

UPPER LEE  
CATCHMENT MANAGEMENT PLAN  
CONSULTATION REPORT SUMMARY



NRA

*National Rivers Authority*

*Thames Region*

*March 1994*



ENVIRONMENT AGENCY

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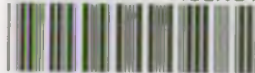
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ENVIRONMENT AGENCY



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## INTRODUCTION

The NRA is the principal agency responsible for safeguarding and improving the water environment in England and Wales. We have statutory responsibilities for:

- water resources
- water quality and pollution control
- flood defence
- fisheries
- recreation and navigation
- conservation

Managing the water environment is a complex task. Understanding how rivers, lakes and groundwaters behave is fundamental to our job. However, we must also consider the way in which the uses of water and activities potentially harmful to it, interact and are managed. Abstracting water, disposing of effluent, participating in water-based recreation and road construction are just some of the uses and activities which we need to consider and evaluate.

To help us work with others in planning for the future of the water environment, we have established a process known as catchment management planning. This document is a Summary of the Consultation Report for the Upper Lee Catchment Management Plan. Once consultation has been completed we will work towards producing a Final Plan by the end of July, 1994.



## YOUR VIEWS

This document and the full Consultation Report have been prepared as a means of undertaking detailed consultation with all interested parties.

When responding to us we hope that you will tackle both points of detail and strategic issues.

In particular we are keen for you to consider the following questions:

- Have we assessed fairly the issues, and what opinions do you have on them and the actions we suggest?
- Have we missed any issues?
- Does our draft vision include your aspirations?
- How should we progress the development of action plans?

During the consultation period comments can be submitted to:

Mr. Craig Woolhouse  
Upper Lee Catchment Management Plan  
National Rivers Authority Thames Region  
The Grange, 97 Crossbrook Street, Waltham Cross  
Herts EN8 8HE. Telephone: 0992 645067

All comments must be with us by Friday 6th May, 1994.

An open public meeting will be held to discuss the Consultation Report at:  
The Assembly Rooms, Town Hall, Luton, at 7pm on  
Tuesday 22nd March, 1994.

The full Consultation Report is available for inspection at local libraries and local authority offices. A copy of the plan can be obtained from the NRA at the above address. After the period of public consultation we will prepare a Final Plan.

In this leaflet we describe the catchment and its current environmental condition (pages 5 to 11). We then present our draft vision for the catchment and a number of potential actions.



## CATCHMENT OVERVIEW

Bounded by the Chilterns to the north, the catchment (see map on page 6) forms part of the larger Lee Valley basin which drains southwards to join the River Thames in east London. Significant urban areas within the catchment include Luton, Dunstable, Stevenage, Welwyn Garden City and parts of Harpenden, Hatfield and Hertford. The scale of this development has greatly affected the flow regime and the quality of the River Lee.

The upper River Lee runs approx. 50km from its source to Hertford. There are several sewage effluent discharges to this section of the river but they are now generally of good quality. In Hertford the River Lee is joined by the Rivers Mimram and Beane both of which receive very little effluent and are of good quality. The vast majority of water abstracted from the Chalk aquifer which underlies the catchment is for public water supplies.

The extreme north western part of the catchment falls within the Chilterns Area of Outstanding Natural Beauty and, beyond the main urban areas, much of the remainder of the catchment has been defined as a Landscape Conservation Area. Historic parks and gardens are particularly prevalent.

A range of important habitats, including spring sources, are found in the catchment. Of particular interest is the River Mimram which is a relatively undisturbed chalk stream. The Rivers Lee and Mimram are capable of supporting good quality coarse and game fisheries respectively.

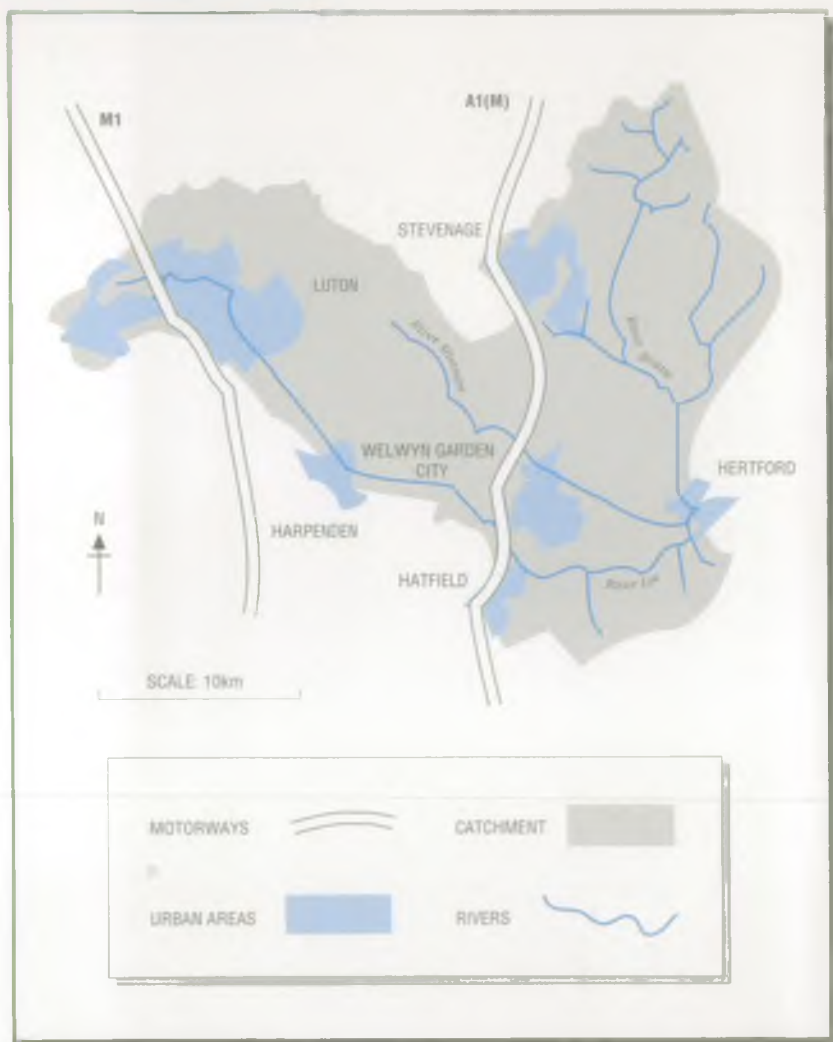
The majority of the catchment is within the Green Belt and it is therefore anticipated that future housing, industry and commercial development will be concentrated within or adjacent to the existing settlements. Mineral working and waste disposal activities are likely to continue in the lower parts of all the river valleys.

Provision for formal water based recreation is limited within the catchment.

Several sites along the River Lee including Luton, Batford, Wheathampstead and Mill Green are at risk from flooding as are villages along the lower River Beane.



# CATCHMENT MAP



## DESCRIPTION OF RESOURCES, USES AND ACTIVITIES

### PHYSICAL CHARACTERISTICS

The catchment's predominant geology is chalk, overlain in part by drift deposits composed of sands and gravel capped by boulder clay. The Upper Chalk forms the area's main aquifer and water levels within this strata depend upon the amount of rainfall that is able to percolate into the ground and the volume of water abstracted.

While the average annual rainfall in the catchment is 639mm, an average of only 204mm percolates into the ground. Typical of chalk streams, the upper parts of the Rivers Lee and Mimram normally become dry in the summer. Flows in the River Mimram do not vary greatly as heavy rainfall is attenuated because of percolation into the aquifer. The River Beane sub-catchment is partly covered by boulder clay and since percolation is less, river flows can be more variable.

### ECOLOGY, FISHERIES, LANDSCAPE AND HERITAGE

The important water-related habitats in the catchment include river valleys, water meadows and spring sources near the upper River Beane and brooks flowing into the River Lee west of Hertford.

The River Lee within Luton is currently of limited ecological value because the channel has been highly modified and carries high volumes of surface water runoff, although the potential exists to enhance this situation. Further downstream the channel and banks have a more natural character, and the less urbanised catchments of the Rivers Mimram and Beane are both rich in wildlife. The River Mimram is particularly valuable as a wildlife habitat. The character of many of the watercourses in the upper River Beane has been eroded by insensitive land drainage works. Potential enhancement work is, in part, prejudiced by a lack of water.

The upper River Lee is potentially a good coarse fishery with a diverse range of species. The River Mimram is a good quality game fishery.

The Chilterns AONB covers a small part of the catchment at the headwaters of the Rivers Lee and Mimram; much of the remainder has been defined as a Landscape Conservation Area. While there have been archeological finds throughout the catchment the river valleys (especially in the lower part of the catchment) are the most archaeologically sensitive area.



## **WATER ABSTRACTION AND EFFLUENT DISPOSAL**

A survey of water abstraction in the catchment for 1991/2 revealed that 88% of water abstracted was used for public water supplies. The largest number of abstraction licences are for agricultural purposes.

A substantial proportion (70-90%) of the total flow of the River Lee at its confluence with the River Mimram is treated sewage effluent from three major treatment works at Luton, Harpenden and Hatfield. In 1992 there was a 100% compliance with consents for discharges from Thames Water operated sewage treatment works.

## **URBAN DEVELOPMENT, AMENITY AND RECREATION, AGRICULTURE, MINERAL EXTRACTION AND SOLID WASTE DISPOSAL**

Most future urban development is likely to occur within or adjacent to existing urban settlements because the catchment is otherwise largely Green Belt. Provision for formal water-based recreation is limited within the catchment to sites at Stevenage and Welwyn Garden City. The Countryside Commission have designated the Lee Valley Walk as a regional trail. The predominant agricultural land use is the growing of cereals and breakcrops.

Sand and gravel extraction is primarily confined to the lower reaches of the river valleys, as is solid waste disposal which has been occurring in former sand and gravel quarries.

## **FLOOD DEFENCE**

Past flood defence works have alleviated most flooding risks along the River Lee through Luton. Flooding of the New Bedford Road to the north of the town centre is still a major problem, however. There are some relatively minor flooding problems on the River Mimram but on the River Beane there is still a risk of flooding at Watton-at-Stone, Waterford, Stapleford and Hertford. Works to alleviate flood risk are actively being considered by the NRA in Luton, Batford and Wheathampstead.





## CONDITION OF THE WATER ENVIRONMENT

### **WATER QUALITY**

#### **Chemical Status**

The NRA currently uses a classification system referred to as River Quality Objectives (RQO). The classes range from 1 (high quality waters) to 4 (bad quality waters).

The River Lee from its source to Wheathampstead is classified as 2B. From Wheathampstead to the River Rib it is classified as 1B. Within these sections of river some reaches have failed the River Quality Objectives on occasions; others constantly exceed the standard. The most recent results show no failures.

The River Beane is wholly classed as 1B and constantly achieves this standard.

The River Mimram is classed as 1A from Kings Walden to Digswell (but failed in 1992). It is classed as 1B from here to the River Lee confluence.

A revised scheme (Statutory Water Quality Objectives) is likely to replace the RQO classifications over the next five years.

There are a number of other measures (or standards) by which water quality is assessed. For example:

The Freshwater Fisheries Directive (EEC). This sets different standards for cyprinid or coarse fisheries and salmonid fisheries. No Fisheries directive failures occurred in 1992 for the designated reaches.

The Dangerous Substances Directive (EEC) is concerned with reducing pollution caused by substances which can cause harm to the aquatic environment. Where monitoring was carried out on the River Lee, no dangerous Substance related failures occurred in 1992.

#### **Biological Status**

The diversity of invertebrate life at a site is strongly affected by water quality but habitat quality and flow regimes are also important. Within the catchment 56 (out of 86) different macroinvertebrate families listed in the Biological Monitoring Working Party (BMWP) scoring system have been recorded since 1974. This represents an important resource.

Urban run-off from Luton, and point discharges from STW on the River Lee are seen to reduce biological scores, but the general trend is for biological recovery south of Luton and downstream towards Hertford.

The River Beane also improves steadily downstream. Of most importance is the River Mimram which is of regional significance. A range of families which are rarely found elsewhere in the Lee Valley Basin are found on the river.

### **Nutrient Status**

The prolific growth of algae (some forms of which can have toxic side effects to man and other vertebrates) have been monitored over recent years. Waterbodies such as Fairland Valley Lakes and Stanborough Lakes are known to suffer algal blooms and because of their high amenity value this can be problematic. Algal blooms are often associated with high nutrient levels but they can also be caused by reduced rates of flow. Concern also exists regarding nutrient enrichment of the River Lee.

### **Pollution Incidents**

The number of reported pollution incidents has grown in recent years. This may be due to a greater awareness and reporting rather than a real increase in the number occurring, but nonetheless there is concern regarding the cluster of pollution incidents in Luton.

### **Groundwater Quality**

Groundwater quality is often impaired by: contaminated sites in Luton, Stevenage, Welwyn Garden City; leakage from the sewerage network; and, the use of soakaways for disposal of road run-off. Waste disposal sites also generate leachate which may pose a risk to groundwater.

Groundwater in the Chalk aquifer is generally of a very good quality and is normally of a far higher standard than that required for public supply. However some sites (notably in the Luton/Dunstable area) have become degraded by chlorinated solvents and treatment plants have had to be installed. Nitrate levels in agricultural areas are generally higher than elsewhere but do not require remedial action.

A comprehensive NRA monitoring network is currently being established to enhance groundwater evaluation. There is concern regarding the vulnerability of large areas of the catchment to groundwater pollution and the need for greater awareness of groundwater issues.



## **WATER RESOURCES**

Proper use of water resources includes meeting not only the legitimate demands of abstractors but also the important demands of aquatic life within the river system itself. Concern exists regarding river levels/flows on reaches of the Rivers Beane and Mimram.

The majority (94%) of all water abstractions in the catchment occur from Three Valley Water Company sites. In an average year they take 70%, 32% and 54% of the available groundwater recharge, respectively in the Lee, Mimram and Beane sub-catchments. However the equivalent of 93%, 19% and 22% of the abstracted water, respectively, is returned to the sub-catchments as sewage effluent or leakage from water mains.

## **PHYSICAL FEATURES**

### **Flood Defence**

'Standards of Service for Urban and Rural Flood Defence' is an NRA system to assess flood defence standards of service. Different land uses have been classified ranging from 'A' (heavily urbanised) to 'E' (unintensive agriculture). Each has a target range of service levels. Assessment depends upon an appropriate length of historic data and cannot yet be made.

In the issuing of flood warnings, we have set ourselves the target of ensuring police are informed of potential flooding of property four hours in advance in rural areas and two hours in urban areas. We are concerned that this standard is not consistently met for the Luton area, and also about a lack of detailed information on the nature and extent of floodplains throughout the river network. Uncontrolled surface water run-off from Luton is also a problem. Flood risks on the Rivers Lee and Beane are considered excessive in certain urban areas.

### **Landscape**

Surveys of the rivers undertaken in 1991 and 1993 indicate the need for the restoration and enhancement of degraded reaches, notably through Luton and on dry reaches of the River Beane.

The River Minram, as well as parts of the River Lee, are of a high quality and require conserving.

### **Ecology**

Surveys undertaken in 1989 and 1993 indicate that the River Mimram is of particular ecological value although the lower River Beane and parts of the River Lee are equally valuable.

### **Fisheries**

Good quality fisheries are found on all rivers but recent surveys have highlighted problems on the Rivers Beane and Mimram which are probably linked to the recent drought.

### **Land use**

We are working with local planning authorities to raise their awareness of how decisions on land use can affect the water environment. Issues of groundwater protection and avoiding developments in floodplains are particularly important. The consideration of sustainable development principles is growing in significance.



## SCOPE OF CONSULTATION REPORT

The purpose of the consultation stage is to get a range of views on how we all can improve the well-being of the local water environment.

The draft vision we propose opposite is a means of raising our long-term aspirations for the catchment. These are unlikely to be achieved within the next five years which is the timescale for individual actions in our Final Plan. Possible actions are described on pages 14 and 15.

It is unlikely that all the actions described will be repeated in the Final Plan. This is because we will have to balance our desire to improve and protect the water environment with the economic and practical problems that prevail. The catchment vision will not be constrained to the same extent as the actions.

The Final Plan, due in July 1994, will describe how we intend monitoring, reviewing and implementing the plan.



## DRAFT VISION FOR THE CATCHMENT

The Upper Lee catchment is home to 400,000 people who depend on the water environment in many ways and value it for the quiet pleasure and enjoyment that it brings to their local communities.

The Chalk aquifer under the catchment is a source of water for domestic and industrial purposes. It is also the source of the Rivers Lee, Mimram, and Beane which flow through or close to Luton, Welwyn Garden City, Stevenage and Hertford. These rivers are valued as important local amenities in an area subject to considerable development pressures. The protection of public health and the natural water environment demands that:

- the quality of water in local aquifers is not compromised
- abstractions of water are in balance with the ecological needs of rivers and where flows in rivers do not meet our reasonable expectations then sustainable solutions must be sought and implemented by 2010.

By returning locally our treated sewage effluent we help replenish and sustain the River Lee. Whilst recognising its cleansing capacity we must not inhibit its ecological and fishery potential. The physical character of the River Lee and its catchment has suffered much in Luton through past land and water management policies. These same tools can now be used to overcome the problem. Away from Luton the River Lee is a locally valuable ecological and fisheries resource. The River Mimram is a high quality chalk stream of regional importance in environmental terms. The value of many important habitats on the River Mimram depends on the maintenance of a particular river chemistry and water regime. The River Beane offers particular opportunities for both environmental and informal recreation initiatives. Flood risks suffered by properties in Luton, Batford and Wheathampstead along the River Lee and villages in the Beane valley should be minimised. Key objectives will be to:

- restore the River Lee as a natural open link between Luton Hoo and Houghton Regis through public and private sector initiatives by 2025
- minimisation of surface water run-off from Luton as part of a strategy to reduce flood risks on the River Lee
- establish conditions capable of supporting salmonids in the River Lee downstream of Hyde Mill Farm by 2015
- integrate the activities of voluntary, public and private sectors through the preparation of a comprehensive conservation strategy
- maintain the highest level of protection for the landscape setting and habitats of the Mimram valley
- integrate flood defences on the River Beane with conservation and recreation initiatives

Establishing stronger NRA involvement and links with local communities and their representatives is seen to be necessary to ensure local views are respected and future development decisions respect this vision for the catchment. We will therefore:

- work with all relevant parties to implement the principles of sustainable development.

## POTENTIAL ACTION

We have developed six catchment issues for consideration:

### 1. River Lee at Luton

**Issue:** Flooding is a problem both at, and downstream of, Luton. The primary cause of this is uncontrolled run-off from urban developments. Concrete banks and culverts have been built to enlarge the river in the town centre to cope with increased flow. This work has severed the natural corridor of the river.

**Action:**

- Restore the natural elements of the river system by influencing redevelopment opportunities beside the river and initiating public sector enhancement work.
- Develop a work programme to deal with the causes, rather than just the symptoms, of damage to Luton's water environment. For example, control of run-off at source would reduce flood flows, aid ecological recovery and reduce storm water run-off pollution.

### 2. The Beane Valley

**Issue:** Low flows in the middle reaches of the river are a cause for local concern. Further downstream flood alleviation works may be required for several villages. Opportunities for conservation and recreation exist in the watermeadows at Stevenage and along the River Beane.

**Action:**

- Research the low flow problem and, if justifiable, implement remedial measures by 2010.
- Review flood defence standards and implement viable schemes.
- Integrate conservation, recreation, fisheries and flood defence work throughout the valley.
- Survey the spring source habitats in the Upper Beane valley.



### 3. Groundwater Protection

**Issue:** To protect public health and the quality of the surface waters it is important that the Chalk aquifer is strongly protected against possible pollution risks.

**Action:**

- The dissemination of information to local councils and recognition of the issues in structure and local plans
- The development of source protection zones for all major boreholes by the end of 1995.
- Adoption of a precautionary approach to development likely to cause pollution to groundwater.

#### **4. Protection of the Mimram Valley**

**Issue:** The River Mimram is widely recognised for its landscape, instream and riparian habitats and fishery potential. It is worthy of considerable efforts to protect it from adverse impacts. Possible threats include the widening of the A1(M), mineral working at Panshanger and the potential for Luton and Welwyn Garden City to continue to expand eastwards.

**Action:**

- Recording of the qualities of the area's water environment.
- Co-ordination of all those interested in protecting and enhancing the river so everyone can work to a common goal.
- Promoting a precautionary approach to land use policies that might affect the river.

#### **5. Conservation projects**

**Issue:** Poor co-ordination of voluntary, public and private sector initiatives for conservation work. A strategic approach to conservation would be helpful to clarify roles and ensure the best use of skills and resources.

**Action:**

- The voluntary public and private sectors should debate the pros and cons of a strategic approach.
- Further information to be sought on ecology, landscape and geomorphology.
- Assessment of the strengths of interested groups.
- Strengthening of communications between interested parties.

#### **6. Managing the Catchment**

**Issue:** The need to address other areas of concern relating to land use, water quality, flood defence and communications.

**Action:**

- NRA to contribute further to the integration of sustainable development themes related to water into development plans as a means of overcoming many of the impacts on the water environment caused by built development.
- Pollution prevention in Luton
- Encouragement to councils for the preparation of drainage management plans.
- Preparation of quarterly bulletins and annual forum meetings to report on and to direct our efforts.
- NRA to prepare detailed surveys of flood risk and to improve flood warning capabilities for Luton.



**NRA**

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Thames Region  
1 North Bank Avenue*

Upper Lee Catchment Management Plan  
Natural Rivers Authority Thames Region  
Gade House, London Road, Rickmansworth, Herts WD3 1RS

