers to the 1 in 100 year floodplain, i.e. the areas where there is a 1% or greater chance of flooding in any one year.

4.3 There is a legacy of allowing developments on the floodplain, and as a consequence more homes are at risk of flooding. Currently there are an estimated 8,700 homes on the 1 in 100 year flood plain in Gloucestershire. This represents a population of 20,000[12].

4.4 The number of dwellings built or redeveloped on the County's floodplain peaked between 1998 and 2000, although records indicate that the number appears to be rising again in the last two years. Between 1998 and 2000 an average of 150 to 180 new homes were built or redeveloped on the floodplain each year. Although this number subsequently dropped the numbers have now increased again and in 2005/6 the number rose back to 150[13].

4.5 In the past 15 years nearly 1,100 have been built or redeveloped on the County's floodplain. Most of these developments have been in Cheltenham, Gloucester, and Tewkesbury[14].

4.6 Many more homes could be built on the County's floodplain in the next 5 years as planning records show that 103 floodplain developments, totalling 1460 dwellings, have been granted permission[15].

[12] Residential Development on the Floodplain, Research Team Gloucestershire County Council, September 2007, page 3
[13] Residential Development on the Floodplain, page 4
[14] Residential Development on the Floodplain, page 4
[15] Residential Development on the Floodplain, page 5

5.0 The Role of the Environment Agency

5.1 Local Planning Authorities are responsible for granting planning permission, and therefore the final decision on applications rests with them. However, they are required to consult the Environment Agency on all developments that may be at risk of flooding.

5.2 The Environment Agency's role is to advise the planning authority on flood risk. This is a statutory requirement set out in PPS 25. If the EA has objections to an application due to flood risk efforts should be made to resolve the issues to the EA's satisfaction. Ultimately if the planning authority decides that it wishes to go ahead despite objections from the EA then the EA does now have the power to refer to issue to the Secretary of State for consideration.

5.3 It has become clear to the Inquiry that the public perception of the EA is that they should be the expert body that is able to advise on the suitability of developments and within this there is an expectation that they would object to any developments on the floodplain where there was a risk of flooding. This view was articulated when amended plans to build 107 new homes on land that suffered significant flooding during the July event, were considered by Tewkesbury Borough Council.

5.4 It is clear to the Inquiry that this perception does not match the reality of the Environment Agency's role in the planning process. The EA's written submission to the Inquiry points out that only 47 planning applications have been passed against their advice between 2000 and 2006[16]. This therefore must mean that the EA did not object to many other developments within the floodplain (as discussed above there were 150 new developments in 2005/6 alone). When questioned on this point at the third Inquiry Hearing, the EA explained that they only object to inappropriate developments on the floodplain. What is inappropriate is determined by the Government guidance set out in PPS 25. However, the Environment Agency does not go beyond the criteria in PPS 25 to give an independent 'expert' view on whether or not a development is appropriate in light of all know facts and issues[17]. Some witnesses clearly felt this approach was too restrictive and inflexible.

5.5 The EA has acknowledged to the Inquiry that there could be examples of development sites, such as the one in Tewkesbury, that have flooded recently but that do still comply with Government guidance. Therefore it is possible that new developments could be approved that would put people at increased risk of flooding, without objection from the EA as they would comply with Government guidance.

5.6 This issue raises an interesting question about the role of expert opinion within the planning process and the limitations put upon it. The Inquiry

[16] Environment Agency Written Statement, page 12
[17] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 3, pages 232-235

believe the public, perhaps reasonably, are looking for independent expert advice on flood risk, not just advice on compliance with national policy, that will effectively control further development in areas prone to flooding. The EA have expertise in flood risk and should be providing the best advice possible in response to a planning applications, irrespective of national guidelines, when they believe that a development will put more people at risk of flooding.

Recommendation – *That DEFRA and the DCLG extends the remit of the Environment Agency in order to give them the authority to offer an independent view on the flood risk associated with new developments, as well as their current role in offering advice on whether or not the application complies with national policy as set out in PPS 25.*

5.7 This debate also raises questions about the appropriateness of PPS 25 and whether this policy allows new developments that are at a higher risk than should be considered acceptable. The policy is based on the 1 in 100 year flood event threshold, but recent events, and the threat of climate change do lead to questions about whether or not this should now be seen as the appropriate threshold for planning purposes. The Inquiry recommends that, following the conclusions of the EFRA Select Committee Inquiry and the Independent Parliamentary Inquiry, the Department for Communities and Local Government conduct a full review of PPS 25 in order to assess whether in the light of recent events it is still fit for purpose.

Recommendation – *That following the conclusions of the EFRA Select Committee Inquiry, and the Independent Parliamentary Inquiry, the Department for Communities and Local Government conduct a full review of PPS 25 in order to assess whether in the light of recent events it is still fit for purpose.*

6.0 Flood Risk Appraisals

6.1 The South West Regional Assembly working with the Environment Agency has produced a Regional Flood Risk Appraisal, as required by PPS 25. The Inquiry was surprised to find that no areas of Gloucestershire were listed as being at significant risk of flooding within this document.

6.2 The Regional Flood Risk Appraisal makes it clear that each local authority should produce its own Strategic Flood Risk Assessment, but notes that none of the local authorities in the area have done this yet. In Gloucestershire work to develop this Flood Risk Assessment is now underway, but perhaps this could have been done sooner.

6.3 The events of the summer have shown that both river flooding and flash flooding are significant issues for the county but the Regional Flood Risk Appraisal focuses solely on the issue of river flooding, without any mention of flash flooding. When this was raised with representatives from the South West Regional Assembly at the 3rd Inquiry Hearing, they explained that they would not expect flash flooding to feature in a regional plan as it does not occur on a level that is regionally significant – it is a very localised issue.

However, they did acknowledge that if the issue is significant it should rightly be reflected in the relevant local authorities' Strategic Flood Risk Appraisals. Clearly flash flooding is a problem and therefore the Inquiry strongly recommends that the County Council and District Councils ensure that this issue is addressed in detail in their Strategic Flood Risk Appraisal.

Recommendation – *That the County Council and the District Councils ensure that the issue of flash flooding is addressed within their Strategic Flood Risk Appraisal.*

7.0 Some questions regarding planning policy

7.1 Within the confines of this investigation the Inquiry has not been able to look at all of the issues related to development on the floodplain in detail. For example we have not been able to speak to District Council planning officers to discuss the District Council process that leads to the granting, or rejection of, planning permission. Therefore, with the exception of the specific issues discussed above we have not been able to address planning issues in any detail within this report. This section poses some questions about planning policy that have arisen during the Inquiry, which may require more detailed investigation.

7.2 Question 1 – Is there an underlying short-termism to planning policy? Are policies based on providing a short term solution to the housing shortage without giving thought to whether or not developments take place in areas that are sustainable in the longer term? This is particularly important given the expected impact of climate change.

7.3 Question 2 – Should any development be permitted on the floodplain? Connected to this is the question of whether the 1 in 100 year floodplain is the most appropriate measure to use in planning policy.

7.4 Question 3 – Do Planning Authorities give due consideration to the possible downstream impacts of new developments? It may be possible to develop on the floodplain in such a way as to protect the new development from flooding, but the development could have an impact further down stream that leads to flooding elsewhere.

7.5 Question 4 – How does the planning process take account of flash flooding? Within this is the question of whether developers should be doing more to improve drainage systems in order to ensure that new developments do not overwhelm existing drainage capacity.

7.6 Question 5 – Does the planning appeals process, and the possible threat of legal action, lead to Planning Authorities approving inappropriate planning applications? Does this lead to Planning Committees approving proposals that there is good reason to reject?

7.7 Question 6 – Do Local Authorities ensure that planning conditions relating to flooding are fully enforced?

7.8 Question 7 – Use of conditions and informatives. It has become apparent that to avoid duplication planning conditions are not imposed if the action required is covered under statutory obligations by another agency. This can result in an informative being issued for example to cover a need for culvert clearance in the future without this being subject to a planning condition.

7.9 Question 8 – Can the provision of adequate flood defences be included as a condition of planning consent? If not, should additional contributions under Section 106 of the Town and Country Planning Act 1990 be required to provide flood defences?

7.10 Question 9 – Are planning authorities still basing their decisions on the 1 in 100 year flood plain or have the events of the summer of 2007 caused a change of approach?

7.11 Question 10 – What is done/what can be done to encourage the use of Sustainable Urban Drainage Systems, and what can be done to ensure the upkeep of SUDS once they are in place?

7.12 The Inquiry is also aware of some specific planning related issues in relation to Cypress Gardens in Longlevens, which are discussed further elsewhere in this report.

7.13 The questions above highlight some important issues that need to be examined in more detail. The Inquiry therefore suggests that Overview and Scrutiny Management Committee consider commissioning a task-group to examine these issues in more detail.

Recommendation – *That the new task-group to look at land use planning issues, proposed in Chapter 4, give consideration to the questions highlighted above during its investigation into the impact of land use planning and new developments on flood risk.*

Chapter 6 – Single Points of Failure

1.0 Introduction

1.1 This section focuses on issues related to the failure of the Mythe Water Treatment Works and the potential loss of the Walham Electicity sub-station, both of which as we now know represent single points of failure within the water and electricity networks respectively. It also addresses the failure of Castlemeads Electricity sub-station.

2.0 Assessing Risk

2.1 Utility companies are responsible for undertaking their own risk-assessments on their critical infrastructure. These risk assessments should identify all of the major risks associated with the infrastructure in order to inform contingency planning.

2.2 Locally the Local Resilience Forum and the County Council's Emergency Management Service play crucial roles in contingency planning. Therefore the Inquiry was concerned by a comment in the submission from the Head of Emergency Planning at Gloucestershire County Council, which indicated that the Emergency Management Service was not aware that there were any critical single points of failure within Gloucestershire. When questioned on this point at the first Inquiry Hearing the Head of Emergency Planning explained that the utilities had their own risk assessment processes and that they had not informed the Local Resilience Forum that any of their facilities were single points of failure. He added that it came as a huge shock to emergency planners, at a local, regional, and national level, to find that these facilities were in fact single points of failure.[18]

2.3 The Chair of the Local Resilience Forum has confirmed that the County Risk Register, which is produced by the Local Resilience Forum, was shared with the utility companies and that again they did not indicate that the sites in question were single points of failure.

2.4 Severn Trent Water acknowledges that the Mythe Water Treatment Works is a single point of failure within the water network. Furthermore their submission indicates that they have been aware of this issue since the 1990s, when Mythe was identified as one of 5 single points of failure within the Severn Trent network. In their written statement they point out that within the water industry in general "it has not been considered practicable or cost effective to construct a water supply system that enables all customers to be continuously supplied under all asset failure scenarios"[19]. The cost of complete duplication to ensure that there is inbuilt redundancy is simply

[18] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 1, Page 203-204

[19] The Impact of the July Floods on the Water Infrastructure and Customer Service: Final Report, Severn Trent Water, page 33 (see appendix 1)

considered to be prohibitive. Indeed Severn Trent Water argue that all national infrastructure have single points of failure[20].

2.5 When questioned on this point at the second Inquiry Hearing Severn Trent acknowledged that one lesson that they had learnt was that County Council and the Local Resilience Forum did need to be aware of these issues. They also noted that Severn Trent had never been a member of the Local Resilience Forum in Gloucestershire or in any other county, but that in future they accepted that this needed to change.

2.6 The Inquiry understands that as far as Gloucestershire Constabulary, Gloucestershire Fire and Rescue Service, the Emergency Management Service, and indeed all those involved in Gold Command were concerned, flooding at the Walham Electricity Substation, operated by National Grid, would have caused a complete loss of power to the whole of Gloucestershire as well as parts of Bristol, Wales, and Herefordshire, for a prolonged period of time. Walham, therefore, also represents a single point of failure, and the criticism that the LRF and the Emergency Management Service were not provided with this critical information can also be levelled at National Grid.

2.7 When this issue was raised with National Grid at the second Inquiry Hearing their response was less clear-cut than the response from Severn Trent. They acknowledged that if Walham had been inundated they would have lost 470 mw of power, meaning a loss of power to at least 450,000 homes in the Gloucestershire area[21]. However, they indicated that if Walham had flooded, given a little time, they could have re-routed supply through the Feckenham, Cowley and Minety Substations and that they felt that they could have kept the County supplied with electricity, suggesting that there were some contingencies in place[22]. When pressed on this point and asked to give a view on how long power could have been lost if Walham had been flooded on the first day before switching operations were completed the Maintenance and Delivery Manager for National Grid stated that based on experiences elsewhere in the country he thought that the power would have been restored within 4 days[23].

2.8 What emerged from the discussion with National Grid was a confused picture of the extent of contingency arrangement, and a feeling that National Grid were not clear on their capabilities in terms of returning power if Walham had been flooded – in reality this may be an unfair assessment, but nonetheless it was the impression that the Inquiry was left with.

2.9 When questioned on the contingency arrangements for re-routing power in the event of the loss of Walham the Chair of the Local Resilience Forum

[20] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of the Proceeding of Day 2, page 52
[21] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of the Proceedings of Day 2, page 123
[22] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of the Proceedings of Day 2, page 131
[23] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of the Proceedings of Day 2, page 145

stated that he was not aware of any contingency arrangements at Walham. Therefore the emergency response was based on the view that if Walham were lost it would have meant a complete loss of power for a prolonged period of time – potentially over a week in the view of Gloucestershire Fire and Rescue Service.

2.10 Flooding at the Castlemeads electricity substation on Monday 23rd July resulted in the loss of power to approximately 42,000 homes in Gloucester. Power was not fully restored for over 24 hours. Castlemeads Electricity Substation therefore also represents a single point of failure, albeit on a much smaller scale. Castlemeads is operated by Central Networks who declined to take part in this Inquiry process; therefore the Inquiry has not had an opportunity to pursue this issue in detail.

Recommendation – *Central Networks have indicated that they will be reporting on their response to the summer emergency via the Local Resilience Forum. Therefore the Inquiry recommends that the LRF ensures this matter is discussed fully with Central Networks.*

2.11 The issues outlined above clearly demonstrate that there has been a major failure in communications between the Utilities and the Local Resilience Forum. We understand that this failing is not specific to Gloucestershire. Utility companies are generally regionally or nationally based, and therefore in the past they have only engaged with Resilience Forums at a Regional level. It is therefore likely that this type of crucial information is not being communicated locally in many areas across the country.

2.12 It is implicit within the statement of the County's Head of Emergency Planning that the County Council's own emergency plans would have been different, and presumably more effective, had local Emergency Planners been aware of these single points of failure. The Chair of the Local Resilience Forum went as far as to say that had the LRF been aware of the extent of the risk they would have worked with the utility companies to ensure that contingency plans were in place.

2.13 This must change, as it was clearly not helpful that those involved in Emergency Planning for the county, were only made aware of these single points of failure as the emergency unfolded. In future, utility companies must ensure that they engage with the Local Resilience Forum and that through the Forum they ensure that key local agencies are fully briefed on all of the risks associated with the County's critical infrastructure, and what contingency arrangements are in place. Currently utility companies seem willing to be involved and it is crucial that this level of co-operation is maintained and that the utility companies are committed to being completely open with the LRF.

Recommendation – *That national and regional utility companies commit to being involved permanently in the Local Resilience Forum, in a completely open and transparent way, in order to ensure a more co-ordinated response to future emergency events.*

Recommendation – *Through the Local Resilience Forum, national and regional utility companies must ensure that in the future key agencies within the county, particularly the Emergency Management Service, are fully briefed on all of the major risks associated with the county's critical infrastructure, and provided with details of the contingency plans that are in place*.

3.0 The Mythe Water Treatment Work

3.1 Background

3.1.1 The Mythe Water Treatment Works supplies approximately 160,000 properties, serving a population of over 350,000 including the towns of Cheltenham, Gloucester and Tewkesbury as well as a large part of rural Gloucestershire. Mythe is the single water treatment works responsible for providing water to the majority of these properties, although the network allows for some properties to be supplied from the Mitcheldean Water Treatment Works and the Strensham Water Treatment Works in the event of a failure at Mythe.

3.1.2 The first water treatment works at Mythe was built in 1870 to provide water for Tewkesbury. In 1894 Mythe expanded to provide water for Cheltenham. Further extensions allowed Mythe to supply Gloucester by 1941.

3.1.3 In 1965 the North West Gloucestershire Water Board was formed and assumed control of the Water Treatment Works, and then in 1974 the water industry was re-organised and the ownership was passed to Severn Trent Water Authority. In 1989 Severn Trent Water Authority was privatised and became Severn Trent Water Limited.

3.1.4 Prior to the events of the summer of 2007 there is no evidence of any major flooding of the Mythe Water Treatment Works. Indeed the major floods of 1947 only caused flooding of the basements of the pump house and filter house, which did not affect the normal operation of the plant.

3.2 The Flooding

3.2.1 By 2.30pm on Saturday 21st July ground water was starting to seep into the basement of the pumping station at Mythe, therefore additional pumps were brought to the site. At this stage that Environment Agency were predicting that water levels would peak at a level that would not cause serious flooding at Mythe.

3.2.2 At 10.00pm Severn Trent made the decision to call on the Fire and Rescue Service to help with the pumping of floodwater. At this stage floodwaters were still expected to peak at a level that would not cause serious flooding.

3.2.3 At midnight the Environment Agency warned that that it was now forecasting that the river level would peak at 7.00am on 22nd July at a level that would

flood Mythe. The works began to flood at 1.30am on 22nd July leading to the controlled shutdown of the works, and the site was evacuated at 6.00am.

3.2.4 By Monday 23rd July there were 70,000 properties without a piped water supply, and by the next day this had increased to some 140,000 properties, leaving 350,000 people without any piped water for up to 10 days, and without water of drinkable quality for 15 days. As discussed earlier in the report limited alternative supplies of water were provided for the duration of the emergency through bottles, tankers, and bowsers.

3.3 Future resilience

3.3.1 As discussed above, Severn Trent Water and the water industry in general have not considered it practicable or cost effective to construct a water supply system that will enable all customers to be continuously supplied in the event of asset failure. However, in the light of the summer events and considering the threat posed by climate change, it seems clear that something must be done to improve the resilience of the Mythe Water Treatment Works so that Gloucestershire never has to experience this failure in piped water supply again.

3.3.2 Potentially there are a number of ways to prevent this incident from re-occurring. The first is to move the Water Treatment Works to a completely different location that is at a much lower risk of flooding. Severn Trent have indicated that they would consider all options, but clearly this is a major undertaking and the most expensive option so therefore is not a favoured option at this time.

3.3.3 A second option to improve the resilience of Mythe is to strengthen the flood protections around the site. A semi-permanent barrier has been put in place since the flooding, which is designed to prevent flooding at river levels up to 13.5 metres above the normal level. The summer flooding saw river levels rise to approximately 12.7 metres above normal levels, so the new flood barriers should prevent flooding up to 80cm higher than that experienced in the summer. Severn Trent has confirmed that these flood defences will remain in place and that their engineers are already considering how to strengthen those defences[24].

3.3.4 Although flood defences reduce the risk of future flooding, they do not remove the potential threat of a future loss of water, as they could still be overtopped by a future more extreme event. The most realistic solution therefore appears to be improved flood defences combined with a resilient backup piped water supply from a different area, so that Mythe is no longer a single point of failure.

3.3.5 The Inquiry Team raised this idea of providing a secondary piped water supply at the second Inquiry Hearing. The Chief Executive of Severn Trent Water stated that Severn Trent would be reinforcing the network in

[24] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 2, Page 66

Gloucestershire, but that they wanted to be absolutely sure that they found the right solutions. He went on to state that providing a secondary piped supply, possibly from the Strensham Water Treatment Works, did intuitively feel like the right thing to do, but added that he wanted to make sure that there were no better alternative solutions before going ahead and installing a secondary piped supply[25].

3.3.6 The Inquiry believes that there is a very strong case for providing a secondary piped water supply. Numerous witnesses have indicated that the emergency phase following the flooding would have been over in a matter of days, rather than weeks if a water supply had been maintained, which would have allowed the recovery phase to begin a lot sooner. The loss of mains water supply had a huge impact on the residents of Gloucestershire, particularly vulnerable people, and it required a huge effort by a number of agencies, voluntary organisations, and individual volunteers, to ensure that people had access to a basic level of water for drinking and sanitation. It also had a significant impact on local businesses, with 7,500 businesses being disrupted by the loss of water supply. Gloucestershire First has indicated to the Inquiry that a rough estimate of the directly attributable cost to the local economy as a result of the closure of businesses during the flooding could be between £50 and £70 million[26]. There was also a significant financial impact on Severn Trent due to the cost of providing an alternative water supply on a widespread basis using bottles and bowsers. The Inquiry suggests the cost incurred by Severn Trent to secure a secondary piped supply may well be less then the costs involved in mounting such a large scale operation in the future should the Mythe Water Treatment works be flooded again. The Inquiry therefore strongly recommends that Severn Trent Water make the necessary investment in the water network in Gloucestershire to ensure that a secondary piped water supply is available in the event of a future loss of the Mythe Water Treatment Works.

Recommendation – *That Severn Trent Water secure a secondary piped water supply for Gloucestershire, possibly via the Strensham Water Treatment Works*, *in order to ensure that they are able to maintain a piped water supply to Gloucestershire in the event of any future loss of the Mythe Water Treatment Works, and that Severn Trent Water announce as soon as possible when these works will begin and when they will be completed.*

Recommendation – *That Severn Trent Water make a commitment to attend Gloucestershire County Council's Overview and Scrutiny Management Committee on 25th January 2008 to provide a detailed explanation of the level of investment planned to improve the resilience of the water supply in Gloucestershire, including details of whether or not Severn Trent plan to secure a secondary piped supply from an alternative Water Treatment Works, as recommended by this Inquiry.*

4.0 Walham Electricity Substation

[25] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceeding of Day 2, page 60
[26] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 3, page 130

4.1 Background

4.1.1 Walham Substation is located between the towns of Gloucester and Tewkesbury and is positioned between the A40 Gloucester ring-road and the River Severn.

4.1.2 Walham was constructed in the 1960s, along with the majority of the high voltage transmission system, on a raised plateau of land in the flood plain of the River Severn.

4.2.3 The fields surrounding the Walham site flood on a regular basis but there had not previously been any encroachment on the high voltage compound itself.

4.2 The Flooding

4.2.1 National Grid alerted the Electricity National Control Centre that there was a risk of flooding over the weekend of 21st and 22nd July. On 22nd July water levels started to rise and staff began to sandbag critical points at the site. Gloucestershire Fire and Rescue Service were called and began pumping away floodwater to protect the critical infrastructure.

4.2.2 Following the first meeting of Gold Command the Environment Agency agreed to provide an emergency flood defence system to protect the site. The barrier was in place by the early hours of Monday 23rd July.

4.2.3 The emergency services continued to pump water from the site and the temporary flood defences withstood the peak river levels. On 24th July the Armed Forces helped to erect a semi-permanent Hesco Bastion flood barrier around the substation to provide longer-term protection and allow the temporary barrier to be deployed elsewhere.

4.2.4 Electricity supplies from the Walham Substation were maintained throughout the emergency.

4.3 Future Resilience

4.3.1 As discussed above the Inquiry was not able to ascertain the extent to which National Grid would be able to provide a back up power supply in the event of the loss of Walham. However, it does appear clear that the loss of Walham would lead to a loss of power across a large part of Gloucestershire for a number of days. Therefore there is a need to ensure that everything possible is done to reduce the risk of a loss of power through flooding at Walham.

4.3.2 As with the Mythe Water Treatment Works one option would be to relocate the substation. This issue was raised with National Grid at the second Inquiry Hearing and they indicated that this would be a very difficult challenge, as they would have to move both the substation and all of the overhead power lines. The cost of moving the substation alone would be at least £30 million. Added to this would be the problem of finding a suitable location of a new

substation as people would be opposed to having the substation near their homes. The Inquiry was left with the impression that this was not considered to be a realistic option.

4.3.3 Again, as with the Mythe Water Treatment Works, this therefore leaves the options of providing enhanced flood defences and securing a back-up supply should the site fail. National Grid have described the current Hesco Bastion barrier as a medium term defence, which will provide protection from similar levels of flooding for the next 3-5 years. The appropriateness and capability of this type of barrier for a period of 3 to 5 years is seriously questioned. Clearly there is a need to enhance this barrier in order to provide long-term flood defence. The Inquiry therefore strongly recommends that National Grid invest in a permanent flood barrier to provide long-term protection against flooding to levels at least as high as those experienced this summer.

Recommendation – *That National Grid invest in a permanent flood defence barrier around the Walham site in order to provide long-term protection against extreme flooding events, and that National Grid announce as soon as possible when these works will begin and be completed.*

4.3.4 Any investment in a flood barrier needs to be coupled with contingency arrangements to ensure that an alternative power supply is available in the event that Walham fails. As stated previously the Inquiry felt that reassurances given by National Grid over contingency planning at Walham did not stand up to detailed scrutiny. The Inquiry would like to make it clear that we believe that National Grid must ensure that contingency arrangements are in place that will allow them to provide an alternative power supply in the event of the loss of Walham, and that they must share these plans with the Local Resilience Forum.

Recommendation – *That National Grid ensure that contingency arrangements are in place that will allow them to provide an alternative power supply to Gloucestershire in the event of the loss of Walham Electricity Substation.*

Recommendation – *That National Grid invite the LRF to participate in a large scale exercise to test the contingency planning for the loss of power at Walham and the provision of an alternative supply.*

Recommendation - *That National Grid's contingency plan clearly shows that in the event of Walham being inundated with flood water how long it anticipates power being lost to the network and how soon alternative supplies can be made available.*

Recommendation – *That National Grid must share their contingency plans with the Local Resilience Forum and allow that body to scrutinise them in order to ensure that they are fit for purpose.*

5.0 Castlemeads Electricity Substation

5.1 On Monday 23rd July Castlemeads electricity sub-station, operated by Central Networks, was shut down due to surge water, leaving 42,000 without power. The sub-station was not fully restored until 24 hours later.

5.2 Central Networks were invited to attend the Scrutiny Inquiry but were unwilling to do so. In the absence of any detailed evidence from Central Networks the Inquiry suggests that many of the recommendations suggested above with regard to Walham should be applied to the Castlemeads site.

Recommendation – *That Central Networks invest in a permanent flood defence barrier around the Castlemeads site in order to provide long-term protection against extreme flooding events.*

Recommendation – *That Central Networks ensure that contingency arrangements are in place to allow them to provide an alternative power supply in the event of the loss of the Castlemeads substation.*

Recommendation – *That Central Networks must share its contingency plans with the Local Resilience Forum and allow that body to scrutinise them in order to ensure that they are fit for purpose.*

Chapter 7 – Communications

1.0 Introduction

1.1 The Local Resilience Forum debrief process is expected to highlight a number of lessons that have been learnt relating to improved communications. In addition to this, the written submissions to the Inquiry include details of lessons that individual agencies have learnt, many of which relate to internal and external communications (see appendix 1 for copies of the written submissions).

1.2 The Inquiry has not focused on communications issue in great detail. However, during the course of the Inquiry a number of issues have been raised that suggest communications during the emergency could have been improved, and so this chapter aims highlights some of the key communications issues that were raised during the Inquiry process.

1.3 This section refers to Gold and Silver Command

2 Gold Command

2.1 Gold Command and the District Councils

2.1.1 During the Inquiry several District Councils and the Gold Commander made reference to some failures in communications between Gold Command and the District Councils. The issue from the District Council perspective appeared to be a lack of information flow from Gold Command to the District Emergency Teams, which meant that the Districts were not always aware in a timely manner of decisions that had been made. The Gold Commander has acknowledged that dissemination of information and actions agreed at Gold Command needs to be improved. From the Gold Command point of view the responsibility for disseminating information to the District Councils rested with the County Council, who were always represented at Gold Command, and that therefore any difficulties that arose as a result of decisions not being communicated to the Districts were as a result of the lack of meaningful dialogue between the County Council and the District Councils[27]. This demonstrates that it is crucial that all authorities present at Gold Command are clear on their responsibilities for cascading information to other organisations, and that they need to ensure that information is shared in a timely fashion.

Recommendation – *That the Gold Commander ensures that all authorities present at Gold Command are aware of their responsibility for disseminating information to agencies not present at that forum.*

[27] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, page 149

2.1.2 The Gold Commander has indicated that the County Council were aware of their responsibility to disseminate information to the Districts, but nonetheless it appears that information was not always disseminated in a timely fashion. Therefore, it appears that the lines of communication between the County Council and the District Councils need to be improved.

Recommendation – *That the lines of communication between the County Council and the District Councils be reviewed and that steps be taken to improve communications.*

2.2 Gold Command and the Media

2.2.1 The Inquiry has received conflicting information about the relationship between Gold Command and the media. BBC Radio Gloucestershire have suggested that there was a lack of clear communication on the first day of the emergency, in that they were not told that Gold Command had been put into operation. They felt that if they had been told that Gold Command was in operation they could have explained the situation to their listeners and could have provided a better service. They also argued that they would not have gone off air when they did had they known about Gold Command[28]. This issue was raised with the Gold Commander, who argued that BBC Radio Gloucestershire's version of events was inaccurate. According to the Gold Commander the first press release about the emergency was issued at 3.25pm on the Friday, although at this stage Gold Command was not in operation. Gold Command was set up at 6pm, and the Gold Commander has confirmed that BBC Radio Gloucestershire were called directly at 7.50pm and told that Gold Command was in operation[29].

2.2.2 BBC Radio Gloucestershire have also suggested that Local Authorities and Gloucestershire Constabulary showed an over reliance on the use of press releases to disseminate information during the emergency. They have argued that in emergency situations such as this, it would be better to use the media of radio to get accurate information out quickly, rather than hold it back until press releases are issued.

Recommendation – *That Gold Command and BBC Radio Gloucestershire jointly review the process for communications in future emergency situations in order to ensure that communications to the public are as timely and effective as possible.*

3.0 Silver Command

3.1 Silver Command and the District Councils

3.1.1 A number of the District Councils, most notably Cotswold District Council, have commented to the Inquiry on the lack of information from Silver

[28] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, pages 75 - 80

[29] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, Pages 146 - 148

Command in the early days of the emergency. The Districts have commented that they would have appreciated more information from Silver command on the scale of the event, how extensive it was, and on what information Silver command were actually collating. This issue was addressed on the third day of the emergency when Cotswold District Council decided to send a representative to Silver command to act as a conduit between Silver Command and the District Councils. The inquiry understands that this immediately helped to address this issue, and therefore suggests that this approach should be formally adopted and used in any future emergency situation.

Recommendation – *That in future emergency situations the District Councils ensure that they have a representative present at Silver Command from the start of the emergency to act as a conduit for information between Silver Command and the District Councils.*

2.0 Local Authorities

4.1 The County Council and the District Councils

4.1.1 As highlighted above there is a need to ensure that there are clear lines of communication between the County Council and the District Council in any future emergency situations.

4.2 Local Authorities and the Public

4.2.1 It does appear that there is room for some improvements in communications between local authorities and the public. Two specific examples of this have been raised during the Inquiry. Firstly, early in the Emergency a circular was sent out to households providing information about what to do when the water supply was restored. This circular was apparently sent to all households in Gloucestershire, even though some areas of the county are not supplied by Severn Trent and were unaffected by the water loss. As the circular did not say who had sent it, or which areas it covered, it did cause some concern amongst members of the public in areas such as the Cotswolds as they thought that it meant that their water supply was unsafe to drink. The Inquiry understands that this circular was seen by a number of agencies including the County Council and the District Councils prior to its circulation, yet the problems were not highlighted. Clearly this type of misinformation is unhelpful, and it is crucial to ensure that in future all information is accurate and clear.

Recommendation – *That local authorities ensure that all communications with the public during emergency situations are clear, accurate, relevant and timely.*

4.2.2 The second specific issue that arose during the Inquiry related to the provision of sandbags and has been discussed elsewhere in this report.

4.3 Evidence was given to the Inquiry of problems caused by members of County Council staff trying to ascertain the latest situation in terms of should they report for work, was their office open etc? This led to large numbers of calls from staff during the emergency adding to the pressure on the already overstretched help lines and Shire Hall reception having to deal with staff and public as they visited.

Recommendation – *That Gloucestershire County Council establishes a system for communicating with staff during emergencies.*

3.0 The prospect of evacuation

5.1 One issue of interest that was raised during the inquiry related to the possibility of evacuating large parts of Gloucestershire if Walham had been flooded. Many people will have heard references in the media during the emergency that suggested that if Walham flooded the county would have been evacuated. Indeed the Gloucestershire media publication 'The Great Gloucestershire Flood 2007' states " …we were within two inches of becoming the focus of the largest evacuation of people in peacetime Britain"[30].

5.2 This issue was discussed with the Gold Commander at the fourth Inquiry Hearing and the Inquiry now understands that Gold Command actually took a decision very early on in the emergency that Gloucestershire would not be evacuated, as trying to move around 600,000 people simply was not feasible.

5.3 It appears that the popular view that the county was on the verge of a major evacuation was as a result of a debate that took place at the Regional Civil Contingencies Committee and this was incorrect. This committee did apparently discuss the prospect of evacuation without receiving advice from Gold Command. Indeed it appears that they even passed information on to the Prime Minister, through Cobra, which indicated that an evacuation plan was being considered. This misinformation was not helpful to those leading the emergency response in the county.

6.0 Communication with Elected Members

6.1 It is recognised that the support for local elected members in the event of an emergency needs to be improved, both in terms of communicating with those members to ensure they are kept fully in the picture as events unfold and to learn key information from them as the front line member often closer to the events on the ground. In addition there is a need to ensure that members receive more training and support to equip them to deal with the unique pressures and expectation that can arise during emergency situations. The situation in the July emergency was not helped by the temporary loss of key lines of communication due the risk of flooding of Shire Hall and the impact on email.

[30] The Great Gloucestershire Flood 2007, A Gloucestershire Media Publication, page 7

Recommendation - *That a package of training and development is put in place to support local elected members in the event of emergencies and that the emergency communications plan specifically addresses the need to keep in regular contact with elected members.*

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Chapter 8 – Recovery and Future Resilience

Recovery

1.0 Introduction

1.1 At the end of the emergency phase Gold Command signed over responsibility for the recovery phase to Gloucestershire County Council. This handover took place on 6 August 2007. The Council had already set in motion a multi-agency Strategic Recovery Coordination Group ready to deliver the recovery programme.

1.2 There are a number of task-groups under the Strategic Recovery Coordination Group that are responsible for delivering the recovery programme. These task-groups are listed below.

1.2.1 **The People Task Group**- The work of this group included conducting a household survey, as mentioned in chapter 2 of this report, to assess the extent of the impact of the flooding on residents and identify any support that residents needed, including allocation of flood recover grant.

1.2.1 **The Environment Task-Group –** The work of this group was focused on ensuring that the waste arising from the floods was collected and disposed of quickly and appropriately, including the recycling of plastic water bottles.

1.2.2 **The Economy Task-Group –** This task-group is led by Gloucestershire First. Some 500 businesses were flooded during the emergency, and over 7,500 were disrupted by the loss of water supply. This group has managed a scheme to provide recovery grants of £2,500 to small and medium sized businesses using funding provided by the South West Regional Development Agency. These grants are only available to flooded businesses, not those affected by the loss of water supply. Targeted work is also underway to promote the message that 'Gloucestershire is open for business', which included the recent Tall Ships festival in Gloucester.

1.2.3 **The Infrastructure Task-Group –** The group is focused on addressing damage to local authority infrastructure. This includes damage to 20 of the county's schools, significant damage to leisure centres in Cheltenham and Cirencester and £25 million worth of damage to the county's highways network.

1.2.4 **The Communications Task-Group –** This work has focused on keeping the public, elected members, and council staff informed of progress with the recovery programme, and on the production of a flood resilience booklet, which will include information for households to help them prepare for any future flood emergency.

1.2.5 The Finance Task-Group – This group has focused on the process drawing down money from central government to support the recovery programme, and on recovering some of the costs incurred during the emergency from the Government under the Bellwin scheme, and from Severn Trent to cover costs associated with water distribution.

1.2.6 The Information Task-Group – This group has been responsible for the analysis of data, primarily from the household survey, in order to inform the recovery process.

1.2.7 Community Voice – This group aims to engage with the public in order to give the public an opportunity to:

- Reflect on how the flooding affected them personally
- Comment on any local issues that need to be addressed but have not yet been picked up by agencies
- Prepare their own plans for increasing local resilience and being able to deal with any future emergency

This work began in late October.

1.3 The Inquiry has been informed that the recovery programme is progressing well, with many of the key outcomes having already been achieved.

2.0 The psychological and emotional impacts of flooding

2.1 As part of the Inquiry process members of the Inquiry Team held a number of public drop in sessions around the county in order to get a better understanding of residents' experiences during the flooding. In total approximately 150 people attended these sessions, and one strong message that came through to the Inquiry from this is that people are now feeling very vulnerable and dread the approach of winter.

2.2 The Inquiry is aware that a number of institutions, including the Flood Hazard Research Centre at Middlesex University have conducted research looking at the longer-term psychological impacts of flooding. The Flood Hazard Research Centre presented some of its findings to the Strategic Recovery Coordination Group, which suggested that there is evidence that the mental health effects of flooding can be significant and long lasting. According to their research psychological issues can arise as a result of the stress of the event, difficulties coping with the recovery process, financial concerns, and anxiety over future events. Common concerns reported by flood victims include anxiety whenever it rains, increases in stress, and problems with sleeping[31]. This was echoed very strongly by the representative of the National Flood Forum who gave evidence at the third Inquiry Hearing.

2.3 The evidence from the Inquiry's public drop-in sessions would appear to indicate that the potential longer-term psychological impacts of flooding referred to in the Flood Hazard Research Centre's research are now

[31] Flood Hazard Research Centre presentation to the Strategic Recovery Coordination Group, 26th October 2007

beginning to be felt in Gloucestershire. Members of the Inquiry Team heard stories of residents being fearful every time it rains in case they flood again, and of children being scared of the rain and hiding away at the first sign of rain. In one instance an elderly resident commented that he would rather die than go through the same experience again. This is, therefore, the most significant concern that the Inquiry has regarding the recovery process.

2.4 As part of this it must be noted that many people are currently out of their homes and in many cases, especially in Tewkesbury, are now living in caravans. This has potential to have a significant psychological impact in its own right on top of the impact of the flooding itself.

2.5 This issue was raised with representatives from the Strategic Recovery Coordination Group (SRCG) at the fourth Inquiry Hearing. The SRCG acknowledged that this was an area of concern for them and that they need to focus on this issue in more detail. The SRCG is already working with the District Councils to try to get them to use some of the Flood Recovery Grant money that they have received to provide additional facilities for people who are living in temporary accommodation. This includes extra laundry services, after school activities for children, and additional support from the Citizens' Advice Bureau, particularly to help people deal with insurance issues[32].

2.6 The Inquiry is concerned that the authorities involved in the recovery process may have become complacent about this issue and believes that much more action is required to provide assistance to people that are in need. The Inquiry therefore recommends that the People Recovery Task-Group shift its focus to developing a programme of support for residents of Gloucestershire that are experiencing psychological and emotional impacts as a result of the flooding. As part of this package the People Recovery Task-Group should consider the option of providing some form of counselling, perhaps through a dedicated confidential telephone line. The People Recover Task-Group should also engage with the National Flood Forum to assist in developing the programme and perhaps delivering some aspects of the programme.

2.7 The Inquiry also received evidence from the National Flood Forum, which emphasised the seriously damaging impact that flooding can have on people's lives and the support that they require during the recovery phase and beyond. The National Flood Forum plays an important role in providing this support, and the Inquiry recognised there is a real need for the kind of service provided by the Forum across the country. However, it was also pointed out to the Inquiry the expectations on the service are far in excess of the very limited funding it receives. .

Recommendation - *That the People Recovery Task-Group shift its focus towards developing a programme of support for residents of Gloucestershire suffering from the psychological impacts of flooding. As part of this package the People Recovery Task-Group should develop proposals for providing*

[32] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, pages 188-189

some form of counselling to flood victims, perhaps through a dedicated confidential telephone line. The People Recovery Task-Group should also engage with the National Flood Forum to assist in developing the programme and perhaps delivering some aspects of the programme.

Recommendation – *That Overview and Scrutiny Management Committee be updated on progress with delivering the programme of support for residents suffering from the psychological impact of the flooding at its meeting on 17th December 2007.*

Recommendation – *That DEFRA recognises the value of the National Flood Forum by substantially increasing the financial contribution that it makes towards its operation.*

2.7 One of the aims of the Community Voice Programme element of the SRCG's work is to enable people to talk about their experiences in order to relieve some of the pressure. The programme will also help to gather information about needs in order to ensure that the right support can be provided. It is important that people have an opportunity to share their experiences, and provide information on their needs. This has already been done to some extent through the Inquiry drop-in sessions and so it is important that this effort is not duplicated and that the feedback from the Inquiry drop-ins is fed into the Community Voice Process. The Inquiry therefore recommends that the SRCG be provided with copies of all of the written feedback from the drop-in sessions, and that members of the Inquiry be invited to share the anecdotal evidence that they have gathered through their individual discussions with members of the public with representatives from the Community Voice project at the earliest opportunity.

Recommendation – *That all of the written feedback from the Inquiry Drop-in sessions be shared with the Strategic Recovery Coordination Group, and included as part of the Community Voice process.*

Recommendation – *That the elected members who took part in the Inquiry Drop-in sessions be given an opportunity to share the anecdotal evidence that they have collected with representatives from the Community Voice project at the earliest opportunity so that this can also be included as part of the Community Voice process.*

Recommendation – *To ensure that the Community Voice project can meet public expectations it may be helpful if the Chairman of this Inquiry is able to share the Inquiry's findings and discuss actions already taken by different agencies with the Community Voice project.*

3.0 Insurance

3.1 Another issue that has clearly been highlighted through the public drop in sessions is that people are still experiencing difficulties with their insurance companies. There appears to be real variation in the level of service provided by different insurance companies, in some cases the insurance companies

have been very good, whilst in others people have been left accumulating debts in order to pay for things such as alternative accommodation themselves because their insurance company has been unresponsive.

3.2 The SRCG is aware that people are experiencing problems with insurance companies, and is very keen to bring in additional Citizens' Advice Bureau resources and is also considering the option of employing some independent insurance experts to provide independent advice to people who are having difficulties with their insurance company[33]. It is important that this work is progressed rapidly so that people can get the support that they need as soon as possible.

Recommendation – *That the Strategic Recovery Coordination Group urgently progress the option of securing additional Citizens' Advice Bureau support and the option of employing some additional independent insurance experts to provide independent advice to people who are experiencing significant difficulties with their insurance company.*

4.0 The Flood Relief Fund

4.1 Hardship grants are available to provide financial support to individual households affected by the flooding. This is an important scheme to help people, particularly those without insurance, recover from the flooding. The Trustees of the fund will be considering the second round of applications to the fund at their next meeting on 15th November.

4.2 The Inquiry held one drop-in session in Chipping Campden, in the North Cotswolds. There was some significant flooding in the area but none of the 30 or so residents that attended the session had heard about the Flood Relief Fund. This issue was raised with the SRCG who acknowledged that although the scheme had been advertised in the media more could be done to promote it. There is some suggestion that the fund will close on 15th November, although this is not confirmed. The Inquiry believes that this scheme needs to remain open into the new-year and that more needs to be done to promote this scheme, particularly in to the more remote areas of the county.

Recommendation – *Providing that sufficient money remains available within the fund that the Trustees of the Flood Relief Fund continue to consider applications to the fund until at least the end of the year.*

Recommendation – *That the Strategic Recovery Coordination Group do all that it can to promote the Flood Relief Fund, particularly in the more remote areas of the county, in order to ensure that everyone eligible has the opportunity to apply for a grant.*

5.0 Recovery Communications

[33] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, page 189

5.1 Before the Inquiry Hearing, attended by representatives of the Strategic Recovery Coordination Group, the members of the Inquiry were not aware of the extent of recovery work that was underway. The Inquiry therefore suggests that elected members of both the County Council and the District Councils need to be kept more informed of the work of the Strategic Recovery Coordination Group.

Recommendation – *That the Strategic Recovery Co-ordination Group ensure that all County and District Councillors are kept informed of the work of the group.*

6.0 Countywide Flood Resilience Booklet

6.1 Feedback from the Inquiry drop-in sessions has suggested that more needs to be done to prepare people for a flood emergency situation. It is clear that many people did not know what to do, or where to turn for help when they needed it. The Inquiry is therefore pleased to note that the SRCG is in the process of developing a flood resilience booklet for distribution across the county, which will include information for households on how to prepare for, and stay safe in, any future flood emergency.

Future Resilience

1.0 Introduction

1.1 The previous chapters of this report, particularly the chapters 3, 4 and 6, pick up on a number of crucial issues that need to be addressed in order to improve the long-term resilience of Gloucestershire, and so those findings are not repeated here. However, it is crucial that these findings, and the associated recommendations, are acted upon.

1.2 The Local Resilience Forum debrief process will identify many lessons that were learnt during the summer emergency. This information will also play a crucial part identifying emergency planning and management issues that should be addressed in order to improve future resilience.

1.3 The debrief report will be available from 14th November, and the Local Resilience Forum have indicated that it will be made available to any agency that requests it. It is important to ensure that the debrief report is made available to inform the EFRA Select Committee Inquiry, and the Independent Parliamentary Inquiry, alongside this Inquiry report, in order to ensure that all of the key messages from the Gloucestershire experience and taken into account during the national reviews.

Recommendation – *That the Local Resilience Forum ensure that a copy of their debrief report is sent to the EFRA Select Committee Inquiry and the Independent Parliamentary Inquiry to inform the national reviews.*

2.0 Community Resilience

2.1 One issue that has not been covered in detail elsewhere in this report is the need to enhance community resilience at a very local level, in order to help people to help themselves.

2.2 This issue was particularly highlighted by Gloucestershire Fire and Rescue Service, who explained that extreme conditions put huge pressure on the emergency services and they are simply not able to get to everyone straightaway. Therefore, there is a need for people to be able to do more to support themselves where possible. The Fire and Rescue Service is currently working with the Gloucestershire Constabulary through the Neighbourhood Management Forums to develop neighbourhood emergency response plans in order to help communities to help themselves

2.3 Some communities, for example the residents of Cypress Gardens in Longlevens in Gloucester, who experienced significant flooding during the summer are already developing their own emergency response plans for their area. Local Authorities, and the Emergency Services, need to do all that they can to encourage and support this so that more communities are able to help themselves as much as possible in future emergency situations. In many areas Town and Parish Councils will have an important role to play in this process. The approach also needs to be promoted at a national level.

Recommendation – *That Local Authorities and the Emergency Services, working with Town and Parish Councils where appropriate, develop a plan to promote and support enhanced individual and local community resilience, in order to ensure that our communities are able to support themselves as much as possible in future emergency situations.*

Chapter 9 – Public feedback

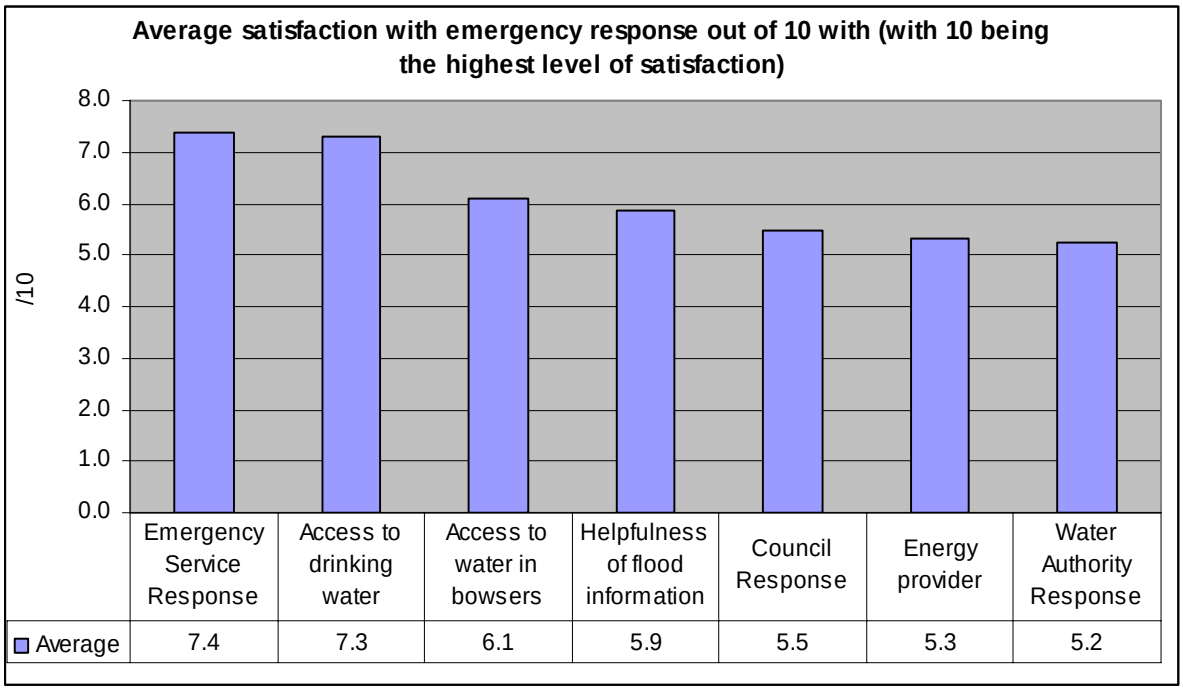
1.0 Background

1.1 During September 2007 a questionnaire was made available on the internet, at libraries, via Councillors, and at drop-in sessions around the county. In all 643 responses were received. People were also given the opportunity to express their views at several drop-in events around the county. In total 150 people attended these sessions. The consultation was not designed to produce a representative sample and as such the results presented here may not reliably represent the views Gloucestershire residents as a whole.

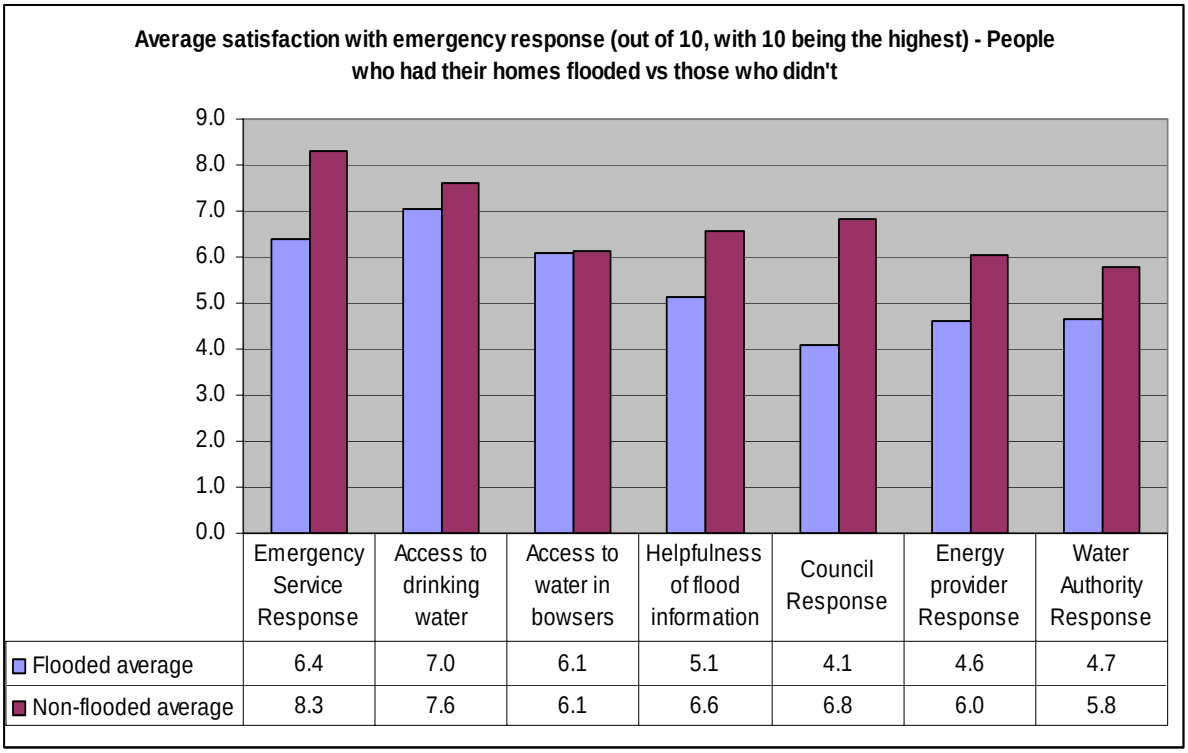
2.0 Summary of Questionnaire results

2.1 People were asked to rate (out of 10) their satisfaction with agencies and access to fresh water during the flooding. The average scores are presented in rank order in the chart below.

2.2 It can be seen that the emergency services scored particularly well (average 7.4 out of 10), but no agency scored less than 5 on average.



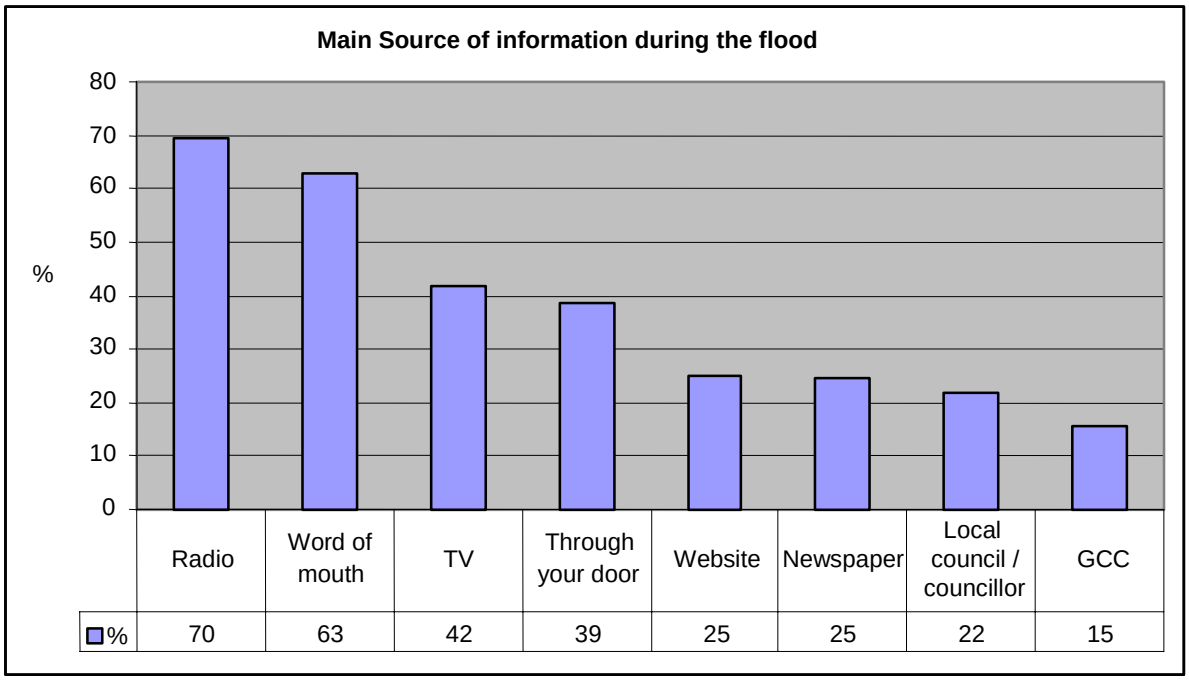
2.3 The chart on the following page shows that, with the exception of access to water in bowsers, people's opinions of the flood response were significantly more negative if they had actually had their houses flooded.



	Emergency Service Response	Access to drinking water	Access to water in bowsers	Helpfulness of flood information	Council Response	Energy provider Response	Water Authority Response
Flooded average	6.4	7.0	6.1	5.1	4.1	4.6	4.7
Non-flooded average	8.3	7.6	6.1	6.6	6.8	6.0	5.8

2.4 Opinions expressed in the free-response part of the questionnaire were often very polarised (e.g. some people praising the emergency services, others scathing). This is likely to be a reflection of individual expectations and experiences during the flooding, and that those who made the effort to take part in the consultation were more likely to have strong opinions one way or the other.

2.5 The radio and word of mouth were the most common ways of finding out information during the flood (see chart below). However, if considering future planning please bear in mind that these results are not necessarily reflective of the county population as a whole.



	Radio	Word of mouth	TV	Through your door	Website	Newspaper	Local council / councillor	GCC
%	70	63	42	39	25	25	22	15

2.6 People were given the chance to select their favoured options from a list of things that might help prevent future flooding. The top 3 answers were maintenance of drains and sewers (85% of participants), maintenance of rivers/ watercourses (79%), and stronger planning restrictions (76%). The full results are shown in the table below.

What might reduce the impact of a similar situation?	**%**
Maintenance of drains and sewers	85
Maintenance of rivers / watercourses	79
Stronger planning conditions e.g. less building on flood plain	76
Increase flood defence systems	44
Better warning systems	13
Better education on how to manage flood situations	11

2.7 People were also asked what might have helped them deal better with the emergency. Around half of respondents stated that "more information" would have been useful. Around 40% of respondents wanted a more speedy clean-up operation and better access to help and support (though we can't be sure exactly what people mean by this).

2.8 In their additional comments, a number of people also mentioned disappointment at the lack of supply of sandbags by their Council.

What would have helped you deal better with the emergency?	%
More information	50
Speed of clean up operation	42
Access to help and support	40
Access to emergency more emergency water supplies	27

3.0 Drop-in Session Findings

3.1 The drop-in session events allowed people to talk about their fears and hopes for the future in relation to the flooding, and to make any general comments. Appendix 4 provides further details of the feedback received at the drop-in sessions.

3.2 People's fears

3.2.1 There were 5 main themes here:

- General anxiety that flooding will occur again
- Concern and scepticism about whether agencies will learn lessons from the flood
- That lack of funds will hamper efforts to implement changes anyway
- That people's properties will become uninsurable or face hefty increases in premiums

- Properties that were flooded will lose significant value

3.3 People's hopes

- That there will be greater co-ordination between agencies in flood prevention and response
- That the level of house building be reduced or stopped (particularly on flood plains)
- That there were various specific suggestions for flood defence mechanisms in the local area (e.g. dredging local streams and rivers, clearing drains etc)

Chapter 10 – Lessons Learnt

1.0 Introduction

1.1 This report has highlighted a number of lessons that have been learnt, which are briefly described again below. In addition to this a number of agencies that took part in the Inquiry have included details of the lessons that they have learnt in their written submissions. Further details of these lessons can be found in the written submissions in appendix 1 of this report.

1.2 Further information about lessons learnt will be made available through the Local Resilience Forum single-agency and multi-agency debrief process. Unfortunately at the time of the Inquiry this detailed information was not available to the Inquiry Team.

2.0 The Major Flooding Emergency Plan

2.1 Although the Emergency Management Service believes the plan worked reasonably well as a framework for response, this was not substantially borne out by the evidence received. It does seem clear that the plan could be improved. Specific lessons that the Inquiry believes have been learnt are:

- The need to incorporate a response to flash flooding into the plan
- The need to incorporate details of the role of elected members in emergency situations into the plan – and the need to provide member training on emergency planning
- The need to ensure that key agencies are all consulted and engaged in the plan

3.0 Sandbags

3.1 There is inequity in the provision of sandbags to households across the county, and therefore there is a need for a countywide policy on the distribution of sandbags.

4.0 The Emergency Management Service Emergency Response Centre

4.1 During the Inquiry several agencies have highlighted the fact that flooding at Shire Hall on Sunday 22nd July forced the County Council to relocate the Emergency Management Service Emergency Response Centre to the Tri-Service Centre in Quedgeley. Whilst the relocation was well managed, from a business continuity point of view it is clearly inappropriate to have the Emergency Response Centre located in a basement that is vulnerable to flooding. Given the existing Tri-Service arrangements at the Tri-Service Emergency Centre at Waterwells, in Quedgeley, it may be sensible to consider relocating the centre to that site. However, it is important to note that the centre is not an efficient use of space as at times of normal activity it is not in use, and cannot be used for other functions. This needs to be factored

into any decision about the future location of the centre to ensure that other critical business opportunities are not lost through the relocation.

5.0 The Tri-Service Centre

5.1 Several agencies, including Gloucestershire Constabulary and Gloucestershire Fire and Rescue Service, have pointed to the crucial role that the Tri-Service Emergency Centre played in the emergency response. They argue that the events illustrated that the Tri-Service Centre provides an efficient and effective co-ordinated response, and instant Command and Control infrastructure and that it allows for an informal dialogue that promotes decision-making processes and action. The evidence points towards the need to maintain county based command and control structures, even if in future call handling is to be managed on a regional basis.

6.0 National Planning Assumptions

6.1 The Summer Emergency of 2007 has highlighted the fact that the national planning assumptions for Critical National Infrastructure are inadequate. The risk assessment and emergency planning processes are based on these national planning assumptions, and therefore the national assumptions need to be robust. Therefore there is a need for an urgent review of national planning assumptions in order to ensure that there is a realistic basis from which to plan for future emergencies.

7.0 Watercourses

7.1 There is a general lack of clarity and a common understanding about the different roles and responsibilities for maintaining watercourses, and it seems clear that the current system of riparian ownership maintenance responsibilities is not working. It appears that there is a need for a single agency to take on the responsibility for ensuring the country's watercourses are effectively maintained.

8.0 Utility Engagement with the Local Resilience Forum

8.1 Given the extent of the impact that the loss of water supply had on the county and the potential disruption that the loss of Walham would have had on the county and beyond, it is imperative that national and regional utility companies engage at a local level with the Local Resilience Forum in contingency planning. It has also become clear throughout the Inquiry that although the Utility companies conduct their own risk assessments and were aware that some of the county's critical infrastructure represented 'single points of failure', which could affect large parts of the county and beyond, they had apparently not articulated this to other agencies involved in emergency planning. It is not acceptable that the Head of the County Council's Emergency Management Service, and others, were only made aware of these 'single points of failure' as the emergency unfolded, and this must have had an impact on the Service's ability to produce a truly robust emergency plan.

9.0 Secondary Piped Water Supply

9.1 Severn Trent Water must invest in a secondary piped water supply for Gloucestershire so that water can be supplied via an alternative route in the event of the loss of the Mythe Water Treatment Works.

10.0 Utility Contingency Plans

10.1 The utility companies must share their contingency plans with the Local Resilience Forum in order to ensure that they are fit for purpose.

11.0 Communications

11.1 It is evident that there are numerous examples of where communications could have been improved. In summary it is clear that there could be improvements to communications in the following areas:

- Engagement in the development of the council's emergency flood plan
- Some of the communications through the emergency command structure (especially to and from district Councils)
- Communications with the media (initially)
- Communications with elected members
- Communications to the wider group of council staff
- Misleading communications with the public, from within and outside Gloucestershire, on issues such as the extent of the lack of drinking water and the potential evacuation of Gloucestershire

11.2 Specific discussions and recommendations on communications are picked up in other parts of the report

12.0 People issues and the psychological and emotional impact of flooding

12.1 The Inquiry has highlighted the fact that the potential long-term psychological and emotional impact of flooding cannot be ignored and the fact that local authorities need to do more through the recovery process to address this issue.

13.0 Community Resilience

13.1 Local authorities and the Emergency Services need to do more to enhance local community resilience so that our communities are better able to help themselves in emergency situations.

14.0 Severn Trent

14.1 Unlike with other agencies we have chosen to reproduce some of the lessons highlighted in Severn Trent's written submission here, as the loss of the Mythe Water Treatment Works was such a significant issue, and because we believe that Severn Trent's conclusions highlight the need for some ongoing

Scrutiny activity. The lessons fall into three categories – (i) the adequacy of flood defences, (ii) the degree of water supply system resilience such that the failure of a key asset can be substituted by other means without interruption of service, (iii) the adequacy of contingency planning should supplies fail.

14.2 Flood Defences

14.2.1 The existing flood defences at the Mythe Water Treatment Works had protected the site throughout past flooding events, but they were overwhelmed by the scale and speed of the rises experienced in July 2007. Severn Trent acknowledges that its flood risk assessments at the Mythe, and across the rest of its network, are based on historical data which will now need to be revised in the light of these events.

14.2.2 Following the events of the summer Severn Trent has made a commitment to:

- Conduct an urgent review of their risk assessments and existing flood defences in respect of all of their key sites.
- Secure the current semi-permanent flood wall around the Mythe and complete the protection to the main entrance with portable, easily installed defences.

14.3 Resilience

14.3.1 The Mythe Water Treatment Works represents a single point of failure, as the households supplied by the works cannot receive a piped water supply from any other source. The flooding at the Mythe and the impact on the community must lead to serious questions about the acceptability of the risk of such widespread disruption. Severn Trent have therefore made a commitment to identify possible investment to increase the resilience of the water supply. As discussed in Chapter 6 it is the view of this Inquiry that this should involve the provision of a secondary piped water supply from an alternative Water Treatment Works in order to ensure continuity of supply in the event of any future flooding.

14.3.2 Specific actions identified by Severn Trent include:

- A review of their risk assessment methodology and revision of their risk threshold in the light if the experiences in Gloucestershire
- An urgent evaluation of possible investments to increase the degree of resilience of supply in Gloucestershire.
- An evaluation to ensure that they proceed with the most effective resilience schemes
- A risk assessment of all of their major sewage treatment works serving a population exceeding 100,000 and a review of contingency plans for the largest works and the sewers that discharge to them

14.4 Contingency

14.4.1 Severn Trent have identified the following lessons relating to contingency plans as a result of the summer events:

- The magnitude and duration of the event was greater than had been contemplated in Severn Trent's contingency plans. Therefore their crisis management manuals, emergency response plans and detailed incident manuals will be reviewed and updated.
- Severn Trent have not previously been involved in an incident involving Gold Command and consequently were initially unfamiliar with the command and control protocols and the respective roles and responsibilities of the Gold Command members within this structure.
- In the initial stages of the emergency the Severn Trent Website was not able to cope with the volume of hits. A review of the capacity of the website will therefore be undertaken.

14.4.2 Specific actions identified include:

- Severn Trent will review and update their contingency plans to reflect the lessons learnt in all aspects of the response to the Gloucestershire incident and train all relevant personnel in incident management
- Ensure that all relevant staff are trained in the working practices and protocols of the command and control structure adopted for major incidents handled under the Civil Contingencies Act. They will also conduct rehearsals to practice major incident management skills.
- They will review their procedures in relation to the deployment and management of bowers. In particular they will investigate using technology to track the location and water content of individual bowsers and tankers.
- They will examine the grouping and location of bowsers in order to improve the rate of refill and enable better security, as well as to recognise that need may be greater in certain areas, such as deprived areas, where people may have less access to private transport.
- Investigate the practicality of adopting measures in the event of a total failure of a water treatment works to control the release of stored water for the service reservoirs in order to conserve piped water supply for as long as possible.

14.5 Ongoing scrutiny activity

14.5.1 Severn Trent have identified a number of specific actions that they plan to take as a result of the lessons learnt during the summer events, many of which involve detailed review of current plans and procedures. Scrutiny can play a valuable role in ensuring that these actions are taken forward and that the lessons learnt do lead to positive change. It is therefore proposed that Severn Trent be invited to a future meeting of Overview and Scrutiny Management Committee to update on progress with these actions, including an explanation of what investment has been identified to improve the resilience of the supply in Gloucestershire, particularly whether they will be taking forward the Inquiry's recommendation that a secondary piped supply is secured.

Recommendation – *That Overview and Scrutiny Management Committee invite Severn Trent Water to attend its meeting on 28th July 2008 to provide an update on progress with the actions identified on pages 42 to 48 of their*

written submission to the Inquiry. This should include a detailed explanation of the level of investment planned to improve the resilience of the water supply in Gloucestershire, including details of whether or not Severn Trent plan to secure a secondary piped supply from an alternative Water Treatment Works, as recommended by this Inquiry.

14.0 Lessons learnt by Gloucestershire Constabulary

14.1 Gloucestershire Constabulary made a number of recommendations during the Inquiry on areas where other organisations could improve the effectiveness of their response. The Inquiry was also told that Gloucestershire Constabulary have conducted their own internal review to understand the lessons that they have learnt from the summer emergency. Details of the findings of this review have not been shared with the Inquiry. The Inquiry believes that it is important that these lessons are made public and therefore recommends that Gloucestershire Constabulary publish the findings of their review and that the Police Authority scrutinises the findings and ensure that action is taken on any improvements that are required.

Recommendation – *That Gloucestershire Constabulary publish the findings of their internal lessons learnt review and that the Police Authority scrutinises those findings and ensure that action is taken on any improvements that are required.*

Chapter 11 – Longlevens: A Case Study

1.0 Introduction

1.1 During the course of its investigation the Inquiry has looked at the flooding that occurred in Longlevens in both June and July 2007. This included hearing evidence from two community groups from Longlevens; the Longlevens Flood Committee and the Park Avenue Residents Group. This section discusses the experiences in Longlevens, particularly in Cypress Gardens, as an example of urban flooding.

1.2 The map on the following page shows the catchment area of the Horsbere Brook that runs through Longlevens, and the location of Cypress Gardens.

2.0 The Flooding

2.1 The residents of Longlevens, particularly the residents of Cypress Gardens, experienced severe flooding in both June and July 2007.

2.1.1 The June Event

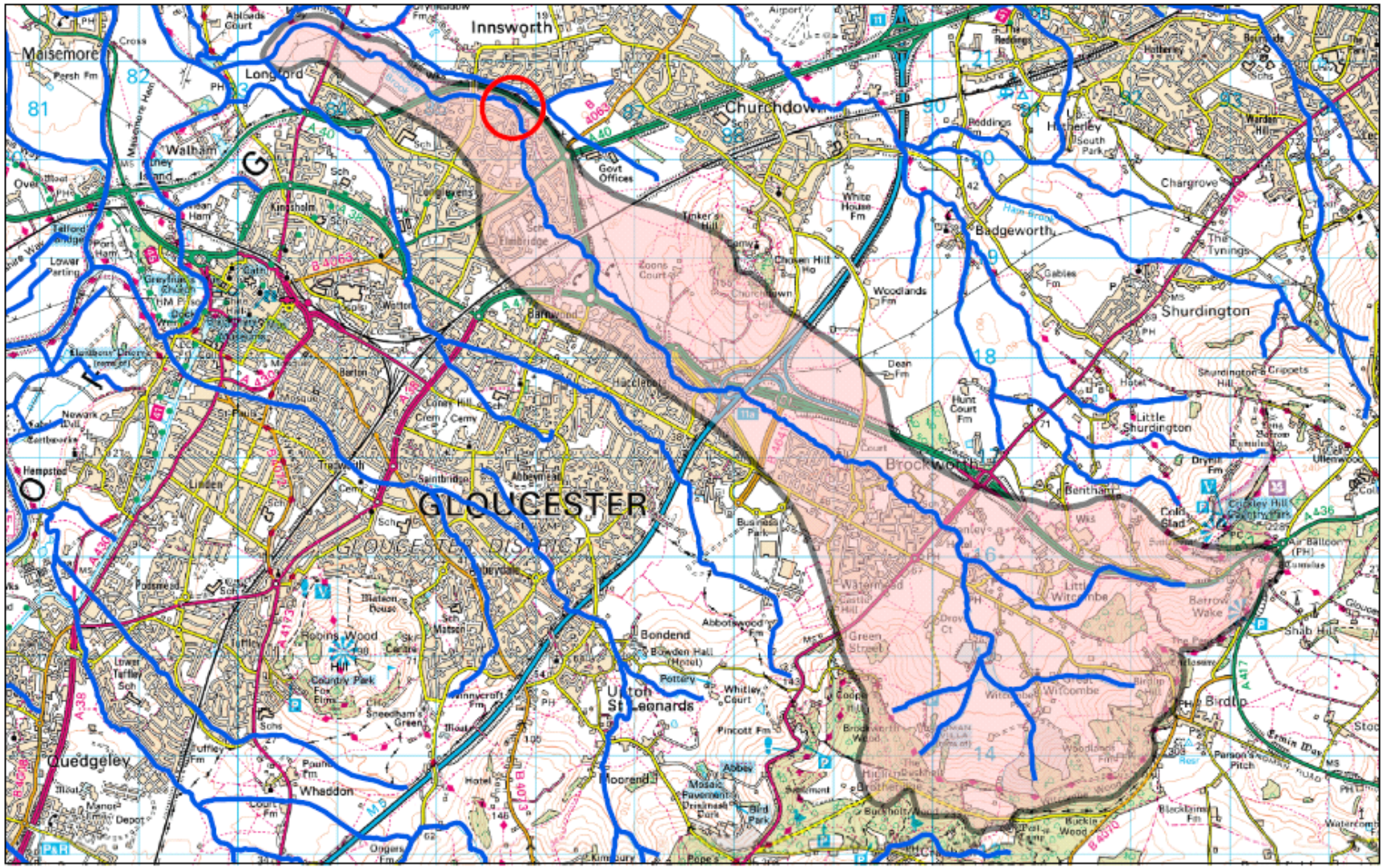
2.1.2 The flooding in Cypress Gardens on 25th June 2007 came without any warning. It involved both river flooding from the Horsbere Brook and sewerage flooding. At its height the floodwater was waist deep in most of the homes affected.

2.1.3 The July Event

2.1.4 In July there was more warning of the risk of flooding, and desperate efforts were made to sandbag the Horsbere Brook in order to prevent flooding. However, despite these efforts the Brook broke its banks in the early afternoon of Friday 20th July. On this occasion the floodwater was even deeper, higher than kitchen worktops in some cases. Again the flooding involved both river flooding and sewerage flooding.

3.0 Impact of the flooding

3.1 The Inquiry has heard from residents of Cypress Gardens about the impact that this flooding has had on their lives. Many people have lost all of their possessions from the ground floor of their houses, and have lost their cars as well. They have been forced out of their homes and into temporary accommodation, and many are not expecting to be back in their homes in time for Christmas. In the longer term the residents estimate that the flooding has reduced the value of their homes by £40,000 to £50,000.



ENVIRONMENT AGENCY

Cypress Gardens

Horsbere Brook
Catchment Area

3.2 The residents have indicated that they are now living in fear every time it rains and that the whole situation is causing extreme stress. When questioned the residents indicated that they have had no support, such as counselling, from local authorities or the health service to help them deal with the psychological impact of the floods[34]. This reflects the Inquiry's concern that local authorities are failing to address the psychological impact of the flooding, and that more support is needed as part of the recovery process.

3.3 Feedback from the Longlevens residents also demonstrates that different insurance companies are providing different levels of service and that in some cases they are simply not responsive enough. For example one resident recounted how it had taken them 27 days of daily phone calls and emails just to get her insurance company to call her back[35].

4.0 Causes of the flooding

4.1 This section highlights the factors that caused the flooding from the point of view of the residents of Longlevens. The Inquiry has not been able to question the relevant agencies about the specific points and claims made by the residents and therefore presents them without the ability to confirm their accuracy or validity one way or the other.

4.2 This section is divided into two parts – the first is general issues that are illustrative of the issues raised elsewhere in this report, and the second are issues that are specific to particular areas of Longlevens.

4.3 General issues

4.3.1 Drainage system – The drainage system in Cypress Gardens has not been adopted. The residents claim that this is because the drainage system is substandard and therefore cannot be adopted. The residents also claim that in the last five and-a-half years the drains have never been cleared[36]. The residents also state that the roads are substandard and have therefore not been adopted either[37].

Recommendation – *That officers from Gloucestershire County Council meet with representatives from Severn Trent Water and Bellway Homes in order to produce a detailed action plan and timetable for the adoption of roads, drains, and sewers in the Cypress Gardens area of Longlevens.*

Recommendation – *That the action plan and timetable for adoption of roads, drains and sewers in the Cypress Gardens area of Longlevens be presented to Overview and Scrutiny Management Committee as part of the ongoing monitoring of the Inquiry's recommendations.*

[34] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, page 56
[35] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, page 28
[36] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, page 11
[37] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, page 48

4.3.2 Horsbere Brook – This is a main river and therefore the Environment Agency have permissive powers over the watercourse. According to the residents the brook has not been clearer in years and was full of debris. As the brook runs through an urban area it is likely that there will be a large number of riparian owners with individual responsibility for clearing the brook. However, according to the residents the Environment Agency have no way of knowing who all of the riparian owners are in order to force them to take action. The residents view therefore is that the current system for maintaining watercourses is totally unworkable[38].

Recommendation – *That the Environment Agency ensure that Horsbere Brook is maintained and that any obstructions that could exacerbate flooding in Longlevens are removed.*

Recommendation - *The EA carries out a study into the Horsbere Brook and the related flooding of Longlevens, in particular the flooding of homes in Cypress Gardens, with a view to getting flood alleviation measures in the area included in the DEFRA national or regional funding programme.*

4.4 Specific Issues

4.4.1 Planning issues - According to the residents of Cypress Gardens much of the flooding was caused by the quality of the development itself. They believe that the site was not built to the specifications on which planning permission was originally granted. According to the residents, geological reports stated that the site would need raising, but the residents believe that the site has in fact been lowered. They also believe that planning required the houses to have a variety of different types of foundations depending on their location, but argue that in fact they all have the same foundations[39].

4.4.2 The residents also argue that a flap valve should have been installed to expel water from the surface drains into the brook. According to the residents, the Environment Agency have confirmed that the inclusion of this valve was in the original planning consent so should have been included. According to the residents this was only installed 7 weeks ago.

4.4.3 The residents have also explained that the main gas pipe that supplies the development runs over a bridge over the Horsbere Brook. According to the residents the Environment Agency have told them categorically that there is no permission for this pipe to go over the watercourse[40]. The pipe was encased in a concrete girder but during the floods the force of the water broke the girder, which caused a further blockage in the watercourse.

4.4.4 The residents believe that Gloucester City Council have failed to enforce the conditions of the planning consent. The issues raised by the residents of

[38] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, page 16
[39] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, page 21-22
[40] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, page 24-25

Cypress Gardens do need to be raised with Gloucester City Council. The Inquiry therefore recommends that the proposed new task-group to look at planning issues consider the specific concerns of the residents of Cypress Gardens as part of its remit, so that their concerns can be addressed in more detail then can be achieved through this Inquiry process.

Recommendation – *That the proposed task-group to look at planning issues include within its remit an examination of the planning and enforcement issues related to Cypress Gardens in Longlevens, in order to address the residents concerns.*

4.4.5 **Sewerage issues –** Sewerage flooding is a specific problem for the residents of Longlevens, in particular the residents of Park Avenue. Their view is that this is caused by the inadequacy of the Severn Trent sewage pumping station that serves them. The residents claim that the biggest problem is the power supply to the pumping station, as this is located on ground level within the designated flood plain. Consequently, flooding causes a loss of power, which stops the pumping station from operating leading to sewerage backing up into people's homes[41].

4.4.6 The residents have told the Inquiry that Severn Trent have now agreed that the pumping station needs to be moved, but that it will be two years before this is done. The residents are working with a professor of urban drainage in order to produce a report that will make a case for this work to be carried out more swiftly[42].

Recommendation – *That Severn Trent Water urgently review the timescale for relocating the sewerage pumping station that serves Longlevens with a view to bringing forward the relocation.*

5.0 Community Resilience

5.1 The flooding has brought the residents of Longlevens together and they now have a very active campaign group in place to fight for change. This group is also looking to the future to consider what more they can do to help themselves, as they recognise that in some circumstances they may not have anyone else to rely on. The residents will be formulating their own emergency plan, which will include using the Church Hall as a local rest centre, and having nominated contact points within the community in case of emergency. The plan may also include a local point of distributing sandbags. This is an example of the type of community based resilience planning that needs to be encouraged.

[41] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, page 17
[42] Scrutiny Inquiry into the Summer Emergency 2007, Transcript of Proceedings of Day 4, page 18

Scrutiny Inquiry into the Summer Emergency 2007

Chapter 12 – Summary of Recommendations

1.0 Introduction

1.1 This chapter summarises the recommendations made within the main body of the report. Recommendations are set out on an organisation by organisation basis for ease of reference.

1.2 There is a need for ongoing monitoring of the impact of the Inquiry's recommendations in order to ensure that they do result in positive change. This list of recommendations below therefore also includes an additional recommendation suggesting how the County Council's Overview and Scrutiny Management Committee should monitor the recommendations throughout 2008.

1.3 A number of agencies have submitted their own recommendations to the Inquiry. These are available in appendix 3.

2.0 Recommendations to Central Government

2.1 **Recommendation –***That the Government closely examine the learning points from the summer emergency in Gloucestershire and recognises the important role played by the Tri-Service Centre. If the Government wishes to continue with its regionalisation policy in respect of regional fire controls it should ensure that command and control functions are kept locally within the Tri-Service Centre.*

2.2 **Recommendation –** *That the Government conduct an urgent review of national planning assumptions for water distribution in order to ensure that there is a realistic basis from which to plan for future emergencies. This review must re-examine the number of people that need to be supplied with water as the current guidance of 50,000 people is inadequate; the length of time that alternative supplies will be needed for as the current guidance of 3 days is inadequate; and the minimum amount of water that is required, as experiences in Gloucestershire suggest that the minimum level needs to be at least 20 litres per day, rather than 10 litres per day.*

2.3 **Recommendation** - *This Inquiry believes that there should be a single agency with overall responsibility for ensuring the maintenance of watercourses, as the current system is not effective, and therefore recommends legislative change to create a single agency with overall responsibility for ensuring the maintenance of watercourses. The new system must include clear signposting for members of the public on how to report problems and on who is responsible for addressing those problems.*

3.0 Recommendations to the Department for Food and Rural Affairs

3.1 **Recommendation –** *That DEFRA commission independent research to assess whether the flood predictive capability of the Environment Agency could be improved, and to consider the likely costs and benefits of any changes to the current system.*

3.2 **Recommendation –** *That DEFRA investigate developing a flooding model that is capable of predicting the probability of significant surface water flooding in extreme weather conditions.*

3.3 **Recommendation –** *That DEFRA ensure that the Adoption of Private Sewers Bill includes a requirement on developers to ensure that all new sewers are built to at least the minimum standards required for adoption by the sewerage companies, and that the Department for Communities and Local Government ensure that Building Regulations are amended to reflect this enhanced requirement.*

3.4 **Recommendation –** *That DEFRA consider whether given the recent events and the likely impact of climate change it is appropriate to design flood defences based on the 1 in 100 year flood scenario, or if the standard of flood defences needs to be improved.*

3.5 **Recommendation –** *That DEFRA and the DCLG extends the remit of the Environment Agency in order to give them the authority to offer an independent view on the flood risk associated with new developments, as well as their current role in offering advice on whether or not the application is in line with national policy as set out in PPS 25.*

3.6 **Recommendation –** *That DEFRA recognises the value of the National Flood Forum by substantially increasing the financial contribution that it makes towards its operation*

4.0 **Recommendations to the Department for Communities and Local Government**

4.1 **Recommendation –** *That DEFRA and the DCLG extends the remit of the Environment Agency in order to give them the authority to offer an independent view on the flood risk associated with new developments, as well as their current role in offering advice on whether or not the application is in line with national policy as set out in PPS 25.*

4.2 **Recommendation** – *That following the conclusions of the EFRA Select Committee Inquiry, and the Independent Parliamentary Inquiry, the Department for Communities and Local Government conduct a full review of PPS 25 in order to assess whether in the light of recent events it is still fit for purpose.*

5.0 **Recommendations to the Utility Companies (including specific recommendations to Severn Trent Water, National Grid, and Central Networks)**

5.1 **Recommendation –** *That national and regional utility companies commit to being involved fully in the Local Resilience Forum, in a completely open and transparent way, in order to ensure a more co-ordinated response to future emergency events.*

5.2 **Recommendation** – *Through the Local Resilience Forum, national and regional utility companies must ensure that in the future key agencies within the county, particularly the Emergency Management Service, are fully briefed on all of the major risks associated with the county's critical infrastructure, and provided with details of the contingency plans that are in place*.

5.3 **Recommendation –** *That Severn Trent Water secure a secondary piped water supply for Gloucestershire, possibly via the Strensham Water Treatment Works*, *in order to ensure that they are able to maintain a piped water supply to Gloucestershire in the event of any future loss of the Mythe Water Treatment Works, and that Severn Trent Water announce as soon as possible when these works will begin and when they will be completed.*

5.4 **Recommendation –** *That Severn Trent Water make a commitment to attend Gloucestershire County Council's Overview and Scrutiny Management Committee on 25th January 2008 to provide a detailed explanation of the level of investment planned to improve the resilience of the water supply in Gloucestershire, including details of whether or not Severn Trent plan to secure a secondary piped supply from an alternative Water Treatment Works, as recommended by this Inquiry.*

5.5 **Recommendation –** *That National Grid invest in a permanent flood defence barrier around the Walham site in order to provide long-term protection against extreme flooding events, and that National Grid announce as soon as possible when these works will begin and be completed.*

5.6 **Recommendation –** *That National Grid ensure that contingency arrangements are in place that will allow them to provide all alternative power supply to Gloucestershire in the event of the loss of Walham Electricity Substation.*

5.7 **Recommendation –** *That National Grid invite the LRF to participate in a large scale exercise to test the contingency planning for the loss of power at Walham and the provision of an alternative supply.*

5.8 **Recommendation -** *That National Grid's contingency plan clearly shows that in the event of Walham being inundated with flood water how long it anticipates power being lost to the network and how soon alternative supplies can be made available.*

5.9 **Recommendation –** *That National Grid must share their contingency plans with the Local Resilience Forum and allow that body to scrutinise them in order to ensure that they are fit for purpose.*

5.10 **Recommendation –** *That Central Networks invest in a permanent flood defence barrier around the Castlemeads site in order to provide long-term protection against extreme flooding events.*

5.11 **Recommendation –** *That Central Networks ensure that contingency arrangements are in place to allow them to provide an alternative power supply in the event of the loss of the Castlemeads substation.*

5.12 **Recommendation –** *That Central Networks must share its contingency plans with the Local Resilience Forum and allow that body to scrutinise them in order to ensure that they are fit for purpose.*

5.12 **Recommendation –** *That the utilities ensure that they send representatives to Gold Command from the outset of any future emergency situation.*

5.13 **Recommendation –** *That Severn Trent Water urgently review the timescale for relocating the sewerage pumping station that serves Longlevens with a view to bringing forward the relocation.*

6.0 Recommendations to Local Authorities

6.1 Gloucestershire County Council

6.1.1 **Recommendation** - *That Gloucestershire County Council relocates the Emergency Management Service Emergency Response Centre in order to ensure business continuity in the event of any future emergency. When assessing the feasibility of alternative locations, including the Tri-Service Emergency Centre, consideration should be given to the opportunity cost of the relocation in order to ensure that other critical business opportunities are not lost through the relocation.*

6.1.2 **Recommendation –** *That the County Council and the District Councils ensure that the issue of flash flooding is addressed within their Strategic Flood Risk Appraisal.*

6.1.3 **Recommendation –** *That the lines of communication between the County Council and the District Councils be reviewed and that steps be taken to improve communications.*

6.1.4 **Recommendation –** *That local authorities ensure that all communications with the public during emergency situations are clear, accurate, relevant, and timely.*

6.1.5 **Recommendation –** *That Local Authorities and the Emergency Services, working with Town and Parish Councils where appropriate, continue their work to promote and support enhanced individual and local community resilience in order to ensure that our communities are able to support themselves as much as possible in future emergency situations.*

6.1.6 Recommendation - *That a package of training and development is put in place to support local elected members in the event of emergencies and that the emergency communications plan specifically addresses the need to keep in regular contact with elected members.*

6.1.7 Recommendation - *That the recommendations made and questions raised by organisations and individuals during the course of the Inquiry are referred to the appropriate agency for a response and that the multi-agency group established by the county council be used as a vehicle for addressing these issues where appropriate.*

6.1.8 Recommendation – *That the county council, through the Community and Adult Care Directorate explores with partner agencies the development of a data base of all known vulnerable people that can be easily accessed in the event of an emergency*

6.1.9 Recommendation – *That Gloucestershire County Council reviews its maintenance policy and programme for highway drainage maintenance in the light of recent events to ensure that it is appropriate.*

6.1.10 Recommendation – *That Gloucestershire County Council establishes a system for communicating with staff during emergencies.*

6.1.11 Recommendation – *That officers from Gloucestershire County Council meet with representatives from Severn Trent Water and Bellway Homes in order to produce a detailed action plan and timetable for the adoption of roads, drains, and sewers in the Cypress Gardens area of Longlevens.*

6.1.12 Recommendation – *That the action plan and timetable for adoption of roads, drains and sewers in the Cypress Gardens area of Longlevens be presented to Overview and Scrutiny Management Committee as part of the ongoing monitoring of the Inquiry's recommendations.*

6.2 Gloucestershire County Council's Emergency Management Service

6.2.1 Recommendation – *That the Emergency Management Service ensures that in future all key agencies are consulted on the contents of the Major Flooding Emergency Plan and that more is done to raise awareness of the plan, in order that the plan can provide a realistic blueprint for emergency response within Gloucestershire.*

6.2.2 Recommendation – *That the Emergency Management Service develop appropriate plans for dealing with flash flooding and that a section on this be incorporated into the Major Flooding Emergency Plan as soon as possible.*

6.2.3 Recommendation – *That the Emergency Management Service and the District Councils ensure that their emergency plans recognise the role the elected members can play in emergency situations.*

6.2.4 Recommendation – *That the Emergency Management Service ensures that the Major Flooding Emergency Plan is updated to acknowledge the important role that utility companies may have to play in future flooding emergencies.*

6.2.5 Recommendation – *That information on emergency planning, including key contact details, be added to the Members' Toolkit. In addition to this a Members' Seminar should be organised that focussed on emergency planning issues.*

6.2.6 Recommendation – *That the Emergency Management Service and the District Council conduct a full review of their Emergency Response Plans in the light of the lessons learnt through the single-agency and multi-agency Local Resilience Forum debrief process.*

6.2.7 Recommendation – *That the Emergency Management Service produce a short briefing paper on the different sandbags policies in each district and that they share this with the key organisations that are likely to be contacted about the provision of sandbags in the event of future flooding.*

6.2.8 Recommendation – *That the Emergency Management Service ensure that their Water Distribution Plan is based on the assumption that people should be provided with a minimum of 20 litres of water per day, rather than 10 litres of water per day, and that this is reviewed following the outcome of any national review of planning assumptions.*

6.2.9 Recommendation - *That a the package of training and development to be put in place to support local elected members in the event of emergencies specifically addresses the need to keep in regular contact with elected members.*

6.2.10 Recommendation – *That the Emergency Management Service review the County Council's Rest Centre Plan in terms of provision of blankets and suitable bedding in general to cope with all age groups.*

6.2.11 Recommendation – *That the County Council and each District Council ensure that flooding issues are included within the portfolio of one of their Cabinet Members, and that they have a nominated Lead Officer to cover flooding issues.*

6.2 District Councils

6.3.1 Recommendation – *That the Emergency Management Service and the District Councils ensure that their emergency plans recognise the role the elected members can play in emergency situations.*

6.3.2 Recommendation – *That the Emergency Management Service and the District Council conduct a full review of their Emergency Response Plans in the light of the lessons learnt through the single-agency and multi-agency Local Resilience Forum debrief process.*

6.3.3 Recommendation – *That the County Council and the District Councils ensure that the issue of flash flooding is addressed within their Strategic Flood Risk Appraisal.*

6.3.4 Recommendation – *That the lines of communication between the County Council and the District Councils be reviewed and that steps be taken to improve communications.*

6.3.5 Recommendation – *That in future emergency situations the District Councils ensure that they have a representative present at Silver Command from the start of the emergency to act as a conduit for information between Silver Command and the District Councils.*

6.3.6 Recommendation – *That local authorities ensure that all communications with the public during emergency situations are clear, accurate, relevant and timely.*

6.3.7 Recommendation – *That Local Authorities and the Emergency Services continue their work to promote and support enhanced individual and local community resilience in order to ensure that our communities are able to support themselves as much as possible in future emergency situations.*

6.3.8 Recommendation – *That Cheltenham Borough Council's Environment Overview and Scrutiny Committee consider the Environment Agency's response to the questions posed by the Inquiry regarding the Cheltenham Flood Alleviation Scheme and conduct any follow up scrutiny work that is required.*

6.3.9 Recommendation – *That the County Council and each District Council ensure that flooding issues are included within the portfolio of one of their Cabinet Members, and that they have a nominated Lead Officer to cover flooding issues.*

6.4 Strategic Recovery Coordination Group

6.4.1 Recommendation – *That the Strategic Recovery Coordination Group urgently progress the option of securing additional Citizens' Advice Bureau support and the option of employing some additional independent insurance experts to provide independent advice to people who are experiencing significant difficulties with their insurance company.*

6.4.2 Recommendation – *That the elected members who took part in the Inquiry Drop-in sessions be given an opportunity to share the anecdotal evidence that they have collected with representatives from the Community Voice project at the earliest opportunity so that this can also be included as part of the Community Voice process.*

6.4.3 Recommendation – *That the Strategic Recovery Coordination Group do all that it can to promote the Flood Relief Fund, particularly in the more remote*

areas of the county, in order to ensure that everyone eligible has the opportunity to apply for a grant.

6.4.4 Recommendation – *That the Strategic Recovery Co-ordination Group ensure that all County and District Councillors are kept informed of the work of the group.*

6.5 People Recovery Task-Group

6.5.1 Recommendation – *That the People Recovery Task-Group shift its focus towards developing a programme of support for residents of Gloucestershire suffering from the psychological impacts of flooding. As part of this package the People Recovery Task-Group should develop proposals for providing some form of counselling to flood victims, perhaps through a dedicated confidential telephone line. The People Recovery Task-Group should also engage with the National Flood Forum to assist in developing the programme and perhaps delivering some aspects of the programme.*

6.6 Gloucestershire County Council's Overview and Scrutiny Management Committee

6.6.1 Recommendation – *That Overview and Scrutiny Management Committee monitor the impact of the Scrutiny Inquiry into the Summer Emergency 2007 as part of their ongoing work plan for 2008. As part of this Gloucestershire County Council, in collaboration with the other relevant agencies, should produce a detailed action plan to demonstrate how the recommendations in this report, which should be presented to Overview and Scrutiny Management Committee on 25th January 2008 in order to demonstrate to the public that action is being taken on the recommendations., Following this Overview and Scrutiny Management Committee should ensure that it has a standing item on its agenda throughout 2008 to monitor progress against the recommendations. It is also suggested that the meeting on Overview and Scrutiny Management Committee on 28th July 2008 be devoted to a more detailed examination of the impact of the Inquiry, in order to provide a view of how things have changed one year on from the flooding. As part of this the proposed task-group looking at planning issues should also report its findings to the meeting on 28th July 2008.*

6.6.2 Recommendation – *That the findings of the Infrastructure Resilience Working Group's assessment of the effectiveness of existing maintenance regimes and actions being taken to improve it to be presented to Overview and Scrutiny Management Committee on 25th January 2008 as part of the ongoing monitoring of the issues raised by this Inquiry.*

6.6.3 Recommendation – *That the Infrastructure Resilience Working Group presents details of the work that it plans to carry out to assess the capacity of the existing drainage system to Overview and Scrutiny Management Committee on 25th January 2008, as part of the ongoing monitoring of issues raised by this Inquiry.*

6.6.4 Recommendation – *That the Overview and Scrutiny Management Committee establish a task group to look into the impact on flood risk of land use planning and new developments, including developments in the flood plain and consequent adoption of drainage systems.*

6.6.5 Recommendation – *That the new task-group to look at land use planning issues, proposed in Chapter 5, give consideration to the questions highlighted above during its investigation into the impact of land use planning and new developments on flood risk.*

6.6.6 Recommendation – *That Overview and Scrutiny Management Committee be updated on progress with delivering the programme of support for residents suffering from the psychological and emotional impact of the flooding at its meeting on 17th December 2007.*

6.6.7 Recommendation – *That all of the written feedback from the Inquiry Drop-in sessions be shared with the Strategic Recovery Coordination Group, and included as part of the Community Voice process.*

6.6.8 Recommendation – *That Overview and Scrutiny Management Committee invite Severn Trent Water to attend its meeting on 28th July 2008 to provide an update on progress with the actions identified on pages 42 to 48 of their written submission to the Inquiry. This should include a detailed explanation of the level of investment planned to improve the resilience of the water supply in Gloucestershire, including details of whether or not Severn Trent plan to secure a secondary piped supply from an alternative Water Treatment Works, as recommended by this Inquiry.*

6.6.9 Recommendation – *That the proposed task-group to look at planning issues include within its remit an examination of the planning and enforcement issues related to Cypress Gardens in Longlevens, in order to address the residents concerns.*

7.0 Recommendations to the Met Office

7.1 Recommendation – *That the Met Office and the Environment Agency review their existing Severe Weather Warning and Flood Warning systems in order to incorporate an additional category of the highest risk that is only issued in exceptional circumstances. This would avoid the public and organisations becoming complacent of the significance of the warnings.*

8.0 Recommendations to the Environment Agency

8.1 Recommendation – *That the Met Office and the Environment Agency review their existing Severe Weather Warning and Flood Warning systems in order to incorporate an additional category of the highest risk that is only issued in exceptional circumstances. This would avoid the public and organisations becoming complacent of the significance of the warnings.*

8.2 **Recommendation –** *That the Environment Agency ensure that Horsbere Brook is maintained and that any obstructions that could exacerbate flooding in Longlevens are removed.*

8.3 **Recommendation** - *The EA carries out a study into the Horsbere Brook and the related flooding of Longlevens, in particular the flooding of homes in Cypress Gardens, with a view to getting flood alleviation measures in the area included in the DEFRA national or regional funding programme.*

9.0 Recommendations to Gold Command

9.1 **Recommendation –** *That the Gold Commander ensures that all authorities present at Gold Command are aware of their responsibility for disseminating information to agencies not present at that forum.*

9.2 **Recommendation –** *Gold Command must ensure that the subsequent impacts of their decisions are fully understood and must be discussed with those agencies being affected.*

9.3 **Recommendation –** *That Gold Command and BBC Radio Gloucestershire jointly review the process for communications in future emergency situations in order to ensure that communications to the public are as timely and effective as possible*

10.0 Recommendations to the Local Resilience Forum

10.1 **Recommendation** – *That the Local Resilience Forum take the lead in examining the feasibility of developing a countywide policy on the distribution of sandbags in order to secure a greater degree of equity across the county. This policy should be linked to efforts to improve local community resilience,* through the provision of localised sandbag distribution points.

10.2 **Recommendation –** *That the Local Resilience Forum ensure that a copy of their debrief report is sent to the Efra Select Committee Inquiry and the Independent Parliamentary Inquiry to inform the national reviews.*

10.3 **Recommendation –** *Central Networks have indicated that they will be reporting on their response to the summer emergency via the Local Resilience Forum. Therefore the Inquiry recommends that the LRF ensures this matter is discussed fully with Central Networks.*

11.0 Recommendations to the Trustees of the Gloucestershire Flood Relief Fund

11.1 **Recommendation –** *Providing that sufficient money remains available within the fund that the Trustees of the Flood Relief Fund continue to consider applications to the fund until at least the end of the current year.*

12.0 Recommendations to Gloucestershire Highways

12.1 Recommendation – *That Gloucestershire Highways publishes a yearly plan of cleansing and maintenance so that members of the public are clear on what level of maintenance they can expect.*

13.0 Recommendations to BBC Radio Gloucestershire

13.1 Recommendation – *That Gold Command and BBC Radio Gloucestershire jointly review the process for communications in future emergency situations in order to ensure that communications to the public are as timely and effective as possible*

14.0 Recommendations to Gloucestershire Constabulary

14.1 Recommendation – *That Gloucestershire Constabulary publish the findings of their internal lessons learnt review and that the Police Authority scrutinise those findings and ensure that action is taken on any improvements that are required.*

Appendix 1

Written Submissions to the Scrutiny Inquiry

Due to the size of this appendix it is not appropriate to reproduce it with every copy of the Inquiry Report. However, it can be downloaded from the Gloucestershire County Council Website – www.gloucestershire.gov.uk/inquiry

The appendix includes copies of the following written submissions:

- Inquiry Hearing 1
  - Environment Agency
  - Tewkesbury Borough Council
  - Cotswold District Council
  - Gloucester City Council
  - Cheltenham Borough Council
  - Gloucestershire County Council Emergency Management Service
- Inquiry Hearing 2
  - Severn Trent Water
  - Gloucestershire County Council Community and Adult Care Directorate
  - National Grid
  - Gloucestershire Fire and Rescue Service
- Inquiry Hearing 3
  - South West Region Assembly Planning Officers
  - National Flood Forum
  - Gloucestershire Highways
  - Gloucestershire First
  - Tewkesbury Town Council
- Inquiry Hearing 4
  - BBC Radio Gloucestershire
  - Gloucestershire Constabulary
  - Gloucestershire County Council submission covering Recovery and Infrastructure Resilience
- Other formal submissions
  - Forest of Dean District Council
  - Star Radio
  - The Citizen Newspaper
  - Great Western Ambulance Service
  - Gloucestershire Echo

Appendix 2

Due to the size of this appendix it is not appropriate to reproduce it with every copy of the Inquiry Report. However, it can be downloaded from the Gloucestershire County Council Website – www.gloucestershire.gov.uk/inquiry

The appendix includes copies of the uncorrected transcripts from the 4 Inquiry Hearings. Agencies have been given an opportunity to check the accuracy of these transcripts and a list of any corrections will also be published on the website.

Appendix 3

This appendix summarises the various recommendations that have been made to the Inquiry by other agencies**.**

Cotswold District Council

- Two key improvements needed:
    1. Building Community Resilience
    2. Improve Communications
- Better information flow from Silver, Gold and the County Council was needed in the early stages.
- A representative officer from the District should have been sent to Silver earlier to ensure the District Emergency Management Team were better informed. Lack of an organised link (Bronze) in affected localities also affected information flow.
- Good communications are vital, to ensure messages are clear, concise, consistent and accurate. Further work is therefore required with partnership agencies to ensure suitable information flow.
- The Council would benefit by ensuring access to radio and TV is made available.
- Contacts and information databases have now been obtained as a result of the incident, but further contact lists of different skills need to be compiled.
- It is vital that all relevant agencies are invited to meetings involved in management of the emergency and recovery.
- Communities can be very resilient when faced with a crisis. It is important that any plans take account of this, building on resilience at a local level, with Town and Parish Councils developing their own emergency plans.
- Considerable room for improvement in the responses provided by some external agencies, for example, lack of preparedness and clarity of information provided by Severn Trent, which resulted in confusion over bowser locations.
- Co-ordination of information to the public countywide could be improved. During the incident, there was misreporting of some press releases and a lack of 'one message'. It is therefore essential that any information issued must be correct/ accurate, and identify the issuing Authority.
- More contingency planning is required for the provision of rest centres.
- There is a need to plan for rapidly developing countywide emergencies. Also to recognise the weakness of a risk based approach to emergency planning, as a lot of locations that wouldn't be classed as high flood risk areas were affected through flooding and water shortage.

Gloucester City Council

- The emergency highlighted that mains electricity and water installations in Gloucestershire represent single points of failure in the supply system. This raises the question about what steps are being taken to improve the protection of those facilities against future flooding or other events.
- Assess the effectiveness of multi million pound flood defences, i.e. Alney Island needs to be examined to ensure that the defences did the job they were designed to.
- Need to establish an effective system to ensure that landowners take responsibility for dealing with the run off water from their land.

- Why is house building continuing to take place on flood plains, and how can the Planning system and agencies have the knowledge and power to influence such buildings approval to ensure homes do not get built in areas of risk?
- Question why there is a lack of investment in what is widely acknowledged as a largely inadequate and outdated highway drainage system, and why the Government have Performance Indicator targets for road conditions but not highways drainage?
- The County Council need to undertake a review of all drainage throughout the City and undertake an annual drain cleaning programme.
- Suggest a review of planning policies for the development on or near flood plains, ensuring that all flood risks are properly assessed (with the expertise of the Environment Agency) through the Planning process, and use of Planning powers to promote/ require Sustainable Urban Drainage Systems on new developments to minimise surface water run off into watercourses and drains.
- Suggest that Water authorities and Electricity Boards sign up to a National scheme of cross connection that can be switched on in the event that running water and electricity is affected in the future.
- Work needs to be done with the Water Authority to review the adequacy and capacity of piped sewage and drainage infrastructure in the City.
- Recommend examination of:
  - what measures/ resources are to be put in place to protect premises from increasing incidents of fluvial and flash flooding.
  - what support is to be provided to local businesses to ensure the effects of the recent emergency are minimised, and ensure the long term stability and growth of local economy.
  - the respective roles of Gold and Silver commands to ensure clarity of purpose and improve communications with local authorities.
  - the causes of flooding arising from the drainage system including storm and sewerage sewers.
- Need better liaison between organisations – to know who is in charge of what, avoid duplication and work in a co-ordinated manner.

Cheltenham Borough Council

- Review policy for distribution of sandbags, both in terms of assessment of need (land drainage -v- highways drainage) and centralisation of operations across local authorities/ agencies to avoid duplication.
- Rationalisation of drainage system responsibilities between Severn Trent Water, Gloucestershire Highways, the Environment Agency and Cheltenham Borough.
- The issue of riparian responsibilities needs to be addressed, by drawing up a detailed database of individual responsibilities, particularly in areas prone to serious flooding.
- Production and long term maintenance of a nationwide record of land drainage, highway related and privately maintained drainage systems in order to determine both future flood alleviation schemes and better inform the planning process in respect of new development.
- Improved communications and data sharing between the Environment Agency, water companies and local authorities is needed.

- Need to establish an improved mechanism to ensure both highways and watercourse related maintenance are routinely being carried out to ensure 'the system' is operating to optimum design.
- Improved management and co-ordination of providing support to the vulnerable is needed – this is a cross County issue requiring 'realistic' procedural reviewTewkesbury Borough Council
- Need to ensure the event is fully understood and correct the public perception that new development has been 'on' the floodplain, which is incorrect. The Environment Agency/ Severn Trent Water/ Local Authorities will need to co-operate to provide information and understanding of this unusual event.
- PPS 25 needs further review and a local review is needed by the EA of flood plain mapping etc.
- The significance of comprehensive strategic flood risk assessments may need to be strengthened in Government Guidance to ensure there is public confidence in new development proposals, and that any learning from recent events are incorporated.
- EA/ STW/ GCC/ TBC need to address the issue of maintenance of main and non-main rivers and highways ditches, drains, culverts and sewage/ drainage systems generally. Government may need to consider an enhanced role for the EA which goes beyond permissive powers.
- Local response and County/ District Emergency Planning Service systems and documentation need to be reviewed from lessons learnt.
- Emergency Services need to consider better information systems – for example, information about roads open/ closed was sadly lacking at critical stages of the event.

Tewkesbury Town Council

- One local agency should have complete control/ scrutiny over all agencies, whether governmental (e.g. Environment Agency) or private (Severn Trent Water), to:
    - enforce spending on flood prevention measures, where required.
    - define the flood plain. The current EA definition should be reviewed.
    - over-rule plans to build on the defined flood plain and ensure that developers provide and maintain adequate drainage systems from the development to the outfall.
- Demand a local Public Inquiry into the causes of the 2007 floods.
- Halt all developments and plans currently taking place on or near the flood plain until it is decided that a flood disaster will not be the consequence.
- Recommend the development of Parish Emergency Plans, linked to the Emergency Plans at District and County level.
- Recommend that maps showing drainage systems are drawn up by Parishes, with the assistance of Residents Groups.
- Existing drains and gullies with the town and immediate area need to be cleared.
- The government should allow a tax incentive to farmers for regular maintenance of ditches.
- The obligation of local residents to maintain their own ditches should be enforced by one local agency with complete control, and which should also scrutinise all other agencies with the power to enforce.

- Severn Trent Water are urged to impose a charging order to clear debris, soil and tippings from Massey's Field and Chapel Fields.
- Flood plains should be used for arable farming and grazing, leaving them to nature would encourage a wild fowl sanctuary, which in turn would bring tourism and trade to the area.
- Recommend that Town Council advice contained in the 2002 Flood Inquiry submissions should be implemented.
- GCC are urged to complete the cycleway adjoining Station Lane, which allowed access to the town during the floods.
- The old railway line acted as a dam during the floods, and it is urged that this is enhanced by putting flood defences in the gaps that exist. Also recommend building bund defences in other parts of the town.
- As a matter of urgency, the exits of the Swilgate and Carrant Brook into the River Avon need to be upgraded to increase the flow of water to stop flooding due to the backing-up effect.
- Strongly recommend that major dredging is carried out by the Environment Agency in conjunction with the National Rivers Authority of the Rivers Severn and Avon. All bridge crossings need to be cleared and floating moorings need to be enforced to all boats. The Government need to study and identify a budget to complete this work, nationally.
- Recommend building an 'A' class road connection from Morrison's traffic lights to Station Street which would give access into the town in any such future event,and bring other added benefits relating to access to the town.
- Priors Park Link Road, used as an emergency route during the floods, is very narrow and therefore restricted emergency access to the town. Recommend this road is widened using Grass Crete concrete so that the verges could be used by police for two way traffic in emergencies.
- Recommend Section 106 payments be used by developers to improve the infrastructure. Developers should also be required to set up a trust fund, the interest from which would be used for drainage maintenance in future. All new homes as a matter of building law should have provision for grey water.
- Recommend that parts of Bredon Road be built using steel deck causeway to accommodate increased volumes of water exiting the Carrant Brook to the Avon. Similar deck causeway could also be used for the Ashchurch Road, between Wilding Close and Oldfield Road.
- Propose that a vallum or canal is built from the junction where Deans Brook meets the Swilgate to the existing Coombe Hill Canal, to divert flood water coming from the Cotswold escarpment.
- The M5 junction 10 should be opened up to both carriageways and in both directions to facilitate easier access and increase volumes of relief aid during floods.
- The Eastern bypass acted as a dam during the recent floods and it is recommended the several Armco piping culverts are constructed underneath the road to alleviate this effect.
- That the proposed Northern Relief Road is put on the back burner indefinitely.
- Recommend a link road from Shannon Way to Bredon Road is built to 'A' road construction giving alternative access to the M5 without travelling through the town centre.

Gloucestershire County Council Emergency Management Service

- National planning assumptions for Critical National Infrastructure must be challenged to provide a realistic basis to plan for emergencies in future.
- Government and public bodies must promote and encourage self-reliance and community resilience. This work is vital and in this county, will require the provision of additional emergency planning resources.

Gloucestershire Highways

- Improved co-ordination is needed with District Councils in providing sandbags to the public and other organisations. Responsibilities for providing sandbags needs to be more clearly communicated to the public and other organisations.
- Clarification of roles and responsibilities for drainage management is needed.
- Improved co-ordination between organisations with drainage responsibilities is needed.

Gloucestershire First

- Severn Trent should have set up a dedicated response centre for businesses to contact.
- There should have been a warning to the scale of devastation that occurred – the floodline number gave no pre-warnings for the problems that occurred.
- Systems should be put in place for financial compensation to large businesses facing the financial consequences of the water problems.

Gloucestershire Fire & Rescue Service

- More equipment needed, for example dry suits, life jackets, sumo pumps, to ensure that procedures and Health & Safety considerations aren't pushed to the limit.
- Knowledge base improvements are needed – use and capability of HVPs, control of inner cordon.
- Logistical improvements needed - facilities to dry and service equipment including fire fighting kit.
- Improved inter-agency awareness/ working – CAT 2 responders need to up their response.
- Resilience of the County's critical infrastructure needs to be highlighted to all agencies for improvement.
- Need to consider the relocation of the Emergency Management Service 'bunker', which is vulnerable for a number of reasons.
- Need a facility in place to use support staff to a greater extent, by perhaps having a skills register. For example, Contact Centre staff could be redeployed to Radio Gloucestershire.
- Operation Community Care could have been started earlier.
- Need to review crewing levels, to ensure the full capability of the service is available at times of extreme conditions.
- Need to consider developing a more comprehensive water rescue response.

Gloucestershire Constabulary

- The resilience of the County Council command arrangements should be reviewed to ensure business continuity in any given future event. Consideration

should be given to the future most strategic and effective location for the Emergency Response Team in such an event.

- The resilience to provide and distribute sand bags in sufficient quantity and in a timely fashion should be examined.
- A 'Memorandum of Understanding' should be developed to facilitate a handover from the police to the County Council in future emergencies, with the emphasis of this being a 'milestone' event rather than a legally binding document.
- Flooding of the motorway and roads network and resources to prevent this occurring in the future, needs to be examined. A Communication Plan should be developed by the Highways Agency for a situation of mass stranded motorists.
- Consistency of County Council representation at Gold Command level proved to be an issue and needs to be addressed at the very early stages of an emergency.
- Lines of 2-way communication between the County Council and District Council's should be reviewed and necessary steps taken to improve these.
- National and regional utility companies should play a more active role in the Local Resilience Forum, thereby enabling a more co-ordinated response to future emergency events.
- The Tri-Service Emergency Centre should be maintained and strengthened through continual commitment and investment.
- The Environment Agency should review their resilience and command arrangements in terms of attendance at Strategic Co-ordinating Group and Strategic Co-ordinating Centre.
- There should be a specific requirement for national agencies to attend Gold Command meetings when so requested and to ensure consistency of representation.
- The County and Government need to fully consider the impact of continuing to build new homes on flood plains.
- All Agencies need to revisit their contingency plans and re-evaluate worst case scenarios and plan accordingly.
- The resilience of Utilities within the County needs to be reviewed and addressed as a matter of urgency.
- There must be an increased capacity to supply basic needs to communities in the event of an emergency.
- There needs to be a strategic reserve of light, heat and sanitation across the County.
- There should be a review of national reserve emergency supplies of food, water, feeding and cooking amenities.
- The importance of maintaining County based structures (including fire, ambulance and regional army brigades) needs to be recognised as these represent a suitably strategic organisation with local roots and knowledge.
- The Regional Civil Contingencies Committee should review its working arrangements and coordination with county-based structures.

Environment Agency

- We need a public debate about what level of flood protection we want and choose to afford in this Country.
- We need to stop inappropriate building on flood plains, and increase resilience of those areas where we have done so in the past.

- We need to look carefully at flood proofing our existing critical infrastructure to prepare for severe events, learning lessons from recent and past floods, and protecting critical supplies to communities.
- We need to climate change proof our homes and businesses so they are better able to cope with extreme weather.
- We need to work out how to afford to update our antiquated urban drainage systems.

Forecasting -

- Raise height of key gauging stations.
- Update forecast models with summer 2007 flood data
- Review need for further river gauging stations and rain gauges.

Providing warnings and information -

- Investigate widening flood warning service to include River Chelt and watercourses in Gloucester, Stroud and Tewkesbury where a high number of properties were flooded.
- Better use of Local Resilience Forum for disseminating information to the public to free up operational resources.
- Improve local awareness of roles of different organisations in flooding by attending local town and parish council meetings, local authorities to improve the awareness of their staff in these roles.

Operational response -

- Investigate other forms of communication.
- Put plans in place for alternative travel routes to locations where we need to carry out key activities, such as closing floodgates.

Media -

- Improve communications between emergency partners so that there is better understanding of roles and responsibilities.
- Disseminate advice about the dangers of floodwater and build partnership with media to ensure they too follow guidance.

Liaison with the public -

- Improve liaison with professional partners after a flood in order to provide a co-ordinated service to the public in the recovery stage.

Severn Trent

Flood Defences -

- In light of recent events and climate change more generally, along with government agencies and other utilities, we should re-evaluate the levels of possible flood against which our assets should be protected. Some of the resulting additional defences may be specific to our sites, others should be covered by government schemes designed to protect communities as a whole.
- There should be a review of the potential for enhancing the timeliness and accuracy of pre-incident warnings from the Environment Agency.
- There should be a government review of proposed development on flood plains, the downstream impact of existing river flood defences and the cost impact of improvements.

Contingency –

- Contingency planning needs to be continually reviewed and improved.
- Through the Local Resilience Forums, there is a need to ensure that all Category 2 Responders, such as utility companies, are alerted as soon as possible that a

major incident has been declared so that they can rapidly deploy appropriate staff as needed.

Gloucestershire Echo

- Need to ensure that the Mythe Treatment works and Walham substation will never be in such danger again.
- Need to ensure that problems with Cox's Meadow flood alleviation scheme are fixed.
- Stop building on the flood plain.
- Use examples of good practice to convince the Government that Gloucestershire can cope with a major disaster, and that a regional set-up for police, fire and ambulance is neither desirable nor necessary.

Gloucester Citizen

- Need to address the issue with security and flood protection of our utilities, as water and power are basic requirements for human life.
- Severn Trent must be required to have contingency plans and far more resilience in all their operations.
- We should look to hold a floods summit as soon as Sir Michael Pitt's report has been made public, so that all Councils in Gloucestershire can sign up to the commitment and the overall cost.
- A regular system to clean drains and watercourses must be given priority by Councils and the Environment Agency.

BBC Radio Gloucestershire

- Daily press conference updates from Gold Command became a key feature in the dissemination of accurate information. Recommend this is put in the Standing Orders and that technical facilities are put in place as part of the infrastructure of Waterwells.
- Suggest the traditional approach of using the ‘press release’ method of communication by the County Council and Police media teams needs to change. The public are seeking a more immediate reply to queries than this provides.

Park Avenue Residents

- Recommend that Severn Trent build a pumping station with vital controls, motors and electrics situated above the flood plain, with back up failure facilities that work.
- Increase the capacity (by digging out) of Horsbere brook with one single body given responsibility for the maintenance, upkeep and repair (riparian rights) of major watercourses such as Horsbere Brook.
- Reinstate planned regular street cleaning of drains and gullies by local councils.

Great Western Ambulance Service – NHS Trust

- The current systems of severe weather warnings issued by the Met Office and the flood warnings issued by the Environment Agency need urgent review. The current systems issue warnings at their highest levels too frequently and the public/commercial and public sector organisations have become complacent of these. A revised system should be introduced with a higher level of risk

identified that is only issued in exceptional circumstances. A flood warning system is also needed for surface water flooding.

- Responding agencies should be able to collectively recover the significant costs associated with responding to such exceptional events. The Ambulance Service and other Health community partners are currently unable to recover these costs from Central Government.
- Strategically important sites across the County (as a minimum) and the Country should have permanent flood protection installed to prevent reoccurrence of the infrastructure loss that Gloucestershire faced in July.

Stroud District Green Party

- Urgently need to adopt a mandatory and comprehensive national SUDs policy.
- Need to significantly improve public awareness about the realities of climate change.
- Need to develop a comprehensive strategy towards water resources, to include prioritising upstream flood defences, stricter rules about house building on flood plains, reducing impermeable surfaces and a reassessment of the role of agriculture.
- Need to look at how to improve crisis management, including better preparation, stronger measures to stop unnecessary journeys which contribute towards congestion and stop access for emergency services, and clearer warnings about the health risks of contaminated flood waters.
- Other wider issues that need addressing include the need to:
  - seriously tackle the causes of climate change with a robust carbon emissions reduction programme,
  - restore water companies to public ownership and ensure proper regulation,
  - build community resilience,
  - rethink our sewage systems,
  - decentralise energy,
  - consume less water.

Appendix 4

This appendix provides details of the written feedback received at the Inquiry Drop-in sessions.

Cirencester

Hopes

1. New pipes before more houses are built
2. And Council Tax will be rebated
3. We get better advice and support from the services
    - Road closed
    - Sand bags
    - Road cleaners
    - Thames Water clean up

4. The drains in our area need desperate improvement. Even yesterday (Oct) the road began to fill up after twelve hours of rain. Torrential rain is a problem.
Thames Water have so far ignored all pleas.
5. That work will be done to prevent flood water from Love Lane area etc. flooding Cherry Tree Drive.
6. That lessons will be learnt and that stupid mistakes will not happen again. Whelford did not need to flood at all but for the actions of the airbase and highways. Both I hold responsible for the stress and anxiety/frustration of life since 20th July. People need to take responsibility and hold their hands up, apologise and make it right with homeowners. With papers this will make sale of property straightforward.
7.
    - That action is taken to prevent (as far as possible) Areas that have flooded this year.
    - That CDC will revoke the transfer of residential rates levied on me in temporary accommodation – when they are already collecting business rates on the same property – for which I pay in the rentals. It is unnecessary!

8.
    - Keep existing rivers/drains clear
    - Co-ordinate operation of sluices
    - *Create additional flood plain to temporarily relieve pressure after rainstorm.*
    - *Not allow any further development within the flood plain or adjacent to it unless the developer pays money to create additional flood plain area to compensate.*

9. That the council will be able to be pro-active, give constructive solutions that they can follow through.I feel that nationally not enough importance has been placed on damage. I hope we will learn form this experience.
10.
    - That the barrier created by the Fairford Airbase perimeter security fence is replaced with an environment approved Barrier.
    - The Oil separator to have bypass self-opening in High demand so that all the rain off the base makes its way to Washpool Lane brook,
    - The drain on the Horcot Rd to be improved by taking another on the base N.W. of the new fuel tank. This could help the base as well as the people of Whelford.

11. Before anymore building is done we hope all drains are upgraded to cope with existing and future demands. Any future planning is considered a hazard until flood defences and drainage is upgraded. Any flood defences for the churn are considered for the whole of the river and not just strategic spots.
12. That we do not get flooded again.

13.
- They keep the drains clear and able to take better care.
- Council tax rebate would be grateful.
- Improve sewage system.

14. Drainage in Rose way needs to be addressed urgently.
15.
- Hope new flood plains can be used to slow down the flow of the river.
- Drains cleaned regularly
- Emergency supply of sand bags available – 24 hours a-day when severe weather conditions are predicted.
- Sluice Gates repaired and maintained.
- Residents to have list of telephone contacts for use in emergencies.

Fears

1.
- The Cherry Tree area will continue to be flooded from time to time. This will affect the way we live and the cost.
- House prices will reduce, insurance costs will increase.
- Yesterday (15/10/07) it rained continuously for 8 hours, it was an awful feeling waiting for the house to be flooded again, it is still in a mess from the July 20th flood.

2. That if action is not taken then my house will not be saleable and my insurance will be unaffordable.
3.
- Repeat of flooding from Barnsley Park if water is not drained under B4425.
- Flooding of B4425 at the bottom of Barnsley Wold – unless proper drainage to fields is provided.

4.
- Nobody will do anything that costs money from their budgets.
- Agencies will continue to "pass the buck" – no single person or body is accountable
- Flooding will become difficult
- Houses wont be saleable

5.
- That nothing will be done before the next monsoon rain
- That it is futile repairing my bungalow because it's bound to flood again.
- People of Whelford have been asking for something to be done, for over two years. Some property has flooded five times in the past two years.

6. Whilst we may never have the same amount of rainfall for the next fifty years or so, I do not feel that we should risk doing nothing. I would like Cirencester to have a thorough overhaul of the drainage system. We had very heavy rain just last night, and driving through Liddington and Crudwell I saw very large pools of water in line fields and very high levels of water in a lot of ditches. As I say, only a relatively short period of rain. I want prevention rather than a cure. Spend money now and not have the incredible experience of clearing up after a flood. My main fear is that having had such an awful time in July 07 that nothing will be done and new lessons will be learned.
7. Further buildings on the flood plain unit cause more problems.
8. That the council will keep granting planning permission without considering the environmental impact, and that no drainage improvements will be made and we will have to live this nightmare again unnecessarily.
9. Flooded again.
10. That it will happen again.

11. We will be flooded again and perhaps worse than what has already happened to us. House prices falling.
12.

- Due to lack of funding – nothing will change or improve.
- No sandbags will be available.
- Drains will overflow again and flood our property again.
- Nobody will be available to help again.
- Going back to self-help – again.

13. Having had flood on Countess Lilia's Road for so long it will happen again unless pipes are sorted.

Cheltenham Fears

- The same devastation will happen time and again. Devastation to homes, people's lives and life throughout Glos
- Given that it is predicted that more of the same is due – I fear that nothing will have been learnt by the various agencies. Currently all the agencies are fractured and the left hand doesn't know what the right hand is doing in an emergency.
- Possibility of recurrence without warning – particularly if it happens at night as garages are affected by instant flooding into lower level
- Insurance renewal
- Loss of value on house
- As a member of the Planning Committee for Dursley Town Council, I am worried about new houses being given permission to be built on flood plains. Also what amount of areas which are now being covered by decking and concrete thus not enabling flood water to be drained away.
- Confusion over who (which body) is responsible for drainage maintenance means that problems will reoccur. Needs clarity
- Drainage is inadequate – because both not kept clear and capacity too small
- Nothing is done and we are back here in a couple of years !
- Allowing building to continue on flood plains without steps being taken to prevent flooding!
- On 20th July the road drains were overwhelmed and the resultant flood took out every room of our bungalow. Our fear is that despite a comment made to County, the road drains are 2 only at 35 metres apart, measuring only 0.5m by 0.3m (500mm by 300mm) and they <u>have not been improved</u>. Why should we have to spend well over £1000 on flood gates, big money on a pumped sump at the rear and spend all time filling our own sandbags. Also we understand that there is an Unadopted storm drain from CL179,57 through CL176. 85 to CL176, 08 etc. Has it been cleaned out? If not, why not?

Cheltenham Hopes

- That it stops raining !
- That the concerns of residents are allayed – not only Winchester Way but 49/51 Hatherley Road, so cruelly damaged
- That we will be given sight of the Maintenance Schedules and completed work sheets for clearance of screens for flood alleviation scheme
- Clearance of rivers and steams (Lilley Brook) so that they can flow freely
- Improvement of drainage
- Early warning system
- Earlier warnings because flood line do not deem us a high risk
- Clean out drains and maintain them going forward

- Clean debris from rivers and waterways
- Actually lean from mistakes – want to see action instead of words
- Government funding to help build flood defences to help protect properties
- Building Regs are tightened up so that new homes on flood plans are protected – self sealing airbricks, etc
- My hope is that a more coordinated response is made by the various agencies
- Provision is put in place to maintain, clean and clear ditches, culverts and grips throughout the county
- Re Mythe , Walham and Ryford – Insure adequate flood defences installed now – not wait for repeat event
- That County Council and Environment Agency will work together for long term solutions
- Be proactive not reactive

Below from Veronica Harding, Town Councillor for Dursley

- I have attended tonight to get answers or suggestions re:
- what happens if Dursley is flooded?
- How does the emergency team set up work?
- Are we connected to the whole of Gloucestershire flood action plan?
- Is there anything we should be doing as a council?
- How do we for forward?
- If it was a shortage of water – what would we do?
- If it was flooding of homes – what happens next?
- If it was ie emergency centre, who arranges this?
- Do we need to have sand bags available to the public?

I realise Dursley is lucky to be on a higher level than most areas around but near to a couple of rivers - houses were flooded. We need to know as a Town Council what we should do. We have a Snow Warden – should we have a Flood Warden?

Cheltenham Graffiti Wall

- Withyholt Court affected by Lilleybrook up stream of WC building re: amount of land to soak rainwater
- Woods behind WC contributed to debris entering watercourse
- Can CBC act to deal with flood threat from Lilleybrook? – Freeholder of WC responsible
- Riparian ownership?
- Is it council, EA
- New Bridge at Hayden Road – car stone – if that contributes – debris – back up of water
- Maintenance of watercourse – CBC responsible for clearance – is enough being done – are there enough financial recourses
- Householders need to be aware of their responsibilities as riparian owners
- Withycourt not affected by flooding before – question if something up stream contributed to flooding of garages

Chipping Campden

Fears

1. Lots of talk and NO further action!

2. And that this will lead to it happening again.

3. Need we say more

4. That everything on the ground floor will be destroyed again

5. That insurance companies will not cover for flood damage if flood protection measures are not effective

6. That actual damage to the building structure will occur if we are flooded again

7. We fear a repeat

8. We fear nothing will be don

9. We fear that whatever is done will be inadequate

10. We fear there will be buck passing and lack of accountability

11. We fear that we will not have a home ready for Christmas

12. We fear we may find it difficult to get house insurance

13. We fear our property is blighted and will lose value

14. I fear that when we eventually get back to our cosy homes the problem will be forgotten or dismissed with the evergreen excuse lack of funds

15. We fear that our house may be flooded again, and we feel that we will not be able to cope with such an event in a few years time, as we are elderly.

16. We fear that with climate change floods may become more frequent.

17. We fear that our insurance premiums will become very expensive, or even that we shall not be able to insure.

18. We fear that our house, an expensive one, will have dropped in value considerably. We feel that we may be forced to leave a house which we love

19. That Naunton will flood again!

20. The river Windrush is not regularly maintained by anyone, neither the private landowners, nor the council or the water authority

21. The sewerage system is antiquated and not able to cope with all the additional building that has taken place in recent years. A real fear is that CDC will allow more and more building/extensions which will increase pressure on the pumping station.

22. On several occasions prior to 20th July the sewerage has backed up into houses – a public health issue

23. Main fears are that drain maintenance. Gully clearing and adequate drainage for new builds are not improved. We are operating in this country on a Victorian drainage

system which is little improved in our modern times

24. That not enough money will be available, creating dilemmas as to where the money should be spent, to prevent such a disaster ever happening again

25. That nothing will be done

26. That action will be based on poor advice

27. That it will happen again

28. That sufficient funding will not be released from central government

29. That the cost of improvement to flood protection will be prioritised away from small villages and focused on large ?/cities

30. That the river Windrush through the village of Naunton is blocked with debris, neglected and overgrown now. Many of us fear that it would take a lesser deluge to repeat the devastation which affected 32 homes in Naunton. IT NEEDS REGULAR maintenance, likewise street drains and culverts in which weeds currently flourish

31. The failure, even under more normal circumstances to dispose of human sewage (i.e. faeces) will, should flooding recur, cause major public health issues – and serious ones for which public utilities might be held legally responsible. I am a medical practitioner and say this with immediate knowledge

32. Well of course it will flood again

33. I fear the insurance companies will not be held accountable

34. They have NOT acted quickly or responsibably

35. That lack of funding will mean that little or nothing will be done to improve the drainage situation

36. That lack of funding will mean that individual households will not be given help with flood defences

37. That the emergency services will not be improved because of lack of funding

38. That should a major medical emergency arise during flooding help will not be adequate due to lack of funding i.e. Money needs to be provided by the government to ensure that these things do not happen again

39. If nothing is done serious damage will be caused to the Cotswold (Lime) stone infrastructure of the houses in The Park Road area

40. Insurance will become unaffordable if indeed available

41. Locals such as myself on limited income will be forced out leaving the entire street to holiday lets/weekend (second homes) causing a worsening to the already undesirable social imbalance in the area

42. I fear that all these talking shops will do nothing practical, allowing our concerns to slowly “wither on the vine”

43. The whole disaster will happen all over again

44. Same again – probably worse next time!

45. There is a real risk that Chipping Campden which is a thriving Cotswold Town visited by may tourists will lose its retail outlets and possibly even become a “ghost town”

    It is really essential that effective measures should be taken to minimise the chances of a repeat occurrence. There is a worry that there will be meetings and reports but no concrete action

46. Properties will become uninsurable relatively worthless

47. Older people will be affected, healthwise, by the worry of being helpless and without extra finances to extricate themselves from the predicament

48. Areas of towns will become derelict

Chipping Campden

Hopes

1. I hope I never get flooded again

2. I hope that one body becomes responsible for drainage, flood prevention rather than all the separate bodies so that no one feels the need to do anything

3. I hope I can continue to get insurance

4. We hope there is speedy effective action, eg adequate drains to cope with extra-ordinary events

5. That corrective actions and preventative measures will make a real difference

6. That the action taken will be long term

7. Better cleaning of road drains. We find that if cars are parked, the lorry can’t clear the drains but this goes on for weeks and months and nothing is don. No one put cones out to keep the area clear

8. The streams in Sheep Street are never cleared of debris. They need deepening to take more water

9. Improvements to the drainage system in view of all the new buildings

10. That it never floods again

11. Hope that unlike Evesham, we in Chipping Campden never have flooding like this again

12. Action will take precedent over talk!

13. So this will ensure the level of flooding does not happen again

14. Need we say more

15. Naunton – ensure that the River Windrush is properly maintained

16. That the Council and Thames Water will look immediately at the sewerage system – it is unsuitable – not fit for purpose

17. That CDC will consider all these issues when approving building applications in the village

18. That GCC or CDC commission a survey by flood experts to identify problems and recommend solutions

19. That we might know who is responsible for what

20. Better maintenance and clearance of drains and watercourses.

21. Houses should not be built on flood plains

22. I hope that someone will look at our particular problem and when time and money allows take the necessary action

23. Hope for clean drains and preventative maintenance

24. Emergency food, shelter and counselling services to be established

25. The geographical nature of Park Road Chipping Campden naturally holds excess surface water, with only one outlet, being the River Cam

26. I hope that the appropriate authority take on board the specific geographical nature of the Park Road area and its inherent problems and make a serious attempt to produce a long term plan to reduce this problem and then act on it

27. Regular maintenance of existing drains

28. Widening/deepening of drains or installation of additional drainage facilities

29. Assistance to individual property holders eg sandbags being made available and additional flood defences

30. Development of a coherent policy of flood prevention with a team being set up to deal with any recurrences (eg like firemen)

31. That the River Leach at Northleach will be dredged and confined to its river bed

32. That the river culverts under Mill End will be fitted as a PRIORITY to clear them (silted up after 60 years of not being cleaned)

33. That cleaning of storm drains and culverts will be more thorough and frequent. Eg silt and debris taken away, not just thrown or blown up the bank

34. Contribution to costs will be available

35. That we will be listened to!

36. That Chipping Campden Fire Service will be given support should such an emergency occur again

37. That the drainage system for the town will be improved greatly

38. That the flow of water can be redirected from the top of Dovers Hill away from the town

39. That planning applications will take into account the need for extra drainage

40. That insurance companies will be forced to offer pre-payments immediately

41. Better warning should such an event happen again

42. That households at risk are given help/advice in flood defences

43. We are very concerned about the drainage in Park Road, Chipping Campden. The drain outside our front door fills up whenever there is heavy rain, and the water comes up to our front door. There is a great deal of silt that washes down Dyers Lane, Hoo Lane and West End Terrace, and the drains do not cope with it. A lorry came round to clean out the drain the DAY AFTER THE FLOOD and this was the first time we had ever seen it being cleaned out. We also feel that the ditches on the hills are not clear and do not carry the water away. We very much hope that the drains will be vastly improved and far better maintained. We wonder whether it would be possible to raise the height of the kerb. The local ditches should be regularly and properly cleaned

44. That the husbandry of the River Windrush above, through and below the village of Naunton be established and maintained

45. That the disposal of foul (human) sewage from Naunton be brought up to a standard consistent with the Worlds 4th richest nation, rather than a standard of a which a poor 3rd world country would be ashamed! THIS IS AN IMPERATIVE

46. I hope that the Cotswold or Gloucestershire CC will rapidly commission a survey by qualified flood experts to chart the course of the Windrush in order to

    a) identify avoidable factors causing devastation in our village (Naunton) originally and

    b) to recommend active steps which may be taken by appropriate agencies in the future to reduce those risks in these days of unpredictable climate change

47. Lastly that there be a clear statement, available to the public as to who is responsible for what (i.e. agencies/authorities)

Tewkesbury

Fears

1. More flooding and having to go through all this again.

2. The building of houses continue!! More flooding for more houses

3. That it will happen again much sooner

4. For value of property – that it will be affected and that resale will be difficult

5. That Council Tax bills for next year will rocket due to all the monies waived and paid out due to flooding

6. That next time both power and water supplies will be cut off

7. That further building on the flood plain will impact flooding in the future

8. Fear that we will go through the trauma of having our house flooded again

9. Fear that if such flooding did occur again that it could be even worse if flood plain area is used up

10. Lack of political ownership i.e. Gov

11. No reasons learnt

12. Lack of funding for improving flood situation (This could happen again)

13. Ignoring Local knowledge poor Gov settlement in order for county council to carry out repair to infrastructure and communities

14. Making the Environment Agency the only Arbiter

15. Its going to happen again!

16. My main concern is it happening again and having to go through all the trauma and upset again. I feel this is an obvious fear.

17. The Borough Council will not listen. Chris Shaw tends to be all for the developers not the people of Tewkesbury

18. Nothing will be done to clean up the infrastructure

19. The Borough Council showed little passion during the flooding

20. My fears are that if nothing is done to improve flood defences Tewkesbury will die. People will move away, there will be no future for the younger generation

21. I fear that Tewkesbury Council do not care enough about the residents of Tewkesbury. They do not listen or react to our views. We are not listened too.

22. We are the people of Tewkesbury, it is our town, we have elected the councillors to speak for us so why are plans still being past to build on the flood planes. Its time the planning committee took notice of what we say

23. We and our children live here and want to remain here

24. If the ditches and brooks are not cleaned out on a regular basis we will all be under water one day

25. The Swilgate has not been cleaned out for over 20 years WHY NOT

26. Our house was flooded for the first time and we fear it will happen again if the drains and culverts are not cleaned regularly.

27. Also the outlets to the river need enlarging. Carant Brook and under the road (A38) Vineyards

28. Also the house building is going to cause problems with even more water

29. My main is that I will be flooded again if measures aren't taken to do all the necessary remedial work

30. This will all happen again if nothing is done about building on the flood plain. We have been warned

31. Nothing will be done as in the past – we will be flooded again

32. The same thing will happen again. Probably worse. Nobody seems to listen to local people

33. That no action will be taken by the "powers that be" responsible for the maintenance of rivers, brooks, streams and other watercourses

34. Accountability needs to be addressed from Central Government to the local councils, with everyone in between!

35. I live at Kestrel Way and had 5ft of water in my house. We moved in to the house is March 2007 finished building work and decorating on the day before we flooded on Friday 20th July. This has left us with no down stairs, loss of possessions and a lot of work ahead. I am married with a 5 yr old, my husband lived at the house upstairs we live with my mum. My daughter has been ill through the upset and I don't sleep if it rains. My fear is we could flood again and I don't know if my family can go through this again or live in constant fear of this. My fear is the culvert that needs to be joined up to the main sewage won't be sorted as this should have been done in 1993 by TBC before selling the land to Fosseway! Help us please !!

36. That due to global warming this flood will NOT be a hundred year flood but a lot more often. We are not a third world country and should have proper defences so it doesn't happen again

37. I fear that a disaster affecting the electricity supply would result in a huge job of disposing of all Gloucestershire's frozen food. How would this be achieved?

38. Flooding again

39. Property devaluation

40. Unable to get new buildings insurance

41. Concern over the differences between various insurance companies i.e. where some are already moving back in and others are still waiting for work to start

42. Fears are that those making decisions about flood defence will have no knowledge or understanding of how devasting it is to have you home full of dirty water. It is life

changing and a great challenge for people this happens to

43. If the whole town was flooded again, it might as well close down, and become a relic of the past, a place with no future

44. My fear would be that the flood defences might not be sufficient to prevent an inundation of the July kind. They must be taken seriously.

45. Obviously that the same or similar may happen again

46. That confidence in the area e.g. desire to move to the area. Trade in the town etc will disappear

47. That if building developments are not re-thought and common sense not considered we'll all sink!

48. That lip service will be paid to our collective hopes and fears, and that once publicity has waned so will the desire to put things right.

49. That the hopes won't be achieved or addressed

50. Flooding will continue and get worse with climate change

51. Properties in Tewkesbury will plummet in price. Lives will be ruined.

52. No more building on the floodplain or around Tewkesbury

53. It may all happen again this winter! Even after one day of rain the water level of the Swill gate was exceptionally high

54. Who will insure us (!) without any flood defences being put in place

55. Is there money available to put in defences for listed buildings?

56. If flood defences do not improve this will happen again

57. You won't take the necessary action to stop building on floodplains

58. You won't improve the drainage system in Tewkesbury

59. You won't be accountable for failing the people of Tewkesbury and protecting them from harm

60. Our houses have been de-valued and we won't sell them

61. We won't get house insurance

62. We fear this could happen again – We have the fear about our homes, animals

63. What about house and contents question as Insurers are threatening withdrawal of cover. Who will then cover our houses, especially if homes are inhabitable?

64. There is too much development – how is this going to be controlled?

65. The ditches, drains, brooks and culverts all need clearing which contributed to the spread of water – Why cannot use be made of "convicted vandals" for clearing and

maintaining some of these problem areas.

66. That it rains heavily this winter while the water table is high

67. That this happens before any significant work is done, for example cleaning water courses

68. That the government fails to provide the really big sums of money needed for effective protection

69. That STWA fails to provide an alternative means of pumping clean water in case Mythe goes again

70. That the next storm hits not only the Avon and Teme, but the headwaters of the Severn as well

71. Living in Alderton, I do not expect to see 'flood' defenses in the vicinity. However we were flooded for the second time in 5 years as the sewage/storm drains were unable to handle the amount of water from the hills and surrounding areas. My worry is that we will be overlooked and money will be apportioned to 'major' projects

72. If effective measures are not taken to clean drains, rivers etc there will be more flooding in the next few years due to climate change

73. If the flood took place in the winter in combination with the Severn Bore there would have been severe loss of life

74. How can we flood victims ensure that we can get insurance in future

75. I fear I will be living in a garrett at the top of my home until March 2008!

76. The authorities appear to consider the interests of the powerful developer more than the ordinary people – this must change!!

77. Property in Tewkesbury will be de-valued – flooding might re-occur and be even worse if building continues on the flood plain.

78. It will be impossible to get house insurance, and impossible to sell property that has been flooded. Insurers will pay once but what if houses flood again!

79. I don't think flood protection is the main issue. You can try to 'protect' for ever – mainly against changing weather patterns etc etc. I think the main issue in this area is to intercept the new building in or near the flood-plain in the whole of the Severn/Avon area which directly or indirectly causes blockage and run off into ever more inadequate vulnerable areas.

80. I fear that the pressure from developers and land owners will outweigh the welfare of ordinary people in the area and the building will go on unchecked causing increasing situations such as we have seen

Tewkesbury

Hopes

1. That it won't happen again

2. That it will bring community together and help us to be grateful for what we have

3. That sandbags would be more available

4. That building on the flood plain will be reassessed and hopefully stopped to minimise further impact

5. The Council stop allowing more houses to be built its at the cost of all of us and will continue to be No more flooding

6. Stop building houses

7. We hope you will ensure measures will be taken to help this not happen again!

8. No more houses on flood plains

9. Ditches, culverts etc kept clean

10. Drains cleaned

11. Culvert joined to main sewage of Severn Trent in Lapwing Close/Sallis Close please!

12. Keep up meetings, info and pressure on this subject don't let it be forgot!

13. That County Council and Borough Council will have the guts to refuse any building on the flood plain

14. That flood protection is looked at from source to sea

15. I hope that the Council and Severn Trent clean all the drains and ditches and widen all the culverts and outlets allowing the water to move faster away from our homes on a regular basis.

16. Can the government pay off Bovis for the land purchased so that no more houses can be built adding to our problems

17. That the Council will stop building on flood plains, clean the drains, dredge the rivers and use common sense if not people need to be fired and sensible people employed

18. The environment Agency need to be given powers and resources to fight major developers or new body created

19. The RSS recognises the problems the housing numbers create

20. Government fully fund improvements to Highway and other drainage

21. Far more strength in PPS 25

22. A new study of river catchments and improved flood plain i.e. give back to nature

23. Rural parishes are not left to drown to save towns

24. Please, please, please dredge the rivers, brooks, streams, ditches and other

watercourses. The depth of these will accommodate more water and thus lead to reduced flooding

25. Do not build further housing in or round the town of Tewkesbury. This does impact on more flooding in the area

26. Control the amount of water in the river beds. This can be done by adjusting the level of weirs etc

27. Also open lower lock gates – open the sluices on the upper lock gates all night long – then the river level will drop. Please someone help us

28. Clean out the sewage and drainage systems, culverts, rivers, brooks etc and maintain them

29. Suspend all building IN OR NEAR the flood plain

30. Install a new and up to date sewage system

31. Install a proper storm drainage system make the developer pay 85% of the cost

32. One authority to decide where to build so that there is no buck passing

33. Hope that culverts be greatly enlarged, all drains cleared regularly and systems to take water away

34. Hope that the council could persuade the government to pay compensation to Bovis to stop the further development

35. Hope that the 'other' 80 houses are not allowed on Bredon Road development

36. Hope that the Environment Agency can over-ride councils decisions allowing further development on floodplain

37. Hope that further building is only allowed on land that is way above the last flood level

38. Hope that the boy's brigade land at Newtown is not used to build on and that no further flood plain area is 'built up' and then developed

39. Hope that ditches and brooks could be redirected away from problem areas

40. We hope to remain living in Tewkesbury in safety not in fear. We hope to see the brooks cleaned out and the drains

41. We hope the council we elected will stop saying YES to building on the flood plains and putting our homes at risk

42. Stand up against the builders. We don't need more houses, protect the ones we have

43. Listen to the people of Tewkesbury

44. All developments, existing on going and future plans should be thoroughly investigated to ascertain their influence on the flood situation i.e. the bypass (Jubilee Way) in my opinion trapped water which would previously been dispersed more

evenly

45. Hedge cuttings and grass cuttings and general rubbish should be picked up, at present it is allowed to remain on highways and footpaths until washed into water courses and causing blockages

46. Mazzies Field – Newtown should be levelled

47. Thought should be given to constructing a new water course or to redirect existing one as to allow excess water from other areas such as Bishops Cleeve to enter the Severn lower down

48. Cleaning of drains and water courses from the smallest ditch to the two major rivers also regular maintenance.

49. I nothing else a better warning system for vulnerable residents

50. The council is made accountable for ridiculous decisions made when passing housing developments. They should be sued for the knock on effect they have on people's homes

51. Flood defences are improved

52. Drainage is improved and the council is accountable if it is not

53. Priority should be made to protect residents

54. You will listen and act accordingly, not just use this exercise to pacify residents and make them think that you care

55. No building on the flood plain

56. Proper coordination of emergency control – the police are especially ??

57. Some basic simple flood defences – walls etc

58. Regular maintenance of ditches, streams etc

59. One body responsible for deciding where homes are built – possible more teeth to Environment Agency

60. Grants given to households to help with individual flood defence – as happens in homes of Cornwall!

61. That the EA will concede that a limited amount of dredging would help, if only to take away entire run-off from clearance of water courses feeding into the rivers

62. That someone will succeed in coordinating the actions of EA, GCC, District Councils, STWA and riparian owners in clearing water courses

63. That flood presentation and mitigation measures will be sufficient to actually presume the unsustainability and saleability of the houses affected

64. That building regulations will be amended to include SYDS on all new properties and that something is done to encourage networking existing properties

65. That the EA will be more robust in supporting the planning authorities when they appose buildings too close to vulnerable areas

66. That STWA will donate more than £3.5m to west authorities for repairs and maintenance measures

67. That vital facilities get permanent protection

68. That an affective emergency phone will be in place, to include the local knowledge of parish councils

69. Stop building. Listen to people that know what their talking about. Don't build near the flood plains.

70. My hope is that we never have to live through this nightmare again. Come on TBC learn to listen

71. Parish Councils encouraged to put emergency procedures in place

72. Chain of command in emergency should be made available for Parish Councils

73. Gloucestershire County Council hold a list of snow wardens which they update annually should have an emergency contact for each parish

74. Bowsers would be more appropriately placed

75. Parish Council network should be utilised. Only Tewkesbury Borough Council used, very effectively, for bottled water distribution. (GCC didn't even advise Parish Councils of these meetings!)

76. Would like to know where my water comes from

77. Carry out regular cleaning of the drainage system

78. Local flood protection advisors

79. Better prepared civil emergency teams either volunteer or regular

80. It does not happen again

81. Flooding is taken seriously and no more building on the flood plain

82. We need one body responsible for all flooding issues including planning

83. They need to have enforcement control over ditches, drains, river dragging. If they say plans will cause flooding they shouldn't be allowed

84. That lessons will be learnt

85. That planners will listen to local people who have evidence that flooding has occurred on land recently granted planning permission

86. That common sense will prevail!

87. I'm sure that people will listen to our concerns. My hope is that they will act upon

them

88. I would like to see dredging reintroduced in all rivers not just in our area, though Tewkesbury where I live sits on two rivers, also we are in a bowl like valley surrounded by hills it doesn't need a genius to work out the consequences if building continues on the flood plain

89. That sufficient attention is paid to landowners responsibilities to maintain their ditches and channels. Water running off the land and back filling ditches caused considerable damage that could have been avoided

90. Water bailiffs have commented on the colour of water being very different this time on account of land drainage in contrast to the more usual river flooding

91. We hope that there will be NO more building on the flood plain. Enough damage has been done already

92. We hope that gulleys, drains and rivers are cleared out so that if in the future flooding occurs the water drains away quicker and does not spread over such a large area

93. I hope that you the Council take notice of the strength of feeling that we the people of Tewkesbury feel that we have been let down by your inability to put in place suitable defences

94. I hope that Alderton Parish Council will be able to obtain DETAILED information about what OUGHT TO BE DONE to minimise flooding in the village (regardless of cost). It could be that we could organise some self help (with a little financial backing) re ditch digging etc

95. I hope that the first priority of the authorities will be to provide adequate protection in future for the electricity supply

96. I would like to see cooperation between all the services – Severn Trent – Highways – Landowners etc and clear diagrams showing who is responsible for what. At the time of the flood no one seemed to know where Alderton water was coming from – does it go from Tewkesbury to Stanton?

97. I hope Alderton can have a supply of sand bags available in the village

98. That all the departments involved sit down with a clean slate and plan for the future together. We all know there will be more floods or increased rainfall but passing the buck from one agency to another won't allow those flooded to plan their future

99. Thank you for taking the time and giving us the opportunity to express our views. Please continue to do so and help us to move forward without fear of the next downpour

100. Boundaries of flood plain need to be reviewed as areas were flooded this time which were outside flood plain

101. No building on or near flood plain. Environment Agency needs to be given greater powers to stop building which creates a flood risk.

102. Environment Agency needs to be given clear responsibility for managing flood risks and building flood defences

103. The hope that COMMON SENSE will prevails when dealing with planning applications for building on or near the high water level – after all Tewkesbury floods once a year, at least, and any filling in near the water level at such times is silly

104. The hope is that REALISTIC assessments of applications by people who live in the area, rather than the glorified dreams and aspirations of builders, will be taken into account

105. I would also hope that Councillors should consider CURRENT circumstances and the knowledge of FUTURE environment and weather forecasting, rather than conditions prevailing in years gone by. Surely, climate change must be considered, rather than the £ cost of refusing an application

106. I would hope that insurance companies would find it cheaper to help towards flood prevention than to pay out AFTER AN event!

107. Hope that the suggestions made will be carried out, so that this never happens again

108. Hope that the "ordinary person" will be listened to by those that we have elected to carry out our wished

109. Why not underground reservoirs to take all heavy water, and also a grid system where water can be moved around in times of drought

110. That the government will spend money on funds to local government so that drains etc rivers can be cleared and a new system installed over the near future

111. That the government will withdraw the compulsory house building numbers for vulnerable areas

112. That the development companies be made liable for costs incurred in flood relief and that building in or on the edges of the flood plains be stopped as of now

113. I would like to see the flood plain areas be re-defined to include what happens in an un-typical scenario such as July which will be increasingly common

Tewkesbury
Graffiti Wall

- We have a snow warden – should we also have a flood warden ?
- No warning from Environment Agency about flooding from Swilgate/Tiblebrook/Carrant Brook going to Tewkesbury
- Happy Christmas to you all in your nice homes. Come and have a drink in my caravan.
- Its OK for us to loose money in the floods but not the Council. How is that fair?
- The Environment Agency's flood warning system STINKS !
- Why are the developers allowed to 'call the tune' ?
- Councillors knew the flood was on its way on the Wednesday – why didn't we know?

- TBC are GUTLESS . We would rather they were fined than let Bovis Build
- Listen to the Statistics of 2007 and 1947 when planning future building
- For thousands of years the people had more sense than to build on the flood plain. Modern man thinks he knows better with devastating results.

- What about the children of Tewkesbury who lost not only their homes but their holidays !
- Who's gonna insure us. Insurance companies are already saying 'No chance'.
- Wynlands Close . Builders arrived today to strip out, still no dehumidifier, would not recommend Liverpool & Victoria as an Insurance Company
- No local deployment of sandbags – roads were gridlocked
- 3 children in a caravan – a house that's still wet ! Its criminal
- TBC are charging my builders to park – why?
- More than 80 days and still nothing has happened to the damaged structure of my home
- Why do developers have all the power and the people have none
- The fat cats get richer at our expense !
- What does the future hold?
- George Butcher, MACA. – On behalf of Mitton Area Community Association - These are our Members strong feelings. Stop any more building on flood plain. Maintain culverts streams and ditches properly
- Why did we not receive more warning of the flood coming?
- Why weren't we warned. Chris Shaw was warned – he know on the Wednesday before that there was a severe flash flood due – Why did he not tell us ?
- We were told that we could not use the bottled water to make infant formula due to high mineral content. The bowsers were empty most of the time so we were forced to buy ready which cost us £2.64 per day as opposed to £6.00 per fortnight – the same with June. Also we had to buy antiseptic hand wipe
- Where were the Police!!
- The flooding should never have happened.
- Severn Trent need lessons in communicating!
- Is there a cure for the post-flood blues?
- 'Shutting the stable after the horse has bolted' comes strongly to mind
- We have flooded not as bad as some and worse than others ! We are living as a split family as the house can't be lived in. We live in constant fear of rain and it happening again!
- Severn Trent should be accountable – they acted like headless chicken
- The 2007 water level is the new 1 in 100 year flood and shall be used for planning applications. – It is NOT 1 in 150 years.
- Will we continue to be insured?
- The Councillors and Borough officials who have just approved the latest development on Wheapieces/Walton Cardiff should resign THEY DO NOT represent the views of the people of Tewkesbury
- Why isn't the council cleaning all the drains and ditches. They seem to be sticking their heads in the sand.

Gloucester

Fears

1. Gloucester will eventually cease to exist It has always been subject to flooding and I have been here for 62 years. Streams are flooding more often and the river has risen to its highest level ever in my memory

2. We have houses that have never flooded in 100 years and yet they are flooding now. This can only be because of new housing developments and poor drainage. Planning departments used to ensure new developments do not put others at risk of

flooding

3. Not being able to effectively insure my home against flooding

4. The impact of being flooded twice during 2007 (June 20th and July 20th) and the possible impact on the value of my home

5. The possible impact of flooding in my home on my ability to sell my house in the future

6. Being flooded again;

   a) whilst the city and county councils decide what they are going to do;

   b) If no action is taken

7. Flooding from King George the V playing field at Hucclecote

8. Our fear – we will flood again if measures to prevent the pond and brooks around us flooding are not taken

9. Something needs to be done before this winter

10. I am worried that the reason for the flood in the first place hasn't been sorted. If my house is flooded again will my insurers cover it?

11. Who will cover the personal cost of this event? Insurance premiums rising, saleability of homes affected

12. I think we will flood again as this enquiry is like locking the gate after the horse has bolted

13. I have flooded twice in 3 weeks and everytime it rains I am fearful

14. We know what needs to be done but no one listens and I doubt anything will happen as I have lost all faith in the council

15. That this will happen again

16. That we will not be taken seriously

17. That it will effect the valuation of my property and blight its resale

18. That it may take up to 18 months to get back into my property

19. That I will lose our financially and emotionally. My insurance company are already telling me that I am not insured for things in my garden and for matching items (wall cupboards in my kitchen). Who will pay for all this?

Gloucester

Hopes

1. King George V Field at Hucclecote – The hope is that the City and County Councils will agree between themselves to put a drain in the field to take the run off water away. This is the only outcome which will be satisfactory to the home owners in

Brookfield Road

2. Whey cannot blocked streams be treated as urgently as blocked roads, with a dedicated hotline and a target to clear the blockage within 24 hours?

3. Why does the Environment Agency not revise the conclusions of its Severn at Gloucester Flood Study of 2005 so as to reflect the river level actually experienced in 2007 and seek cost effective ways of defending the city against Severn floods?

4. The authorities take responsibility and provide flood defences in our area this winter, or BEFORE !! (This year 07)

5. 20 July 07 Flooding

   We have three types of agency/persons responsible for flood protection Highways for culverts under roads. City council for public land at sides of streams and house owners at sides of streams. We also have the environmental agency who what they do we do not know. What we need is a central body responsible for streams and flood prevention who are responsible to the people we elect. The best would probably be the county council. They would be responsible for management and POLICEING and FINANCING

6. Flooding after 20 July 07

   This is a big problem as Gloucester gets all the water coming down the River Severn. We need flood plains upstream. Unfortunately councils are building on them. Perhaps the Gloucester/Sharpness canal could be used to take some of the water downstream

7. Perhaps we should help nature and widen rivers

8. Perhaps we should be cleaning rivers

9. Stop building on green land

10. Ensure the builders put adequate drainage in

11. Make additional culverts to take the water

12. Clean out the drains/culverts

13. That there is not a cover up into the Saintbridge balancing ponds gates being opened

14. That my family will be able to stay together during this disruption to our lives

Forest of Dean

Stephen Tweedie, Newent Town Council

- Pre –emptive work to keep water out of built up area
- Powers to close roads – who has them? Bow _____ of traffic flooded shops
- Drainage/culverts not clear around Newent
- What are we doing to minimise flash flooding?
- Create storage and delay for water
- Silting of drains because of field run off
- How do Parish & Town Councils support and work with District and County?

- Incentives for farmers to do what is necessary
- District Council briefing of Emergency Plan to Parishes? Does this happen? Has it happened?
- Flood warden need to know what to do when it happens (snow wardens)
- Leadership of Town and Parish Councils need
- Who is the contact point at District for follow up on planning/funding etc?

Appendix 5

Briefing Note: Responsibilities for Flood Defence and Land Drainage

Purpose of Report: To gain an overview of the responsibilities of various central and local agencies, and landowners, with regard to flood defence and land drainage.

1. Explanation of Terms

Main River – Means a watercourse shown as such on a main river map. This can include smaller watercourses of local significance. The Environment Agency has powers over main rivers and must exercise a general supervision over all matters relating to flood defence, but it must delegate all its own land drainage functions except levies, charges and borrowing to Regional Flood Defence Committees.

Ordinary Watercourse – Means a watercourse that does not form part of a main river. It includes every river, stream, ditch, drain, cut, dyke, sluice, sewer (other than a public sewer) through which water flows and does not form part of a main river.

Public Sewer – Means a sewer for the time being vested in a sewerage undertaker in its capacity as such. Maps of publicly maintainable sewers are available from the sewerage undertaker.

Sewer – Includes all sewers and drains which are used for the drainage of buildings and yards appurtenant to buildings, excluding a drain used for the drainage of a single building or of buildings within a single curtilage.

Public Surface Water Sewers – the sewerage undertaker is responsible for maintaining surface water sewers that are vested in them. Surface water sewers are likely to go directly into a watercourse.

Unadopted or Private Sewers – Sewers which are not owned by the sewerage undertaker are likely to be unadopted and privately owned.

Drains – Drains take waste water from a single property or several houses to the main public sewers. The individual house holder usually maintains these.

Roadside Ditches and Highway Drainage – The County Council as Highway Authority is responsible for draining those highways, which are county roads, and has responsibility for certain bridges and culverts, under the Highways Act 1980. In general terms, it is usual for the roadside ditches to be the responsibility of the adjoining landowner; exceptions to this rule are where the ditch was constructed to drain the highway or where it falls within the land owned by the highway authority. Trunk roads are the responsibility of Highways Agency, a central government body.

Flood Plain – means an area of land over which river or seawater flows, or is stored in times of flood – it usually extends beyond the land immediately next to a watercourse.

2.0 Introduction

2.1 Flooding generally occurs through a combination of events:

- Rainfall fills rivers, streams and ditches beyond their flow capacity. Floodwater overflows riverbanks and flood defences onto floodplains.
- Blocked or overloaded drainage ditches, drains and sewers overflow across roads, gardens and into property.
- Overloaded sewers can sometimes backflow into property.
- Rain can be so heavy that run-off flows occur overland, down hills and slopes.
- Rain soaks into the ground causing ground water levels to rise and flood.

2.2 There are a number of different sources of flooding including:

- Rivers and streams
- The sea
- Groundwater
- Overland flow (especially over tarmac and other hard surfaces)
- Blocked or overloaded drains and sewers
- Broken water mains.

3. Responsibilities of Riparian Owners

3.1 Primarily, individual owners (riparian owners) are responsible for the drainage of their own land, and for accepting and dealing with the natural catchment flows from adjoining land. They must not permit an obstruction to the natural flow without consent from the drainage authority. A riparian owner must accept flood water flowing through his land, even if caused by inadequate capacity downstream. There is no common law duty for a landowner to improve the drainage capacity of a watercourse, however, a landowner can be required by the relevant drainage board, under statute law, to carry out repair and maintenance work to a watercourse where he has a legal responsibility to so, but has failed to carry out that responsibility.

3.2 A riparian owner must:

- maintain the bed and banks of the watercourse, and also the trees and shrubs growing on the banks.
- clear any debris, even if it did not originate from his land – e.g. litter, animal carcasses
- keep the bed and banks clear of any matter that could cause an obstruction

4. Responsibilities of central and local government bodies

There are many different government bodies with responsibility for land drainage but almost all of the powers granted to the various authorities are permissive. This means they cannot be held liable for failure to exercise their powers so long as they exercise their discretion honestly.

5. Department for Environment Food and Rural Affairs ('DEFRA')

Formed by the merger of the Ministry of Agriculture Fisheries and Food and the Department for Environment, Transport and the regions and a small part of the Home Office in 2001, DEFRA is the lead department in planning for flood emergencies and has overall responsibility for policy. It may provide grant aid for the improvement and construction of drainage works and towards costs of flood warning systems and funds the majority of the Environment Agency's flood management activities.

6. The Environment Agency

6.1 The Environment Agency, ('EA') formed under the section 1 of the Environment Act 1995, took on all the functions imposed upon the National Rivers Authority under the Water Resources Act 1991 and the Land Drainage Act 1991 and is required to exercise a general supervision over all matters relating to flood defence in England and Wales.

6.2 In order to assist its flood defence functions the EA should 'from time to time' carry out surveys on the areas for which it is responsible and these surveys should be passed to local planning authorities

6.3 Existing works in connection with a main river may be cleansed repaired or otherwise maintained by the EA. Improvement works may be carried out to deepen, widen, straighten any existing water course or remove or alter mill dams, weirs or other obstructions or raise, widen or improve any existing works, or to construct new works though this may require further permissions (e.g. compulsory purchase of land or agreement with the landowner) and requires consultation with the local authority.

6.4 The powers to provide and operate flood warning systems also reside with the EA.

6.5 The EA deals principally with main rivers but where improvements or maintenance of drainage works of any watercourse within the area of the Regional Flood Defence Committee are required for agriculture the EA may submit to DEFRA a scheme for the creation of a special drainage charge in connection with a watercourse, which will thereafter be treated as a main river for the purposes of the Act.

6.6 The EA has concurrent powers with the Internal Drainage Board (see below) to be consulted over the erection of culverts, mill dams, weirs and other obstructions likely to restrict water flows and also to enforce obligations to maintain bridge watercourse and drainage work borne by the landowner.

6.7 No person is permitted to erect any structure in over or under any part of a main river, or erect or alter any structure designed to contain or divert the flood waters of a main river, except in accordance with plans and sections approved by the EA. The EA may remove any structures which have been erected in contravention of this prohibition.

6.8 The EA has a duty to 'take steps towards' commuting obligations imposed upon a person by reasons of tenure, custom, prescription or otherwise in connection with the drainage of land where that work is in connection with a main river.

6.9 The EA is not entitled to interfere with sluices, floodgates, groins, sea defences or works used for irrigating the land unless consent is given from the person who uses them.

6.10 It is the duty of the EA to establish and maintain Environment Protection Advisory Committees (comprised of a chairman appointed by the Secretary of State ('SoS') and further members appointed by the EA) for the regions of England and Wales, to consult them on any proposals that relate to the manner in which the EA carries out its functions in that region and consider any representations made by the EPAC whether in response to consultation or otherwise. Meetings of a committee, unlike those of the EA, are open to the press and public.

7. Regional Flood Defence Committees ('RFDCs')

RFDC's are comprised of members appointed by the relevant minister, the agency and the LAs. With the exceptions of issuing of levies and the making of drainage charges the Environment Agency delegates all its functions with regard to flood defence to the RFDCs. Meetings are open to the public.

The EA may give specific or general direction as to how flood defence should be carried out by the RFDC.

8. Local Flood Defence Committees

Local Flood Defence Committees ('LFDC') may be set up under section 17 of the Environment Act 1991. The powers that the EA delegates to the RFDCs may be further delegated to LFDC who work in more localised areas within the Regional Flood Defence District.

9. *The Internal Drainage Board, District Councils and the County Council*

9.1 Internal Drainage Boards ('IDB') were set up under the Land Drainage Act 1930 and have been retained by the 1976 and 1991 revisions to the legislation. The Lower Severn Internal Drainage Board covers Gloucestershire.

9.2 The IDB exercises a general supervision over all matters relating to the drainage of land within its area. However, the EA may apply to the relevant

minister to have the powers of any IDB transferred to it and to become the drainage board for any of district.

9.3 Their main powers are to maintain, improve and construct new works for the purposes of land drainage. They are able to dispose of any matter removed in the course of widening, deepening or dredging without making payment for it.

9.4 While the powers of the IDB, District Councils ('DC') and the County Council ('CC') are broadly similar under the Land Drainage Act 1991 the CC's powers are often exercisable only when the District Council fails to take action. Powers granted under the Land Drainage Act 1991 relate mainly to ordinary watercourses though the EA may enter into agreement with the IDB for work to be carried out in connection with main rivers.

9.5 The County Council may only carry out its powers under the Land Drainage Act 1991 if requested to do so by the DC or if it gives 6 weeks notice to the DC.

9.6 The IDB may enter land not owned by itself to maintain existing works or may apply to the minister for authorisation to carry out new works/improvements and may also serve notice upon landowners to carry out works to watercourses, bridges and drainage works for which they are responsible and, if they fail to do so, may carry out the works itself.

9.7 It may also serve notice upon the landowner or person who has caused other blockages to the water flow, providing they are not related to mining operations.

9.8 The IDB may agree to take on drainage work on behalf of the landowner at their expense and may also commute responsibility for any obligation placed through custom, tenure, and prescription or otherwise.

9.9 The IDB and the DC (or the CC in the absence of action or request from the IDB and DC) may create bylaws for ordinary watercourses as it sees fit, in particular to prevent improper use of banks, regulate opening of sluice and flood gates, prevent obstruction of the water course and require vegetation on the banks and in the watercourse to be cut back.

9.10 Section 259 of the Public Health Act 1936 provides that it is a statutory nuisance to allow any part of a watercourse to become choked up with silt so as to obstruct or impede the natural flow of water. Under the Environmental Protection Act 1990 the LA (in this case District Council) has a duty to inspect it area to detect statutory nuisances that include 'any… other matter declared by any enactment to be a statutory nuisance.'

10. Sewerage Undertakers

10.1 The principal duty of the sewerage undertaker is to provide and improve a system of public sewers in its area so that it is and continues to be

effectually drained, and to make provision for emptying the contents of said sewers. Severn Trent Water is the sewerage undertaker for Gloucestershire. The appointment of the company as a water and sewerage undertaker is made subject to conditions set out in its instrument of appointment – eg to require it to comply with directions issued to it by Ofwat in relation to certain matters. The statutory provisions establishing the sewerage undertakers provide for enforcement of their duties to be by the Secretary of State or Ofwat, not a member of the public.

10.2 A sewer owned by a statutory undertaker may be used for conveying surface water from a road by agreement with the Highway Authority. A sewerage undertaker may not unreasonably refuse to enter into such an agreement if a request is made.

10.3 There exists a Guaranteed Standards Scheme (GSS) established by Regulations under which a customer may be entitled to set compensation for breach of standards of service. Thus refunds of sewerage charges are set out under the GSS for situations where waste water enters a customers property, however these payments are not applicable where sewer flooding is caused by severe weather.

10.4 If the flooding is caused by a blockage in a public sewer it is Severn Trent's policy to arrange the clean up. If it is caused by heavy rainfall into a public sewer then they will generally arrange for a basic clean up, which may include the pumping of water, removal of solids and disinfection. They also claim to take reasonable steps and assess whether there is appropriate remedial work to be carried out. However, they are not legally liable for damage.

11. The County Council

11.1 Permissive Powers Under Statutory Law: The County Council ('CC') may enter in to an agreement with the EA permitting the CC to carry out any works that the EA would be entitled to do on its behalf.

11.2 *Powers and responsibilities as Highway Authority: The Highway Authority ('HA') has a duty to maintain the highway. It has a power to lay drains, erect barriers to divert water into the said drains and scour, cleanse and otherwise maintain the drains. The water may then be diverted into an existing inland watercourse but should this cause damage to property then the Highway Authority is required to pay the owner or occupier compensation.*

11.3 *Case law has established that the Highway Authority not only has to provide a satisfactory road surface but also suitable properly maintained drainage. However, there is a statutory defence available to the highway authority in that the courts must take account of the character of the highway, the reasonable levels of repair that would be expected on a highway of that nature and whether the Highway Authority could reasonably be expected to repair that part of the highway before the cause of the action arose.*

11.4 Culverts under highways are normally the responsibility of the highway authority if they were constructed to facilitate the maintenance of the highway. Where a culvert forms part of a highway and does not provide the same capacity as the original watercourse, the courts have recently held that the HA may be liable for damages caused by flooding even if the culvert concerned has been in place for many years without causing flooding and has been fully maintained. In this case the increase in the flow of water had been caused by development upstream.

11.5 Responsibilities of a Planning Authority: A Local Planning Authority should have due regard to national policy guidance (e.g. PPG25) if it intends to grant planning permission on land within a flood plain.

12. Conclusions

There are multiple agencies responsible for different areas of the drainage system. In addition, landowners (as riparian owners) have responsibility for those water courses which pass through their property. This creates a complex web for assessing liabilities when there is flooding. Liability will very much depend on the specific circumstances of the case and types of drainage which might have contributed to the flooding. This will require an examination of the location of the drainage, an initial view on the factors which contributed to or exacerbated the flooding and identification of who is responsible for the particular drainage system.

Nigel Roberts
Director of Law and Administration
Gloucestershire County Council

September 2007

Appendix 6

Councillor R Garnham
Chairman
Gloucestershire County Council Scrutiny
Inquiry
c/o Legal and Democratic Services
Shire Hall
Westgate Street
Gloucester GL1 2TG

Dear Councillor Garnham

Gloucestershire County Council Scrutiny Inquiry into the Summer Emergency2007 - Questions submitted to the Environment Agency

We write further to Richard Thorn's e-mail of 31 October, in which questions submitted to the Inquiry from members of the public had been gathered together andsent on to us for comment. These questions are repeated below, each followed by our response.

Questions 1-16 relate mainly to Cheltenham.

1. The study (Halcrow study) should have included more detail on factors upstream of Cox's Meadow to Dowdswell reservoir.
Response: Halcrow's study looked at the performance of the Chelt Flood Alleviation Scheme. Whereas Dowdeswell Reservoir provides some retention of water, and so forms part of the scheme, there are no Agency flood defences between Dowdeswell and Cox's Meadow. As such this area is not covered in any detail in Halcrow's report. There are currently no plans to provide improved defences to those upstream of Cox's Meadow.

2. As part of any thorough review Its crucial that at some point the original model for the Flood Alleviation Scheme (FAS) be reviewed as this may shed light on errors at the original planning stage and subsequent design failure.
Response: We have commissioned the consultants Black & Veatch to carry out an independent assessment of the Chelt Flood Alleviation Scheme. Black & Veatch and an independent project team will present their findings early in 2008. The data used in the original model will be reviewed as part of this assessment.

3. How can any hydraulic model NOT take into account surface water drainage? Consideration of this should form a fundamental element of the planning process. For example, by constructing a FAS wall along the Bath Parade Car Park and along the Chelt boundary of Lower Sanford Park, surface water that would have naturally drained into the Chelt is prevented in so doing by the wall. There is no doubt this exacerbated the flooding in Bath Parade and Bath Road.
Response: Our scheme will not have affected any pre-existing surface water drainage systems. Surface water naturally draining to the Chelt would not have been able to get away when water levels in the River Chelt were high even if our

defences had not been in place.

4. From the evidence of the water level on the river side of the FAS wall mentioned above being c. 7ft below the uphill side of the wall and the water breaching the banks of the Chelt in the Upper Sanford Park area on both flood occasions, one must question the flow limit of 2.8 cubic meters per second through the Flume in Cox's Meadow and the design of the scheme between
Cox's Meadow and lower Sanford Park.
Response: The design of the scheme, including Cox's Meadow, will be reviewed as part of the independent assessment mentioned in our response to question 2.

5. Contrary to the report few houses in Bath Parade on the Chelt side of the road were flooded from the front. Most were flooded from the rear.
Response: This information will be passed to our consultants, Halcrow and to Black& Veatch who are carrying out the independent assessment.

6. The almost complete failure of the Water Level data capturing devices is unacceptable and explanation as to why these devices failed is required. Especially focussing on why, following a failure during the June event, did they fail again during the July event?
Response: We only had a problem with one of our water level data capturing devices on the River Chelt in the summer floods - that was when the power to the Royal Well Lane (Synagogue Lane) level gauge failed in the June flood. This was rectified and the gauge worked in the July flood.

7. The issue of flood walls/bank around Sandford Park – I was really surprised to read the Halcrow report, which seems to put more emphasis on flooding from debris and surface run off. These seem to me to be shifting responsibility for the weakness in the FAS to other organisations – CBC for maintenance via agreement with EA and also GCC or Severn Trent for drainage issues. This relates to Orisdale Trr and also Keynshambury Rd which was severely flooded in June and July. There is a need for higher /more effective barriers at these locations and want the EA to commit to doing this ASAP. The debris and other issues need to be looked at and agree with that but alongside getting the flood walls/bunds to work.
Response: Debris, undoubtedly had a significant impact on the Flood Alleviation Scheme (FAS), particularly at culverts, trash screens and fences. Similarly surface water drainage issues also increased the flooding at a number of locations through the town. These issues cannot be discounted.
The independent assessment, mentioned in our response to question 2, will consider the adequacy of the current flood defences on the Chelt to provide protection against the river flood with a 1% chance of occurring in any year. We will carry out additional works to provide this standard if identified as being necessary in the findings of the assessment.

8. Please could you ask the EA if they are satisfied the Halcrow report was robust enough considering they were evaluating their own scheme?
Response: Halcrow's report was commissioned to ensure an initial review of the performance of the Flood Alleviation Scheme (FAS) could be made within a reasonable time span. To ensure confidence in the FAS is maintained we have

commissioned Black & Veatch to carry out the independent assessment mentioned in our response to question 2.

9. And can improving the flood walls/bund in Sandford Park be made a priority? – if not why not?
Response: We will carry out any additional works identified in the findings of the assessment as being necessary to provide protection against a river flood with a 1% chance of occurring in any year.

10. Upstream of Cox's Meadow – there are no plans to do anything to alleviate flooding caused by Lilleybrook. There are issues surrounding Riparian ownership alongside Lilleybrook and how it is maintained. Also an issue raised tonight about the maintenance of woodland to the rear of Withyholt Court which residents suggest is not kept well and may contribute to the amount of debris finding its way down stream. Also of outstanding concern is how the Lilleybrook and other brooks could have some form of flood alleviation.
Response: Maintenance is the responsibility of riparian owners. Lilley Brook will be one of the areas covered in our local campaign to educate riparian owners of their rights and responsibilities and our role (see our response to question 17). This watercourse was reclassified as Main River in 2004 and we have permissive powers to carry out maintenance. Cheltenham Borough Council contract back routine maintenance and operational response for this watercourse and we will ask them to look into whether maintenance can be justified using these permissive powers. We can also use our powers to carry out schemes to alleviate flooding, provided we can show these meet certain economic, technical and environmental criteria. The economic benefits to the nation of providing a scheme must outweigh the costs. We understand that properties are not flooded in frequent, less severe events on Lilley Brook and that the numbers of properties flooded in the more severe events we have seen this summer was relatively low. As such a scheme to provide a physical defence is not likely to be economically viable following Government guidelines, and we will not be considering a scheme in the foreseeable future.

11. Has progress has been made on the flood warning scheme for River Chelt that was previously been hinted at by the EA.
Response: Our local contribution to our previous corporate strategy, Making it Happen, was to provide flood warnings to defended urban areas, such as Cheltenham. We aim to give at least two hours warning of a river flood to enable the recipients of the warning to prepare for flooding before it occurs. However, the River Chelt, in particular, responds rapidly, to the extent that it would not be possible, using currently available technology, to achieve the two-hour lead time of a full-blown four-stage flood warning service. What is possible, however, is an interim, two-stage flood warning service (Flood Watch and All Clear), which would be based on Cox's Meadow storage area beginning to fill. Level gauges have been installed and are working satisfactorily, and a flow forecasting model is being developed. We aim to introduce this interim service in the summer of 2008.

12. Why weren't the tributaries for the Chelt deemed to be part of the FAS when it was designed?
Response: The tributaries were considered in the early planning stages of the Chelt scheme. However, as the number of properties at risk is relatively low, the benefits

to the nation would not have outweighed the cost of incorporating these areas within the scheme.

13. Also on the issue I spoke to you about tonight – Government Grants – just wondered if there were grants available for householders to do their own small protecting schemes how could that work with regard to input from EA on schemes.
Response: Neither we, nor Defra, currently supply grants to householders for help towards flood protection. Defra are looking at the feasibility of doing so. They are developing a grants pilot scheme, with pilot sites concentrated in areas where several properties are at risk from flooding but are unlikely to receive any flood defence schemes in the foreseeable future. They are not considering individual properties, though in the event that a flood resilience grants scheme would be rolled out beyond the pilot areas in the future, the possibility of considering such properties would not be ruled out.

14. We in Orrisdale Terrace ……have an unanswered concern and we have written as such to the EA, Halcrow and provided witness statements to the various enquiries. The question to be posed is what are the EA proposing to do about this given the unassailable body of evidence showing a failure of the FAS in our adjacent park (and we are talking about the 25 June flood)?
Response: The independent assessment, mentioned in our response to question 2, will consider the adequacy of the current flood defences on the Chelt to provide protection against the river flood with a 1% chance of occurring in any year. We will carry out additional works to provide this standard if identified as being necessary in the findings of the assessment.

15. My main concerns surround the observations of Halcrow in their recent report that, according to them, might cast some doubt on the evidence that seemed so startling to residents in June, in particular. Eg. "..it is not clear if water did overtop the bank [at the edge of Sandford Park] ….; which it did.
Response: We recognise there is uncertainty around the performance of the flood defences at the 'plug hole' and embankment adjacent to College Road. If the findings of the independent assessment, mentioned in our response to question 2, identify that improvements to the defences at the 'plug hole' are necessary, we will factor in this uncertainty to ensure the required standard of protection is maintained.

16. Why are Halcrow now doubting what so many of us supplied hard evidence of prior to the report's preparation? There should be no doubt that the FAS failed College Road and its environs in June, and there should be no doubt as to the evidence/proof.
Response: Our response to question 14 also applies to this question.

17. How do Riparian Owners get support/information and practical assistance?
Response: We have published a booklet entitled "Living on the Edge, a guide to the rights and responsibilities of riverside occupation". This explains the rights and responsibilities of riverside owners, and our role and that of other organizations whose work relates to the riverside environment. Living on the Edge can be downloaded in PDF from our website or ordered from our online publications catalogue in print or PDF. Works in, over, under or adjacent to watercourses require our official consent prior to such works being carried out. We can, and do, provide

advice to individuals when asked, either by telephone or by our engineers visiting site. We will shortly be carrying out a local campaign on a number of the main rivers in our Area to educate riparian owners in their rights and responsibilities and of our role.

18. Are Riparian Owners responsible for clearing and maintaining debris which ends up in their patch, and blocks the watercourse, but which is there due to no fault of their own? For instance, people much further down the river Chelt regularly have to clear debris that has washed down the river on its passage through the town – this includes railway sleepers, shopping trolleys and general rubbish.
Response: Riparian owners are responsible for clearing any debris in the bed and on the banks of the watercourse, even if it did not originate from their land. This debris may be natural or man-made.

19. Does the EA routinely suggest the use of SUDS in its responses to consultation on new developments?
Response: Yes. We routinely ask for all new developments to include a sustainable drainage system within their design proposals. We will object to development proposals that do not include sustainable drainage techniques within their application details (especially those areas that are known to suffer from flood related problems). We actively promote drainage systems that seek to control run-off at or near the point of source before the discharge reaches the more traditional methods of piped drainage system. Typical examples are soakaways, permeable pavements, swales and attenuation ponds.
20. Does the EA provide full assistance to Councils in understanding the implications of any maps provided by the EA for planning purposes, e.g. the survey date of the base map, and the various potentially different meanings of 'shaded areas highlighting flooding' or similar phrases.
Response: Yes, we do supply full assistance to councils in understanding our maps/information. We update zone maps when opportunities arise to integrate more detailed assessments of flooding that have met certain criteria. Each quarter we send a CD to Local Planning Authorities and professional partners which includes the updated Flood Map, containing Flood Zones, and our Historic Flood Map. Each covers only the operational area of the authority to which it is being sent. These updates are dated. Authorities are asked to use the data in conjunction with our Flood Risk Standing Advice, which can be viewed at **www.pipernetworking.com**. Our standing advice includes an explanation of the meaning of Flood Zones and how they are shaded on the map (see consultation matrix on the Piper Networking site above). We also give the contact number of our helpline to authorities should they need our help to use the CDs.

*21. Are there any plans by the EA to improve the drainage along the whole channel of the Cam through Chipping Campden? Improvements would allow the high volumes of floodwater to move through the town safely and reach the flood meadows beyond Old Campden Hous*e.
Response: The Cam through Chipping Campden is ordinary watercourse. North Cotswold District Council have permissive powers to carry out works on this river. Our own permissive powers relate only to designated Main Rivers.

22. Does the EA believe it should be represented at all Gold Command meetings?

Response: In principle, as a Category One responder, we believe we should be represented at all Gold Command meetings. In practice, we would agree the frequency with which we would attend meetings and our level of input depending upon the incident.

For completeness, we also respond in this letter to P R Galland's letter to me of 5 November 2007 regarding future resilience. Our national report into the flooding this summer is due to be completed at the end of this year and will cover the questions Mr Galland raises.

Yours sincerely

ANTHONY PERRY
Area Flood Risk Manager

Appendix 7

RESPONSE TO SELECT COMMITTEE

SUMMER FLOODING IN GLOUCESTERSHIRE 2007

1. This is an initial response from Gloucestershire County Council to the Environment, Food and Rural Affairs Select Committee.

2. The flooding and associated events experienced in Gloucestershire this summer and in July in particular were both exceptional and dramatic. Indeed, the emergency that quickly unfolded from 20 July was unprecedented in its scale for this county. Not only was this an event of international significance, such was its scale that there were two visits by the Prime Minister and numerous other ministerial visits to see the impact and the effectiveness of the response. The Army, Navy and Royal Air Force were all involved, together with the emergency services, local authorities, Coast Guard and charitable organisations such as the Red Cross. Additional resources were brought in from across the United Kingdom and Europe

3. The scale of the devastation is well documented. During the height of the flooding a number of communities were virtually cut off from access, most notably the town of Tewkesbury. The situation was seriously exacerbated by the flooding of the Mythe Water Treatment works operated by Severn Trent, leading to its shutdown and more than 135,000 homes and 7,500 businesses being without <u>any</u> mains water for up to 12 days. It was only on Tuesday 7th August that Severn Trent announced that tap water was safe to drink; some 17 days after the Emergency began.

4. In addition the Castlemeads electricity sub station was flooded, resulting in the loss of electricity to 25-48,000 homes for 2 days. The larger sub station at Walham was within 2 feet of flooding, only saved by the rapid deployment of temporary flood defences, its loss would have had a catastrophic impact affecting as many as 500,000 homes.

5. During the crisis 40 million bottles of drinking water were distributed and 1300 bowsers were deployed which is believed to be the total number of bowsers in the country. Around 200,000 litres of drinking water had to be delivered direct to hundreds of vulnerable people in their homes.

6. Loss of electricity, drinking water and sanitation facilities created major logistical challenges for the agencies dealing with the emergency. More than 5000 homes and other buildings were affected by flood damage. The dislocation of the road and rail network was extensive. At times major roads had to be closed creating huge problems for the agencies dealing with the crisis and people who needed to travel. For example, people living 3 miles west of Gloucester had to drive 50 miles to get into the city when the A40 and A417 were closed by floodwater.

7. At the present time the cost of the damage to the highways infrastructure in Gloucestershire is estimated to be as much as £25 million. Hundreds of local businesses have been severely affected by the flooding at one of the most important trading times of the year. It has also had a serious impact on tourism for 2007 with many people cancelling trips or holidays to the county with further major consequences for the local economy.

8. The scale of these events raises a number of serious issues and questions for a wide range of government bodies and agencies. The county council is going to use its own scrutiny process to explore some of these issues and seek action to mitigate the impact of future flooding events, in the expectation that they may become more frequent. We would also like to see these issues explored at a national level through the work of the Select Committee. The following questions are some of the initial areas we have identified, but we expect others to emerge during the course of our investigation:

    a. The July floods, although unprecedented, resulted in the catastrophic failure, or near failure, of critical utilities leaving tens of thousands of homes and businesses without essential services for a protracted period of time. The Emergency highlighted the fact that the main electricity and water installations in Gloucestershire represent single points of failure in the supply system. It is not clear what, if any, specific risk assessments and emergency plans were in place to mitigate any disruption of the supply network. The question is therefore, what steps are being taken to improve the protection of those facilities against future flooding or other events?

    b. The effectiveness of rivers and critical watercourses to cope with large increases of water is of serious concern. Are rivers maintained as effectively as they should be, for example through dredging, to ensure they can cope with unexpected levels of water? Can other critical watercourses, such as the Horesbere Brook that runs through Longlevens near Gloucester, where properties were flooded in both June and July, really be left to the responsibility of riparian owners to maintain them?

    c. The effectiveness of large scale, multi-million pound flood defences e.g. in Cheltenham, needs to be examined to ensure that the defences did the job that they were designed to do.

    d. How can an effective system be established that ensures land owners take responsibility for dealing with the run off of water from their land, for example through the provision and maintenance of ditches?

    e. Why is house building continuing to take place in flood plains and how can both the planning system and the agencies have the knowledge and power to influence such building be improved to ensure homes don't get built in areas of risk?

    f. Why is there a lack of investment in what is widely acknowledged as a largely inadequate and outdated highway drainage system? Why does

the government have targets and performance indicators for matters such as road condition, but no such targets for highway drainage?

g. What is being invested in the resilience of flood defences in Gloucestershire and how does this compare with what is actually needed to ensure we have the necessary systems and infrastructure for the 21st Century?

h. What financial protection is available for the people whose homes and businesses have been devastated by flooding, both to help them get back on their feet, but also with regards to them getting future insurance cover and, indeed, being able to sell their houses if they so wish?

i. What has been the social and economic impact of these recent events?

9. In addition to these questions, we will be also examining the effectiveness of our emergency management planning and response. We believe the local community and all the services involved in dealing with the emergency were heroic in their efforts, but we also want to learn so we can respond even better in the face of such circumstances in the future.

10. We hope that you find this initial contribution useful. Many of these questions have national relevance and don't just apply to Gloucestershire. We would like the opportunity to provide you with further information as our scrutiny process progresses and contribute to the evidence sessions that are expected to take place from 10th October 2007 in order to help ensure that the views of the people of Gloucestershire are heard.

Peter Bungard
Chief Executive
Gloucestershire County Council
September 2007

Appendix 8

This appendix summarises information provided by the Emergency Management Service about the roles of Gold, Silver and Bronze Commands.

There is no one model response to a major emergency. The response will need to vary just as the nature and effects will vary. However, fundamental to the successful control and co-ordination of a major emergency is the liaison of all of the emergency and support services. A recognised and nationally agreed structure has been adopted, based upon three levels of command, which can be applied to each organisation. These are known as Strategic, Tactical, and Operational – or Gold, Silver and Bronze.

Operational (or Bronze) Level

On arrival at the scene, the emergency services will take appropriate immediate measures to contain the emergency, assess the extent of the problem and concentrate on their specific tasks within their area of responsibility, e.g. for the police: cordons, security, traffic management, evacuation and so forth. All of this takes place at an operational level and is the normal day-to-day arrangement for responding to any emergency; these arrangements will usually be adequate for the effective resolution of most incidents. However, for more serious incidents, it may be necessary to implement an additional level of management.

Tactical (or Silver) Level

Silver Commanders will operate from a Silver Control, which should wherever possible be co-located with other services' Silver controls and form the Incident Control Post. This will usually be located near to the scene. Each Silver Commander will be responsible for formulating a tactical plan to carry out the strategy of Gold and must liaise with other Silver Commanders and attend joint Tactical Coordination Group meetings. Certain types of emergency may require more than one Silver location and the appropriate number of Silver Commanders. If it becomes apparent that resources or expertise beyond the level of the Silver commanders are required, it may be necessary to implement a strategic level of management.

Strategic (or Gold) Level

In exceptional circumstances, one or more agencies may find it necessary to implement a strategic (or Gold) level of management. The purpose of implementing a strategic level is to establish a framework of policy within which tactical managers will work. The officer designated as having overall command is known as the Gold Commander who is normally a senior police officer, and will operate from Gold Control. This will be established at the police headquarters. Strategic command for major emergencies should be seen as standard practice not the exception. It is easy to dismantle if not required and removes the potential for tactical managers to be reluctant to ask for a strategic level of command. The need for strategic level may arise if tactical management does not have the required resources or expertise available. It may also arise if there is a need to co-ordinate more than one incident or scene for which tactical command has been established. Strategic management is normally undertaken away from any major emergency scene.