Environment Agency

1996
2006

managing flood risk

North and Mid-Somerset Catchment Flood Management Plan

– summary of draft plan

October 2006

Introduction

We are the Environment Agency. It's our job to look after your environment and make it a better place – for you, and for future generations.

This publication is a summary of our draft North and Mid-Somerset Catchment Flood Management Plan (the 'draft plan').

It will never be possible to prevent flooding entirely. But what we can do is work with local authorities and others to *manage* floods. This means we can reduce both the chance and the impact of flooding.

The draft plan contains policies and guidance which will help us and our partners decide the best ways to manage future flood risk. Climate change, urban development and land use management all have a big influence on these decisions.

It is vital that the draft plan has widespread support. That's why we need the views of all sorts of people: planners, environmental organisations, land managers, farmers and local communities.

You can find out how to comment on the back page.

What's the draft plan about?

We are producing Catchment Flood Management Plans that will cover the whole of England and Wales. Catchments are areas that drain into a particular river.

Catchment Flood Management Plans will guide our future investment and activities in managing flood risk in a river catchment. They will help us decide if the way we manage floods now will still be effective in the future.

The draft plan for the North and Mid-Somerset catchment:

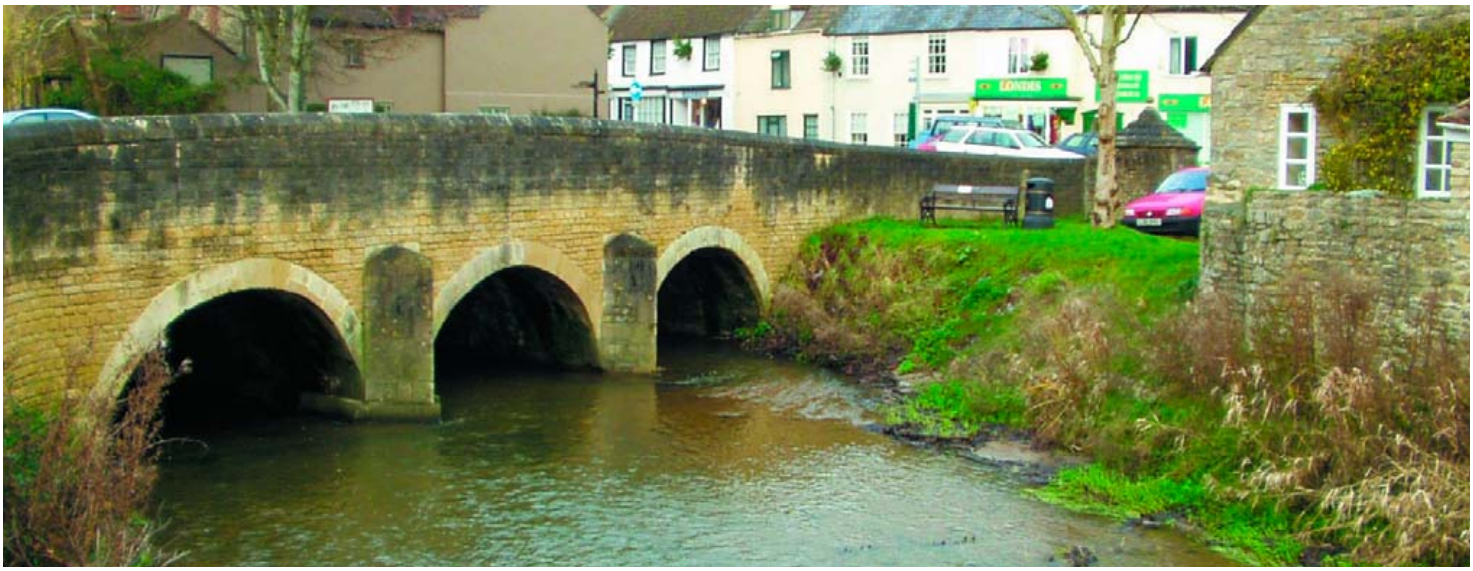
- sets out what we know about flood risk in the catchment;
- looks at how that risk might change;
- identifies how we and our partners could manage the risk over the next 100 years.

We have consulted local authorities and many others; we are now asking a wider range of people and organisations for their views on the draft plan. In particular we would like your comments on the proposed actions – see pages 6 and 7.

We will carefully consider all the comments we receive in producing the final Catchment Flood Management Plan.

We want the final plan to be used by organisations involved in land use planning, rural development, agriculture, transport, recreation, nature conservation and protection of the historic environment. This will ensure that flood risk management and our future proposals are taken into account in policies and plans.

We want public authorities and local communities to understand future changes in flood risk and for us all to work together to manage and minimise flood risk. This will help reduce the effects of flooding on our communities, the economy and our environment.



River Brue at Bruton, where we plan to develop a flood management strategy

Catchment description

The North and Mid-Somerset catchment has rivers draining from the Mendip Hills to the Severn Estuary. The main rivers are shown on the map below.

Flows in these rivers are affected by the topography – the lie of the land. Fast-flowing streams rising in the east of the catchment flow into the low coastal plain, where the gradient is flatter and river flows much slower. All the rivers reach the Severn Estuary through tidal flaps. 'Tide locking' has a major effect on the lower parts of the rivers.

Urban centres include Burnham-on-Sea, Cheddar, Clevedon, Congresbury, Glastonbury, Highbridge, Nailsea, Portishead, Street and Weston-super-Mare.

Area: 1,100 sq km (425 sq miles).

Population: 275,000.

Annual rainfall: Ranges from more than 1,000mm (40in) in the Mendip Hills to 700-800mm (27.5-31.5in) on the Somerset Levels and Moors.

Tidal influence: All rivers in the catchment have controlled outfalls to the Severn Estuary which are the tidal limit.

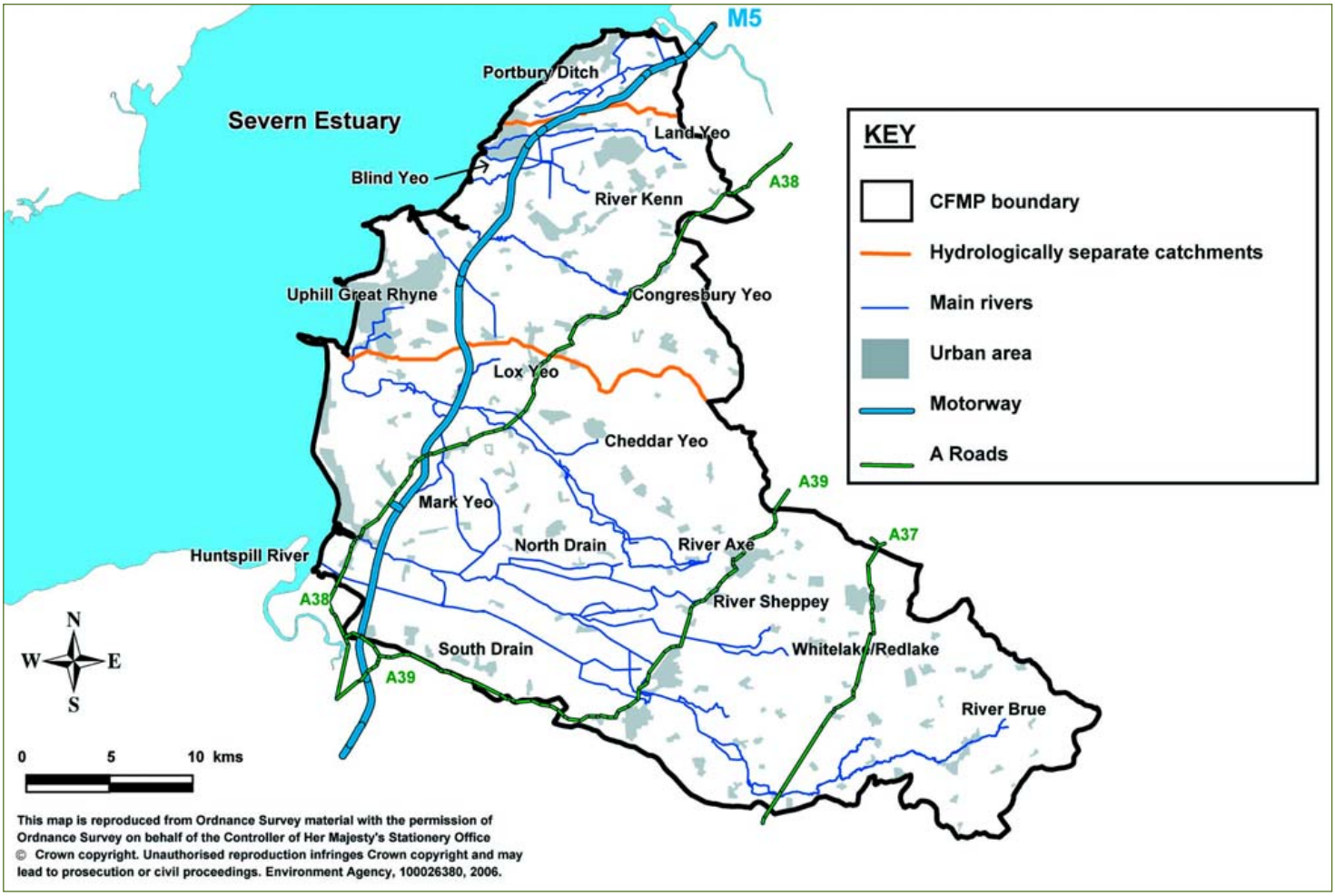
Land use: 91% agricultural, 5% urban and 3.9% other.

Environmental designations: two Areas of Outstanding Natural Beauty; one Environmentally Sensitive Area; six Special Protection Areas; five Special Areas of Conservation; nine National Nature Reserves; two Ramsar sites; more than 100 Sites of Special Scientific Interest.

Geology: Highly varied: carboniferous limestone dominating the north; red Mercia mudstone abutting the Mendips; peat in the lowlands; clay on the coastal strip.

Topography (lie of the land): There is a distinct divide between steep uplands along the catchment's eastern boundary and extensive flat lowlands stretching towards the Severn Estuary in the west. The Mendip Hills divide the area into the North and Mid-Somerset catchments, and the Polden Hills form the boundary to the south. There are isolated areas of high ground throughout the lowlands, such as Brent Knoll and Glastonbury Tor.

Hydrology (movement of water): In the impermeable uplands, rainfall results in a quick response in fast-moving and confined river channels. In the permeable uplands, the response is slower as some flows travel underground to emerge as springs. In the lowlands, water levels are managed and rainfall adds to the amount stored, the response to rainfall depending on the amount of water already present. Response in the coastal strip can be affected by limited storage during tide-locking.



Flood risk now and how it's managed

We work with the internal drainage boards and local authorities in managing flood risk. We spend a significant amount each year on this work, but people, property and the environment remain at risk from flooding in parts of the catchment.

Many areas of the catchment, particularly rural parts of the Somerset Levels and Moors, Tickenham, Nailsea and Kenn Moors, the coastal strip and Gordano Valley, flood regularly without significant risk to life or property.

But local flooding from rivers does pose a greater flood risk problem in some places, such as Congresbury, Wells and Weston-super-Mare. In coastal and low lying areas this can be made worse by tide-locking – high tides that periodically stop rivers discharging into the Severn Estuary.

Surface water flooding is also a problem in coastal towns affected by tide-locking and in upland areas where it is commonly due to blockages.

Most of our spending in the area is on building, improving and maintaining coastal defences. However, we have also invested in river defences, particularly in the low-lying floodplain of the Tickenham, Nailsea and Kenn Moor and the Somerset Levels and Moors.

The work includes building and maintaining earth banks, ponds for holding floodwater, tidal sluice gates, drainage channels and large pumping stations.

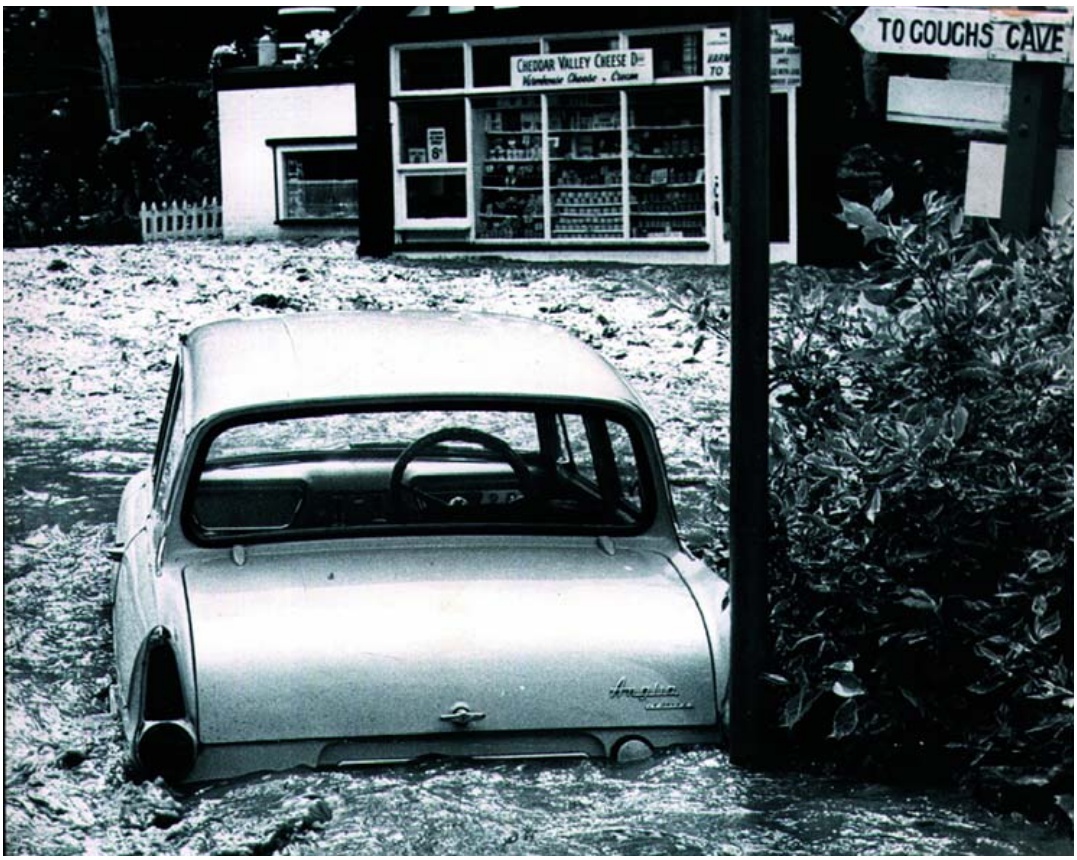
The Somerset Levels and Moors were originally drained for agriculture and peat extraction. There's still a large network of field drains and ditches known as rhynes.

There is little active management of flood risk in upper parts of the catchment which drain relatively naturally with the help of farmland drainage, road ditches and several small flood defence schemes.

Our online flood map on our website, www.environment-agency.gov.uk, shows the area at risk of flooding. The flood map does not distinguish between flooding from the sea and flooding from rivers. It also assumes there are no flood defences.

Current flood risk management includes:

- **Pumping flood water** – much of the low-lying land relies on pumping stations to clear floodwater.
- **Flood storage area** – installed on the River Brue to reduce peak flows through Bruton.
- **Management work** – e.g. maintenance, monitoring and operation of defence structures. We also have an annual maintenance programme that includes dredging channels and cutting weeds.
- **Flood warning** – most areas at risk of flooding are covered by our flood warning service, where we aim to give two hours' notice of possible flooding. But we realise that some upper parts of rivers react very quickly to rainfall and we may not always be able to meet this target.



A car caught in floods pouring down Cheddar Gorge in July 1968 Photo: Nick Barrington

What the future could bring

We have investigated possible future changes in the catchment and looked at the effects of climate change, urban growth and changes in land use.

Our conclusions from these studies are that:

- Climate change will bring more frequent and heavier rainfall and more flooding. Higher average summer temperatures will mean a greater chance of thunder-storms and flash flooding. Sea level rise and more storm surges can result in changes to the tide-locking of rivers draining to the sea and in coastal and tidal flooding.
- Planned urban development in the catchment could affect flood risk. However, development is only likely around existing urban centres. It is not expected to have a catchment-wide impact on flood risk – provided that drainage systems for new developments are fully planned and that further development is minimised in areas at risk of flooding. Using sustainable drainage systems where possible in new developments reduces the impact of urban growth on flood flows and risk.
- Changes in land use that lead to more soil compaction could increase flood risk, especially in middle and upper parts of the catchment.

By looking at the most likely changes in climate, urban development and land use, we've been able to study how flood risk may increase with time. We have then used this picture of the future to come up with what we think are the right ways to tackle the increased risk.

We outline our objectives and action plan on pages 6-7.

Environment Agency staff sample fish in a Somerset river: protecting habitats is one of our aims for the catchment

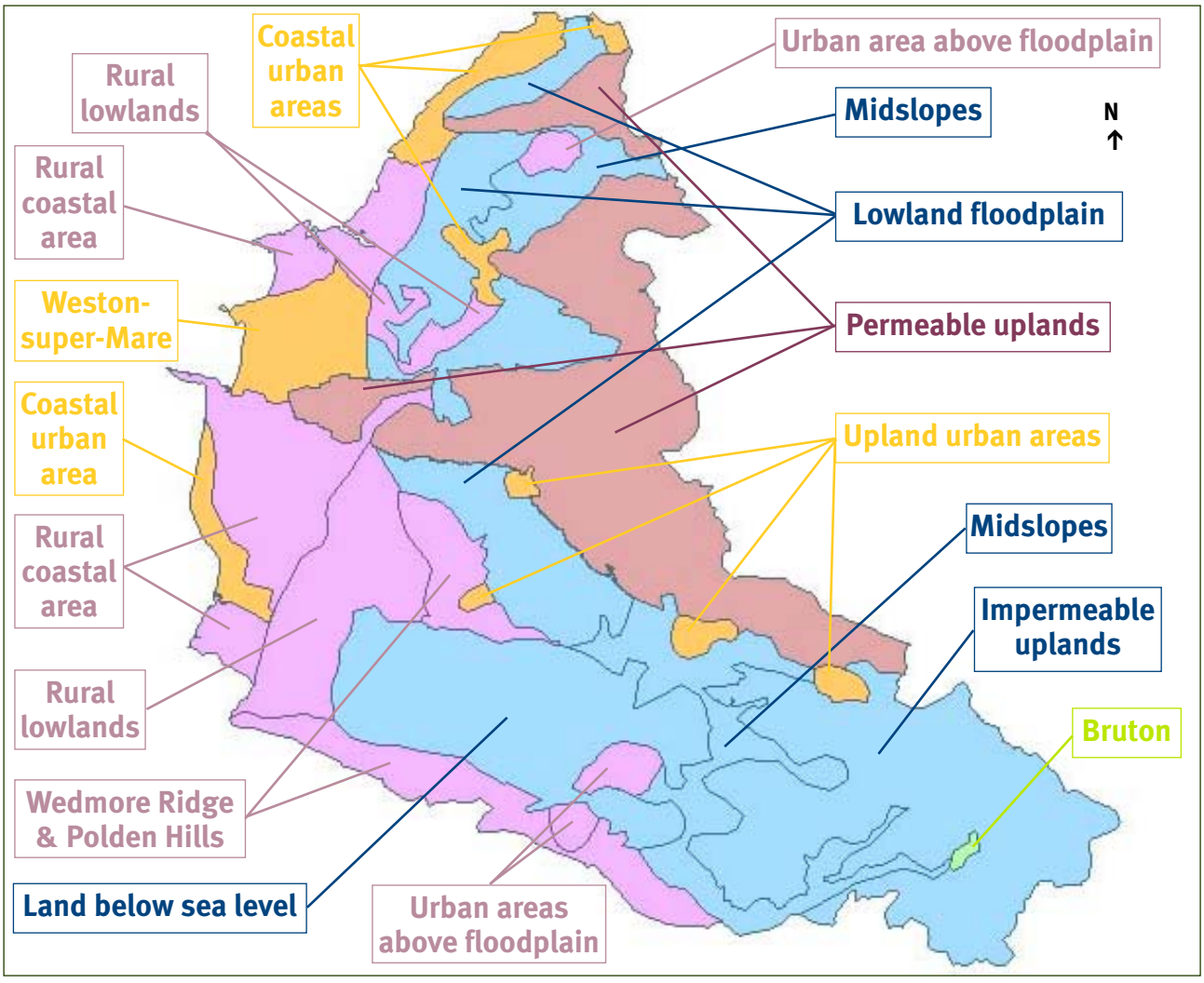
Our objectives for the catchment

We have worked closely with local authorities and many others to develop objectives for the North and Mid-Somerset catchment. They cover the broad areas of flood risk to people, the environment and the economy.

Our objectives for the catchment are to:

- Reduce the risk of serious injury or harm to people from flooding.
- Improve the landscape character of the floodplain and its recreational or amenity value.
- Reduce the economic damage to properties, local industry (including tourism) and agriculture caused by flooding.
- Maintain/restore natural river processes and links with the floodplain where appropriate.
- Protect/improve features of cultural heritage, including archaeological sites that need shallow water tables to preserve them.
- Maintain/improve the availability of water resources, including groundwater and river abstractions, to help natural habitats.
- Maintain/improve the status of environmentally-designated sites.
- Help protect and improve biodiversity habitats where appropriate.
- Protect/improve water and soil quality.

We have divided the catchment into policy units with similar characteristics. The policy units are shown below and the actions for each are listed on p7.



Policy units in the North and Mid-Somerset catchment – the actions for each unit are listed on p7

How we plan to manage flood risk

We have drawn up an action plan – summarised below – of what we will do to manage flood risk in each policy unit in the North and Mid-Somerset catchment.

Catchment-wide actions

- Give development control advice, including advice on reducing run-off and avoiding floodplains.
- Improve flood warning.

Coastal urban areas

- Develop a strategy for urban drainage.
- Develop a long-term flood management strategy.

Lowland floodplain

- Investigate flood risk in Clevedon and Cheddar and from the Congresbury Yeo.
- Develop a strategy to store floodwater, reducing flood risk locally and in other areas.

Upland urban areas

- Investigate the capacity of urban drainage.
- Develop a strategy to manage the growing risk from surface water.
- Develop a strategy to manage flood risk in Cheddar, Congresbury, Shepton Mallet, Wedmore and Wells.

Permeable uplands

- Seek opportunities to maximise storage and groundwater recharge.

Low-lying rural land

- Continue maintaining rhynes and flood banks.
- Seek opportunities to store floodwater to overcome periods of drought and reduce flood risk.
- Investigate the level of protection from flood embankments on the Congresbury Yeo, River Brue and Huntspill River.

Weston-super-Mare

- Seek ways of reducing flood risk in Weston-super-Mare through the Weston Vision proposal.
- Develop an urban drainage strategy.

Wedmore Ridge and Polden Hills

- Investigate the drainage capacity in main villages.
- Encourage use of the best practice in farming and soil management.

Impermeable uplands

- Encourage use of the best practice in farming and soil management.
- Consider increasing flood storage.

Bruton

- Develop a flood management strategy.

Mid-slopes

- Investigate flooding in Congresbury, East Lydford and Wookey.
- Improve recreational fishing in flood storage areas.
- Develop a strategy to store floodwater to reduce flood risk locally and further downstream.

Birdwatching by a rhyne on Tealham Moor in the Brue valley

Floodwater from the River Yeo spills over on to fields upstream of the A370 road bridge at Congresbury

How to find out more

The North and Mid-Somerset Catchment Flood Management Plan is available on a CD from Ken Tatem – to obtain a copy, email ken.tatem@environment-agency.gov.uk, call him on 01225 858375 or write to him at the address below.

You can also study a printed copy of the complete draft document at our North Wessex Area office at Rivers House, East Quay Bridgwater, Somerset. The office is open Monday to Friday from 9am to 5pm.

We welcome your views

Your views are vital for our public consultation on this draft plan. We will consider all comments we receive before 19 January 2007 in producing the final North and Mid-Somerset Catchment Flood Management Plan. This is due to be published in April 2007.

Please **email** your comments to: ken.tatem@environment-agency.gov.uk

Or you can **post** your comments to:

Ken Tatem
North Wessex CFMP Project Manager
Environment Agency
Rivers House
East Quay
Bridgwater
Somerset TA6 4YS

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