

Water

1.1 Water

Policy Context

Directive 2000/60/EC Establishing a Framework for the Community Action in the Field of Water Policy (The Water Framework Directive)

The Water Framework Directive has the following key aims:

- Expanding the scope of water protection to all waters, surface waters and groundwater;
- Achieving "good status" for all waters by a set deadline;
- Water management based on river basins;
- "Combined approach" of emission limit values and quality standards;
- Getting the prices right;
- Getting the citizen involved more closely; and
- Streamlining legislation.

Objectives, Targets and Indicators

The Water Framework Directive 2000/60/EC places a number of obligations on Member States (MS). It requires all inland and coastal waters to reach "good status" by 2015. It will do this by establishing a river basin district structure within which environmental objectives and targets will be set, for all ground and surface waters.

A general requirement for ecological protection, and a general minimum chemical standard, has been introduced to cover all surface waters. These are the two elements "good ecological status" and "good chemical status". Good ecological status is defined in Annex V of the Water Framework Directive, in terms of the quality of the biological community, the hydrological characteristics and the chemical characteristics. With regard to pollutants that are not covered by EU legislation, the proposed Directive requires Member States to establish threshold values. These threshold values can be defined at the national, river basin or groundwater body levels.

Groundwater Directive (80/68/EC)

This Directive prohibits the direct or indirect discharge into groundwater of List I substances and limits discharges of List II substances so as to avoid pollution.

Objectives, Targets and Indicators

All groundwater bodies are of good status – in terms of water quality, this is based on thresholds for the chemical constituents of groundwater and their impact on ecosystems. This is also relevant to surface water ecosystems and so highlights groundwater's important place in the hydrological cycle.

Nitrates Directive (91/676/EEC)

The Directive addresses water pollution by nitrates from agriculture. It seeks to reduce or prevent the pollution of water caused by the application and storage of inorganic fertiliser and manure on farmland. It is designed both to safeguard drinking water supplies and to prevent wider ecological damage in the form of the eutrophication of freshwater and waters generally.

Objectives, Targets and Indicators

Every four years member states shall report on polluted or likely to be polluted waters and designed vulnerable zones, and measures and actions taken to reduce the pollution from nitrates.

Polluted waters are:

- Surface freshwaters, in particular those used or intended for the abstraction of drinking water, that contain or could contain, more than the concentration of nitrates laid down in accordance with Directive 75/440/EEC;
- Ground-water containing or that could contain more than 50 mg/l nitrates; and

Natural freshwater lakes, other freshwater bodies, estuaries, coastal waters and marine waters found or likely to be eutrophic.

Directing the Flow – priorities for future water policy (2002)

'Directing the Flow' sets out the Government's strategic vision for the direction of water policy, its place among broader Government objectives in England, and identified the main future priorities and direction for the inland and coastal water environment, water resources and the water and sewerage industry.

Objectives, Targets and Indicators

Particular priorities for the future, where more effort is needed than in the past, should include:

- prudent use of water resources and keeping its use within the limits of its replenishment;
- tackling agricultural and urban diffuse pollution of water;
- achieving better integration between water and other policies and between different aspects of water policy.

Private Water Supply Regulations 1991

there is a duty on Local Authorities to ensure that the quality of water from private supplies serving domestic or commercial premises is 'wholesome', meeting certain quality standards.

Objectives, Targets and Indicators

These regulations were passed under the European Union Directive 80/778/EC. Directive 98/83/EC is an update of the original directive and states that all supplies should be compliant by Dec 25th 2003

New National Water Strategy

A new national water strategy is to be published in summer 2007. The new Water Strategy will set out a coherent policy framework to underpin commitments for water availability and quality. It will outline Government's evolving priorities, and focus water policy through a climate change lens. The overarching aim of the new Water Strategy is to improve standards of service and quality, through sustainable water management, whilst achieving a balance between environmental impacts, water quality of surface and ground waters, supply and demand, and social and economic effects. This might include:

- Diffuse pollution
- Drainage
- Rainwater harvesting
- Greywater reuse

Objectives, Targets and Indicators

The intermediate outcomes are:

- No deterioration in water quality in the environment, aiming for improvement to good ecological status by 2015, and improved biodiversity and ecology with increased value from sustainable recreation
- Climate change mitigation and adaptation
- Sustainable use of water resources with no essential supply interruptions during drought
- High levels of drinking water quality
- Fair, affordable and cost-reflective charges

PPS 25 – Development and Flood Risk

PPS25 sets out Government policy on development and flood risk. It's aims 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 of highest risk. Where new development is, exceptionally, necessary in such areas, policy aims to make it safe, without increasing flood risk elsewhere, and, where possible, reducing flood risk overall.

Objectives, Targets and Indicators

A sequential risk-based approach to determining the suitability of land for development in flood risk areas is central to the policy statement and should be applied at all levels of the planning process.

Planning applications for development proposals of 1 ha or greater in Flood Zone 1 and all proposals for new development located in Flood Zones 2 and 3, should be accompanied by a Flood Risk Assessment." Flood Zone 2 is that with an annual probability of flooding of between 0.1 – 1.0% (the 100 to 1000 year floodplain) and Flood Zone 3 is that with an annual probability of flooding of greater than 1% (the 100 year floodplain).

Reducing Risk:

- safeguarding land from development that is required for current and future flood management eg conveyance and storage of flood water, and flood defences;
- reducing flood risk to and from new development through location, layout and design, incorporating sustainable drainage systems (SUDS);
- using opportunities offered by new development to reduce the causes and impacts of flooding eg surface water management plans; making the most of the benefits of green infrastructure for flood storage, conveyance and SUDS; re-creating functional floodplain; and setting back defences;

Regional Spatial Strategy (RSS14) of the East of England (Draft Revision)

Bedfordshire now lies within the East of England region for planning purposes. RSS14 is based on the principles of the UK's Strategy for Sustainable Development and sets out a strategy to guide planning and development in the East of England to the year 2021. This includes the scale and distribution of provision for new housing and identifying priorities for the environment, transport, infrastructure, economic development, minerals and waste management. It aims to improve the quality of life and sets out proposals which will influence where people choose to work and live and how to move about the region. RSS14 is currently under review – the final RSS14 is due to be published in early summer 2007.

Objectives, Targets and Indicators

- Minimise the risk of flooding.
- Encourage more sustainable use of water resources through winter storage schemes and new wetland creation.
- Ensure that rates of development do not exceed the capacity of existing water supply systems or, where relevant, proceed ahead of essential planned improvements that will increase the supply.
- Require the introduction of water conservation measures and sustainable drainage solutions.
- Include water conservation measures in new development and promote public awareness of the need to reduce water consumption.

Adapting to Climate Change: a checklist for development. Guidance on designing developments in a climate change

This checklist was produced by the 'Three Regions', which includes the East of England and to

provide guidance for new developments to adapt to climate change. The checklist covers issues such as:

- Location;
- Site layout;
- Buildings (structure, materials, physical envelope);
- Ventilation and cooling;
- Drainage;
- Water;
- Outdoor spaces; and Connectivity (infrastructure resilience and impact on neighbours).

Objectives, Targets and Indicators

To ensure that the effects of climate change (including warmer, wetter winters and extreme rainfall events) are considered over the lifetime of the development, especially with regards to location and design.

Designing for Sustainability – Luton Borough Council Supplementary Planning Guidance

This document sets out what the Borough Council expects in terms of sustainable design and energy conservation.

Objectives, Targets and Indicators

Avoid flood plains and areas with potential flooding risk and conserve water on the site.
Incorporate sustainable drainage (SUDS).
Conserve water and incorporate systems to allow use of filtered rain water and re-use of domestic and commercial grey water,

Luton Local Plan (2001 - 2011)

The Local Plan is to guide development and the use of land. It contains policies and proposals for land use and transportation.

Objectives, Targets and Indicators

Not to allow development that would result in an increased flood risk.
To ensure appropriate water conservation measures are incorporated into development proposals.
To ensure a development will not pose an unacceptable risk of pollution to groundwater or surface water.

Bedford Borough Council Development Plan Document (DPD): Core Strategy and Rural Issues Plan (Submission version)

The Local Development Framework is a series of documents which will gradually replace the Local Plan and deliver the spatial planning strategy for Bedford. These will set out the Council's policies for meeting the community's economic, environmental and social aims for the future where they affect the development and use of land. Preparation of the Local Development Framework will be a continual process with new documents being prepared at different stages to ensure that they are up-to-date.

The Core Strategy will set out the long term vision and overarching policies for the Borough. Consultation is taking place in connection with preparing the 'Core Strategy and Rural Issues Plan'. The DPD was submitted to the Secretary of State on 3 July 2006 and a six week consultation period followed. An independent Inspector will be appointed in May 2007 to consider all representations received in response to the consultation. It is expected that this DPD will be adopted in December 2007.

Objectives, Targets and Indicators

Maintain a high quality environment in terms of air, soil and water quality.
Reduce the risk of flooding.
Incorporate facilities to minimise the use of water and waste; and,
Limit any adverse effects on water quality, reduce water consumption and minimise the risk of flooding.

Bedford Borough Council Local Plan

The Bedford Local Plan was adopted in 2002 and sets out policies and proposals to encourage development to occur in suitable forms and locations with the aim of improving the quality, convenience and sustainability of the environment. The Local Development Framework process will gradually replace the Local Plan and deliver the spatial planning strategy for Bedford.

Objectives, Targets and Indicators

Development will not be permitted that compromises the capacity of the floodplain, balancing ponds, drainage pipes, channels and other flood defence and works to alleviate flooding, or would be at risk of flooding, or would unacceptably increase the risk of flooding or pollution through seepage or run-off.

Mid Beds Local Plan (First Review Deposit Draft)

The Plan guides development and the use of land over the next 10 years. The policies and proposals for land use and transportation are used to give planning advice and form the basis for determining planning applications.

Objectives, Targets and Indicators

Refuse development that would result in an increase of flood risk, intensify the risk of flooding or be at an unacceptable risk of flooding.
Developers must take full account of the proposals on surface water drainage and infrastructure and incorporate appropriate controls.
Encourage Anglian Water Services to invest and upgrade existing sewerage infrastructure, where necessary, so as to facilitate the development of land allocated for development in the Local Plan and on other suitable sites as appropriate.

South Bedfordshire Local Plan (Review Deposit)

The Local Plan was adopted in 2004 and provides comprehensive planning guidance for development in the area up to the year 2011. It develops the policies and general proposals of the Structure Plan and relates them to precise areas of land in the area. It sets out policies for environmental planning and management, in particular relating to conservation and improvement of the environment, efficient use of land and resources and the management of traffic.

Objectives, Targets and Indicators

Protect and enhance the natural and physical environment.
Repair environmental damage and minimise pollution.
Control development which may affect the quality of ground or surface water.
Control water abstraction for development.
Control development in areas at risk of flooding.
Control surface water run-off from development.

Marston Vale – The Surface Waters Plan

The Surfaces Water Plan has been published on behalf of the Marston Vale Surface Waters Group.

It describes some of the key challenges and opportunities facing Planning and Land Drainage Authorities, Landowners and Developers, and other parties concerned with the management of surface waters in the area of Forest of Marston Vale. The Plan seeks to face up to the challenges and see advantage taken of the opportunities by promoting a series of policies to encourage an integrated and sustainable approach in the context of major proposed development in the area.

Objectives, Targets and Indicators

- Provide mitigation from flooding.
- Provide strategic facilities to control run off from large developments.
- Protect and, if possible, enhance, the existing functions and environmental features of Elstow Brook and its tributaries, including its flood plains.
- Encourage schemes that result in a range of benefits including management of flood risk and enhancement of the environment.

Baseline Review

- 1.1.1 This section reviews baseline water quality, resources and flood risk in Bedfordshire County and Luton Borough. The next section of the topic paper outlines how these issues specifically relate to waste management.
- 1.1.2 Impacts on water can arise from aquatic discharges, surface run-off, groundwater extraction and dust emissions / deposition. The impact of waste management facilities on the river environment should also be considered if such facilities are located adjacent to a river or stream.
- 1.1.3 Water quality targets are established and monitored by the EA and Local Authorities.
- 1.1.4 For each stretch of a river the Environment Agency establishes a river quality objective. This reflects the uses to which the waters are put and is the basis for deciding the discharges which can be allowed. The objectives will generally be expressed in terms of quality grades (like those described below in monitoring water quality) which reflect the general health of the waters. General Quality Assessment (GQA) and chemical water quality is also assessed and monitored.

Water Quality in the Anglian River Catchment

- 1.1.5 Information for the English regions is based on the Environment Agency's river catchment boundaries. Bedfordshire and Luton fall within the Anglian river catchment.

Chemical Quality

- 1.1.6 Between 1990 and 2005 there was a net improvement in water quality in 58% of the monitored length of rivers and canals in the Anglian Catchment. The length of good quality watercourses rose from 17% to 50% between 1990 and 2005, however much of this improvement occurred during the first five years, up to 2000. Between 2000 and 2005 there has been a net reduction of A-grade rivers by 43%.

- 1.1.7 In 2005, the percentage length of good quality rivers was well below the England average of 64%. However, they did experience a greater rate of improvement over the England average in the same period (41% compared to 58%).

Rivers and canals: % length in Anglian in each GQA chemical grade						
	Good		Fair		Poor	Bad
	A	B	C	D	E	F
1990	0.8	16.6	37.1	26.1	17.2	2.2
2000	12.3	37.1	29.9	13.0	7.2	0.5
2005	8.6	37.9	29.0	13.9	9.9	0.7

Biological Quality

- 1.1.8 In the Anglian river catchment 77% of river length was of good biological quality in 2005 compared with 81% in 2000 and 59% in 1990. Between 1990 and 2005, 31% of rivers (net) improved in biological quality. Most of this improvement occurred in the first five years and the improvement since then has now levelled off.
- 1.1.9 In 2005, the percentage length of good quality rivers was above the England average of 71%. The Anglian river catchment experienced an rate of improvement to the England average of 31%.

Rivers and canals: % length in Anglia in each GQA biological grade						
	Good		Fair		Poor	Bad
	A	B	C	D	E	F
1990	19.5	39.9	30.9	6.4	2.9	0.5
2000	41.8	39.2	14.9	3.4	0.6	0.2
2005	39.8	38.8	16.2	3.9	1.1	0.2

- 1.1.10 In 2005, 59% of rivers had high concentrations of phosphate (greater than 0.1mg/l), compared with 68% in 2000 and 81% in 1990. Between 1990 and 2005, 37% of rivers (net) improved in phosphate levels.
- 1.1.11 In 2005, the percentage length of rivers with high levels of phosphate was well above the England average of 41%. However, they did experience a slightly greater rate of improvement over the England average in the same period (37% compared to 32%).
- 1.1.12 In 2005, 67% of rivers had high concentrations of nitrate (greater than 30mg/l), compared with 81% in 2000 and 57% in 1990. Between 1990 and 2005, 18% of rivers (net)

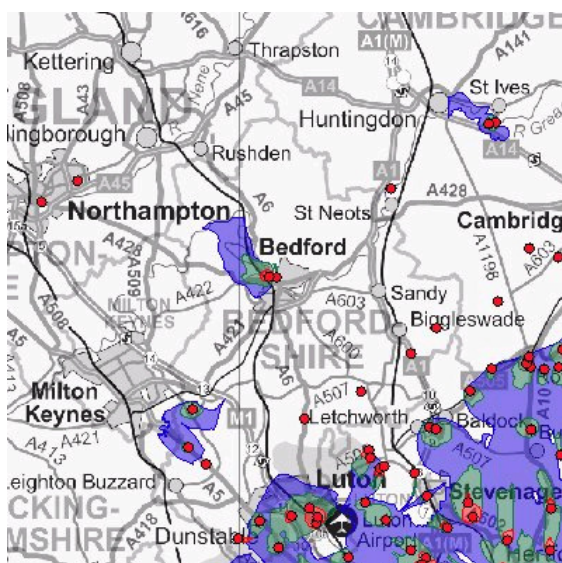
deteriorated in nitrate levels. Much of the deterioration occurred between 1990 and 2000. Since 2000 rivers have experienced a 21% (net) improvement in nitrate levels.

- 1.1.13 In 2005, the percentage length of rivers with high levels of nitrate was well above the England average of 32%. However, they did experience a slightly greater rate of improvement over the England average between 2000 and 2005 (21% compared to 12.5%).

Water Quality in Bedfordshire

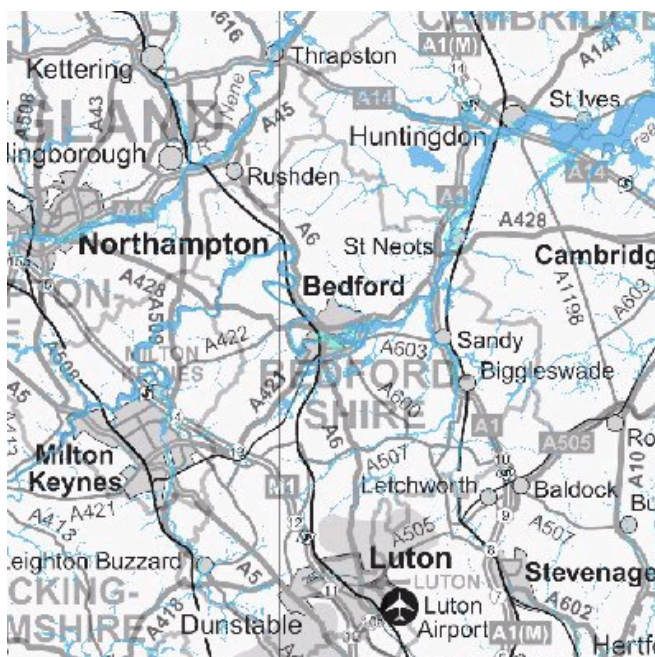
- 1.1.14 Bedfordshire County and Luton Borough falls within the Anglian Catchment area. Chemical and biological water quality information is not available at a county or borough level. However, according to the Bedfordshire Structure Plan 2011; River and canal quality is largely good and drinking water quality is improving at the tap, though not necessarily at source
- 1.1.15 The entire county has been designated a nitrate vulnerable zone.

Groundwater



- 1.1.16 Only a small part of Bedfordshire lies within a groundwater Source Protection Zone. These zones show the risk of contamination from any activity that might cause pollution in the area, the closer the activity, the higher the risk. The map shows three main zones, (inner, outer and total catchment).

Flood Risk in Bedfordshire



- 1.1.17 According to the Environment Agency; areas at risk of flooding are chiefly those adjacent to, or within a few hundred metres of the Counties rivers. Areas away from these rivers do not appear to be at risk.

Water in South Bedfordshire

- 1.1.18 Although water is not a dominant feature in the South Bedfordshire countryside, the Rivers Ouzel, Lea and Flit, the Grand Union Canal, the few remaining natural ponds and wetlands and the artificial lakes in gravel pits and quarries are important elements of the natural environment providing natural drainage and key wildlife habitats. They are also important in amenity terms and for their open space and recreation potential.
- 1.1.19 The water resource of the District is under pressure from a variety of sources, in particular agriculture, and urban development. The Environment Agency, British Waterways and the District Planning Authority are keen to avoid further exploitation and currently the following local planning policy will apply:
- 1.1.20 South Bedfordshire Local Plan (Adopted 2004) Review POLICY NE5 states that in considering applications for development in association with rivers, canals, watercourses and other bodies of water, the district planning authority (in consultation with the Environment Agency and British Waterways) will need to be satisfied that:
- The development is designed to provide for the conservation and enhancement of the natural environment of river corridors, canals, etc.
 - The development promotes public access for recreation where this can be achieved without environmental damage.

- 1.1.21 Development which will have an adverse impact on the environment and wildlife habitats of the river ouzel, lea and flit and their tributaries, the grand union canal, ponds, lakes and wetlands or which restricts public access to them will not be permitted.

Water in Bedford

- 1.1.22 Parts of the borough, particularly near to the River Great Ouse and the Elstow Brook, have a moderate (between 1 in 75 and 1 in 200) chance of flooding, although some limited areas have a significant (greater than 1 in 75) chance of flooding.
- 1.1.23 The water quality of the River Great Ouse is monitored for chemistry (organic pollution and dissolved oxygen), nitrate and phosphate. The latest data published is for 2002 and shows that the chemistry score was (B) good, whereas that for nitrate was high and that for phosphate was very high.
- 1.1.24 Anglian Water Services supplies and treats water in Bedford.

Water in Luton Borough

- 1.1.25 Three Valleys Water PLC supply Luton with mains water for both domestic and commercial premises. Luton is served by two different sewerage companies, who own and manage the network of public foul and surface water sewers. The river Lea flows through Luton. According to the Environment Agency, it scored grade D (fair) for biology in 2000, grade C (fairly good) for chemistry in 2001 and grade 4 (moderate presence of nutrients) for nitrates in 2001.
- 1.1.26 No flood information obtained for Luton Borough.

Water in Mid Bedfordshire

- 1.1.27 According to Mid Bedfordshire Local Plan: First Review: Deposit Draft Incorporating Proposed Modifications (PM). The River Great Ouse forms the administrative boundary of Bedford Borough and Mid Bedfordshire between Willington and Little Barford. The river is regarded as one of the County's particularly attractive features and is acknowledged as an important wildlife resource as well as providing drainage and flood protection. The river catchment area is also subject of the Bedford Ouse (Lower Reaches) Catchment Management Plan, produced by the former NRA (now the Environment Agency) which highlights concerns and proposed measures to assist management of the water environment of the river catchment.
- 1.1.28 To protect the attractive characteristic appearance of the riverside environment the Borough Council has defined 'River Protection Areas' based upon known floodplain boundaries, wherein development will not normally be permitted. To reflect the policies of the adjoining Bedford Borough Council and to ensure a consistency in local decision making, this Council has similarly defined a River Protection Area.
- 1.1.29 Anglian Water Services supplies and treats water in Mid Bedfordshire.

Issues associated with Waste Management

- 1.1.30 The Department for the Environment and Rural Affairs (Defra) has undertaken a review on the research available on the health effects of management of municipal solid waste and similar wastes (Defra, 2004), which included a study of emissions to groundwater and surface water. The substances investigated included nitrogen (which can promote the growth of unwanted algae); organo-tin compounds (which can affect fish and shellfish), phosphates, pentachlorophenol, copper, tin and lead. Information on these emissions is less widely available, and our estimates in this area were only of poor quality. Bearing this in mind, the rough estimates of emissions of substances which might be of concern are all a very small proportion of the national total. Releases to groundwater and surface water, unlike releases to the air, do not necessarily result in human exposure because mains water is treated before supply. Mains water has to comply with strict safety standards.
- 1.1.31 Some facilities (anaerobic digestion, pyrolysis/gasification, energy from waste and landfill) result in the generation of electricity. This means that we would avoid the need to generate electricity in other ways – for example, from burning coal, gas or oil, or from nuclear energy.
- 1.1.32 Landfill is the only significant source of emissions to sewer, surface water and groundwater.
- 1.1.33 All waste management facilities can potentially have impacts on the water environment through the release of leachate (landfill sites and compositing sites) or through the use and disposal of process / cooling water.
- 1.1.34 The plan should ensure that potential contaminated runoff from waste management sites and associated developments are considered, along with the impacts of waste developments on groundwater in their vicinity. The plan should have regard to PPS 25, through ensuring waste operations do not increase flood risk in sensitive areas, and through ensuring waste operations are not threatened by flooding. Liaison with the Environment Agency is recommended.
- 1.1.35 The WLDF will have a significant role to play in protecting and managing water resources. It is important that the issues and measures presented in the Water Framework Directive are considered and that any river basin management plans within the plan area are considered.
- 1.1.36 Only a small part of Bedfordshire lies within a groundwater Source Protection Zone, therefore these areas need to be protected from potential impact. The water resource for much of Bedfordshire is under pressure from a variety of sources, in particular agriculture, and urban development and the entire county has been designated a nitrate vulnerable zone.
- 1.1.37 The WLDF should be aware of all potential flooding and necessary adaptation issues in identifying and allocating sites for waste management activities. Areas at risk of flooding are chiefly those adjacent to, or within a few hundred metres of the Counties rivers. Areas away from these rivers do not appear to be at risk.

Trends

- 1.1.38 Water quality in the County is generally improving.

Scoping Consultation

Key Issues and Implications for Waste Planning

- Use and disposal of cooling water is an issue. However, energy from waste plants use very little water and do not discharge any emissions to water process and cooling.
- Need to encourage maximum reuse of "grey" water in any development proposals and incorporate sustainable drainage systems within new development to minimise flood risk elsewhere.
- The use of water in new developments should also be minimised. Minimise water use in new development.
- Need to consider the effects on water boreholes for public use - especially on the chalk aquifer in the south of the county. Luton, for example, is dependent on much of its public water supply on public boreholes. The plan should monitor effects on public water supply and public boreholes in the south of the county in particular.

Comments on the Objectives for the SA

- SA indicator - bullet point 3: the SA needs to consider whether the plan contributes to the reduction / minimisation of flooding elsewhere.

Relevant objectives for the SA

Taking into account all of the above information the following objectives and indicators have been chosen for the SA.

SA Objectives	Appraisal Questions: Does the plan...
<ul style="list-style-type: none"> • Minimise the risk of water pollution • Reduce vulnerability to flooding • To keep water consumption within local carrying capacity limits (taking account of climate change) 	<ul style="list-style-type: none"> • Impact on Groundwater Source Protection Zones? • Contribute to improving water quality? • Contribute to flooding anywhere in the catchment? • Cause changes to the availability of water in the area?

Sources of data

- Defra <http://www.defra.gov.uk/environment/water/iw/index.htm>
- EUROPA http://europa.eu.int/comm/environment/water/water-framework/index_en.html
- Environment Agency <http://www.environment-agency.gov.uk/maps/>
- English Nature
- Bedfordshire County Council www.bedfordshire.gov.uk/

- Luton Borough Council http://www.luton.gov.uk/internet/transport_and_streets
- Bedfordshire and Luton Biodiversity Action Plan
<http://www.ukbap.org.uk/lbap.aspx?id=369>
- Sustainability Appraisal of the Core Strategy and Rural Issues Plan
<http://www.bedford.gov.uk/bedford/planning/CS%20Scoping%20Report%20final.pdf>
- Bedfordshire Structure Plan 2011
- <http://www.bedfordshire.gov.uk/BedsCC/SDsps.nsf/Web/ThePage/Bedfordshire+Structure+Plan+2011>
- South Bedfordshire Local Plan (Adopted 2004) Review
- http://www.southbeds.gov.uk/Local_Plan/contentsfr.html

Data Gaps

- 1.1.39 No flood information obtained for Luton Borough. River quality statistics that summarise quality in the county as a whole cannot be found. Further consultation with EA required in order to obtain water quality data for county.