



Benefit/ Service – Diversity and quality of habitats and species

Who Does this Matter to/ At what Scale/ Level of Importance?

Maintaining the balance of nature is vital to the planet as whole, from the global level to the local. Conservation and enhancement of bio diversity is important for society as a whole for a number of reasons:

- stewardship – we owe it to future generations to leave the environment as rich as we inherited it
- self interest – natural processes help protect the planet (e.g. wetlands help to filter pollutants)
- economic value – wildlife provides a genetic pool for scientific (e.g. medical) research
- moral/aesthetic – the diversity of habitats & species enriches our lives and inspires artistic creation

Trend/ Is there Enough?/ Future Threats

Designated Areas

Ashford contains a number of Sites of Special Scientific Interest (SSSIs) and National Nature Reserves (NNRs) designated by English Nature because of their national importance for wildlife. Kent Wildlife Trust have also designated a number of areas as Sites of Nature Conservation Interest, owing to their county wide ecological value. Wye and Crundale Downs is proposed as a Special Area for Conservation (SAC) and is of European-wide importance. However, a key element of sustainable development is the protection and improvement of the range of species and habitats in the borough, not just those which are designated.

Key Habitats in Ashford Borough

The Kent Wildlife Habitat Survey identified a range of valuable habitats in the borough. Habitats of International Importance, found in Kent and in Ashford Borough include: Chalk Grassland, Grazing Marsh, Ditches and Dykes. Habitats of national importance include: Woodland and Scrub, hedgerows, lowland farmland and reedbeds.

Habitats of County importance include: Wood pasture and historic parkland, old orchards, hedgerows, low farmland, urban habitats, acid grassland, heathland and mire, rivers and streams, standing water (ponds) The survey recommends in particular the protection of semi-natural habitats in Ashford owing to their relative rarity in the borough, compared with the rest of Kent. These include: wetlands, natural woodlands, heathland, mire and traditional orchards.

In common with much of lowland England, there has been major habitat loss in Kent and Ashford. The following data derives from the Kent Bio Diversity Action Plan:

- *Woodland and Scrub:* (Kent contains 10% of the UK's ancient woodland). Ashford has the highest woodland cover of any Kent district. Throughout Kent, there has been a significant decline in woodland and scrub (by 10% or 3.314 ha between 1961 and 1990). Most losses have been due to agriculture and development, with significant losses next to urban areas.
- *Lowland Wood Pasture & Historic Parkland:* SE England has one of the highest proportions of Ancient Parkland in Europe (e.g. Kennington Park in Ashford Borough). Wood pasture habitat is declining due to conversion to other types of woodland/agriculture and lack of management.
- *Old Orchards:* 90% of Kent's traditional orchards have disappeared since the 1950s, due to agricultural intensification. Only 30% of remaining orchard cover in Kent is old/traditional orchards.
- *Hedgerows:* An estimated 25-35% of hedgerows in Kent are species rich and/or ancient. Approximately 30% of Kent hedgerows are in the Low Weald. National hedgerow loss is estimated at 5% pa, due to agricultural intensification, built development and neglect.
- *Lowland acid grassland:* This habitat is becoming increasingly rare in the UK.
- *Neutral and marshy grassland:* of County importance, declining in extent and quality

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- *Chalk grassland*: relatively rare in Ashford (except Wye and Crundale Downs)
- *Heathland and Mire*: Kent is on the eastern extremity of the main heathland blocks in the UK and a significant proportion of the Kent habitat is found in Ashford. Hothfield Common SSSI is of national importance.
- *Grazing Marsh*: Romney Marsh has lost 48% of this habitat in the last 60 years.
- *Reedbeds*: net loss of 5-10% in the UK between 1979 and 1993
- *Rivers and Streams*: the Stour is one of 5 main catchments in Kent. Low flows and pollution are putting pressure on bio diversity. The South Willesborough dykes are designated as a Site of Nature Conservation Interest and managed as a Green Corridor.
- *Standing Water*, significant decline due to drainage schemes and agricultural intensification. To an extent this has been compensated by numerous gravel lakes in the Stour Valley (e.g. Coningbrook) but wildlife takes time to become established and there is scope to improve standards of restoration.

Habitats supporting threatened species

Kent and Ashford are home to a diverse range of species. The Kent Biodiversity Action Plan Steering group have produced a short list of those globally threatened and declining species which occur in Kent as well as a long list, and have included particular species in the Biodiversity Action Plan, and prepared species action plans for them. The occurrence of these species will have serious implications for new development, should it affect the preferred habitats of these species. These are tabulated opposite:

Species	Preferred Habitat
Water Vole	Rivers and streams, bankside vegetation
Otter	Rivers and streams, bankside trees, scrub and tall vegetation
Dormouse,	Semi-natural broad-leaved woodland, hedgerows
Serotine Bat	Buildings, mixed Farmland, parkland, hedgerows
Great Crested Newt	Ponds, pasture, rough grassland
Allis and Twaite shad	Rivers
White clawed crayfish	Rivers and streams
Nightingale	Woodland and scrub
Heath Fritillary Butterfly	Open areas in woodland
Pearly bordered Fritillary	Open areas in woodland
Silver spotted skipper	Chalk grassland
Early gentian	Chalk grassland, disturbed ground
Late Spider Orchid	Chalk grassland

EN Natural Areas in Kent (Ashford)

English Nature's Natural Areas Strategy sets out clear objectives for the maintenance of species and habitats, based on national priorities. Based on this Strategy, natural areas occurring in Ashford for which priority habitats have been identified are set out in the table which follows, along with priority species.

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Natural Areas	Priority Habitats	Priority Species
North Downs	Chalk grassland and scrub, chalk rivers, woodland, arable weed communities	Early gentian, silver spotted skipper, brown hare, dormouse pipistrelle bat, white clawed crayfish, water vole, great crested newt, pearl bordered fritillary, stag beetle.
Wealden Greensand	Lowland Heathland woodland	three lobed water crowfoot, dormouse, pipistrelle
Low Weald	Hay meadows, mesotrophic lakes	brown hare, dormouse, GC newt, otter, fritillary, pipistrelle, water vole
High Weald	Hay meadows, lowland heathland, woodland	Brown hare, dormouse, devil's bolete, Great crested newt, fritillary, pipistrelle, water vole, three lobed water crowfoot
Romney Marshes	grazing marsh, reedbeds	Brown hare, Great crested newt, otter, water vole, shrill, carder bee

Substitution Options/ Opportunities

Some habitats take centuries to produce and cannot be replicated (e.g. ancient woodlands). Other species may take thousands of years to evolve but then can be wiped out very quickly. Bio diversity cannot be created quickly, in some cases not at all. Development which is adjacent or in close proximity to important sites can have an adverse impact on the integrity of the site. Similarly, development which impacts on the connectivity between habitats can also have adverse effects on bio-diversity. The impact of development on bio-diversity thus needs to be addressed in terms of the wider environment.

However, not all habitats are completely unsuitable for development. Where development is carefully planned it can coexist with certain types of habitat (e.g. woodland, standing water). The creation of buffer zones surrounding key habitats may enable compatibility to be

realised in some cases. Some habitats are capable of being recreated. Where other sustainability criteria are met, development on such sites and the replacement of such habitats elsewhere (preferably locally) may be appropriate. It should be noted however, that this does not imply that these habitats are expendable. In all cases detailed investigations will be required to assess species supported and whether these habitats are substitutable.

It is helpful to rank the relative bio-diversity importance of different habitats as an **indicative** basis for determining future development potential. The methodology for determining relative bio diversity in Kent assesses habitats²⁹ based on quality, extent and diversity of semi-natural habitats. The Kent Bio Diversity Action Plan develops habitat action plans, based on the quality, extent and diversity of semi-natural habitats. These two data sources have been combined to rank habitats in and around Ashford town and are shown on the accompanying map. The analysis concentrates on the area immediately surrounding the town rather than the whole Borough, as these areas are the most likely to be affected by urban expansion.³⁰

In order to determine relative importance, habitats were categorised through an assessment of their bio-diversity benefits. All designated sites such as SSSIs and National Nature Reserves, as well as County designated Sites of Nature Conservation Interest were considered to be of significant benefit, and classified as category 1. It was considered that these habitats should not be compromised. The remaining habitats were assessed according to whether they are *important* habitat for particular threatened or declining species, or whether they themselves are threatened or declining. Those habitats that do not meet these criteria were considered to be areas of less bio-diversity benefit (category 4).

²⁹ Note this methodology excluded species.

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These remain important however, as they may support some threatened species, can provide important wildlife corridors, constitute buffers between development and key habitats as well as providing links between habitats. Further survey work will be required to ascertain their relative bio-diversity value.

Category 4. Areas of some bio-diversity benefit

- Amenity grassland
- Coniferous parkland and scattered trees
- Continuous bracken
- Ephemeral/short perennial
- Mixed plantation woodland
- Plantation broadleaved woodland
- Plantation coniferous woodland
- Recently felled broadleaved woodland
- Scattered scrub
- Tall ruderal

Threatened or declining species/habitats were then evaluated to consider whether their bio-diversity benefits could be re-created, so that any loss to these habitats may be offset by the creation of habitats elsewhere. These habitats were considered to be potentially substitutable, subject to further detailed investigation.

Category 3. Areas of bio-diversity benefit which could be substituted

- Broadleaved parkland and scattered trees (except where mature/veteran trees are extant)
- Dense continuous scrub
- Semi-improved neutral grassland
- Semi-improved neutral grassland with Mixed plantation woodland
- Semi-improved neutral grassland with Scattered shrub

Habitats providing benefits which are not considered substitutable, were evaluated to determine whether they could be incorporated into

development, without compromising their bio-diversity benefits (category 2). It should be recognised that these can constitute an important part of habitat mosaic. Where design looks to incorporate such habitats, consideration should be given to long term protection and management of the habitats incorporated, for example as part of a “green grid” or the inclusion of buffer areas.

Category 2. Area of biodiversity benefit that could be incorporated into development without compromising benefits (subject to appropriate design of development)

- Mixed semi-natural woodland
- Running water
- Semi-improved acid grassland
- Semi-natural broadleaved woodland
- Standing water
- Hedgerows

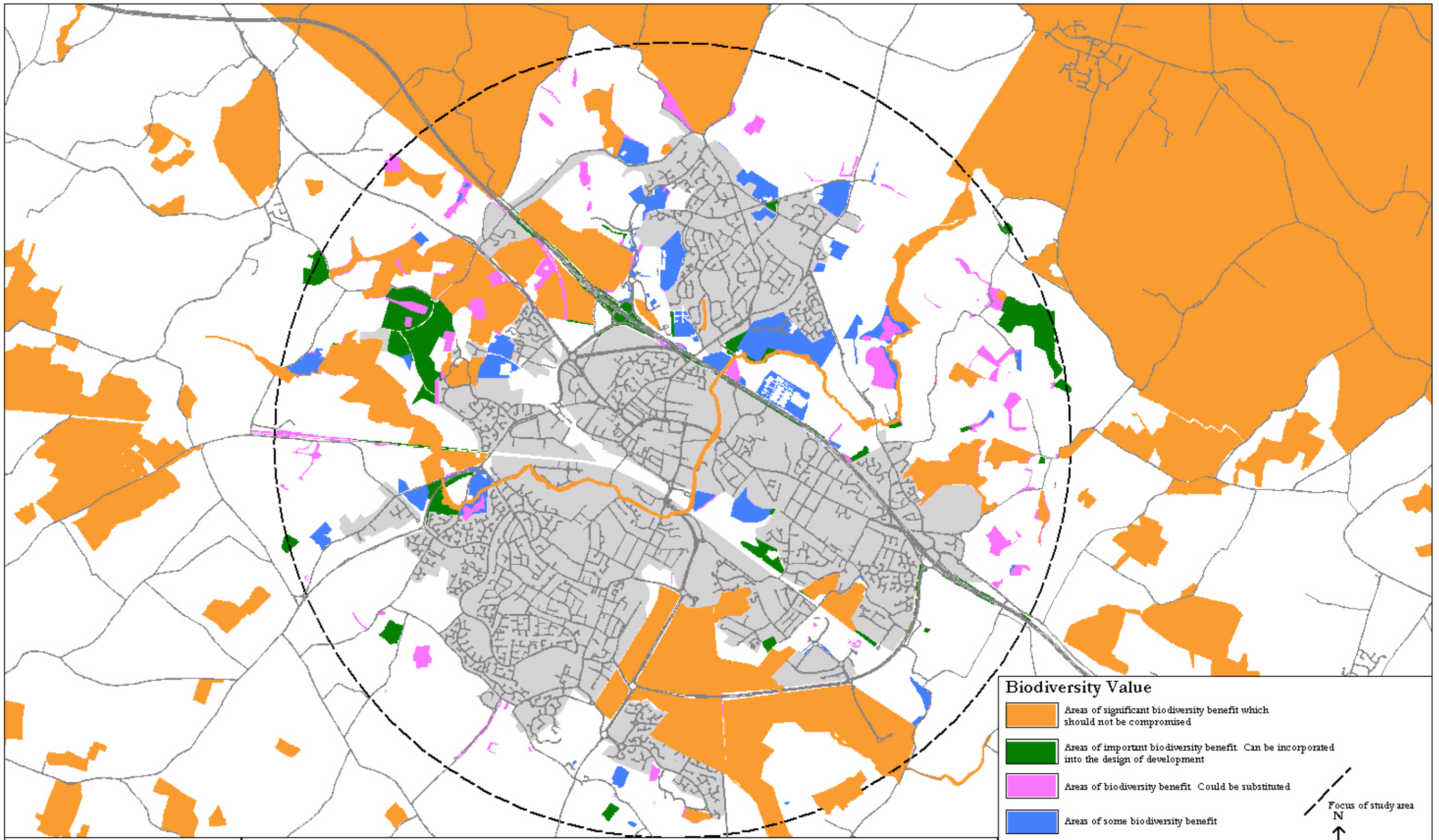
The remaining habitats which it was considered would be difficult to incorporate without the loss of bio diversity benefits were then ranked as being areas of significant benefit which should not be compromised (category 1), along with designated areas.

Category 1: Areas of significant bio diversity benefit

- Acid/neutral flush
- Inundation vegetation
- Marsh/marshy grassland
- Marsh/marshy grassland with Plantation broadleaved woodland
- Unimproved acid grassland
- Unimproved neutral grassland with Plantation broadleaved woodland
- Ancient Woodland
- Old Orchards

These areas are shown on the accompanying Bio Diversity Plan. Linear habitats such as hedgerows and running water were deemed to be of high bio diversity value and as such are considered to be

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Biodiversity Value

- Areas of significant biodiversity benefit which should not be compromised
- Areas of important biodiversity benefit. Can be incorporated into the design of development
- Areas of biodiversity benefit. Could be substituted
- Areas of some biodiversity benefit
- Urban area

Focus of study area
N
↑
Scale: 1 : 37,500

Biodiversity Benefits

Note: Biodiversity benefits are only mapped inside the study area. More detailed investigations on a site specific basis may lead to a re-categorisation of biodiversity values. The plan should not be used for development control.

ASHFORD'S FUTURE
Ashford's Capacity : A Handbook for Change

January 2002

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Category 2 as they could potential be included as part of development. However, owing to the scale of the map provided, these may not be clearly shown. Note also that those categorisations indicated in the plan only apply to habitats: there are other important environmental assets which would render development unsustainable, e.g.: flood risk, landscape.

Management Aims and Implications

Categorisation of habitats helps clarify management objectives towards protection of important bio diversity benefits and to focus attention on the least damaging of development options. It is important to note that where a habitat is categorised as being capable of being incorporated into development, the detailed design of the development **must** include measures to protect and manage the featured habitat over the long term.

Before substitution is considered, detailed site investigations will be required. Likewise measures must be in place to ensure that habitats which are to be substituted are genuinely replaced elsewhere, at the developers' expense.

Good Practice Example: Milton Keynes Parks Trust
 The Milton Keynes Parks Trust was set up and endowed by royalties from the Development Corporation. The Trust manages 1/5th of the land area of Milton Keynes for landscape and bio-diversity purposes and has successfully incorporated SSSIs, ancient semi-natural woodland, Ancient Monuments and Listed Buildings within the development area and managed them for public access and interpretation. The Trust maintains that the bio-diversity of Milton Keynes is as great or greater than it was when the site was farmland.

In the longer term, "habitat banks" may be considered to manage the process of habitat substitution and integration. These would need to ensure the creation and consolidation of new quality habitat in defined areas, including provisions for long term management and

community access. This mechanism would allow local authorities or some other form of Trust to assume responsibility for habitat substitution and management, but funded by developer contributions. This would help to ensure linkage and integration between different schemes, as well as qualified supervision and management skills. A habitat bank would facilitate environmental enhancement, as well as protection, and help to ensure that over time development actually contributes to bio diversity through appropriate substitution and improved management. This may require an extension of the scope of section 106 agreements (planning gain) to include a wider interpretation of development impact.

In all cases in which habitat substitution or incorporation is contemplated as part of development, the following management aims should be adopted:

- damage to bio diversity should be avoided wherever and as far as possible
- damage which cannot be avoided must be clearly justified by a need for development which outweighs the damage which will result
- unavoidable damage should be reduced to a minimum through mitigation measures
- any residual damage which cannot be avoided or mitigated should be compensated for, preferably in a relevant local context and in ways which meet social and economic objectives

Measures	Mechanism/ Agency	Time Frame
Ground truthing of habitat categorisation	Categorise sites in Local Plan & afford appropriate protection	Local Plan Review
Promote better management of protected areas	LPA, KCC, English Nature and others	ongoing

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Measures	Mechanism/ Agency	Time Frame
<i>Policy Change at National Level</i>		
Current review of planning obligations (section 106 agreements) offers opportunity to expand scope to include habitat substitution and management, particularly where development is likely to impact on bio diversity.		

Headline Indicator

Extent and condition of key habitats (Bio diversity Action Plan targets)
Effective management of valued areas
Condition of SSSI

Key Links

Landscape
Flood Plain
Agriculture



Benefit - Drinking Water

Note that there are critical links between water abstracted for drinking water supply, water quality issues, flooding and wider environmental considerations.

Who does this matter to?

- Environment Agency – charged with overall responsibility for co-ordination and management of water resources in the Southern Region
- Mid Kent Water - charged with statutory responsibility for the provision of drinking water in Ashford
- Southern Water – responsible for water treatment in Ashford
- All residents, businesses and organisations in Ashford to whom minimum healthy supply is literally vital for life.

Trend/ Is there Enough?/ Future Threats

Based on development allocations in the current Ashford Local Plan, short term demand to 2005 can be met. However, in the medium to longer term, there are indications that water quality issues and wider environmental issues are likely to inhibit the availability of drinking water.

Mid Kent Water's current Water Resource Management Plan indicates sufficient supply to 2025, based on current consumption trends, and average dwelling increase of 700 units per annum. These projections take into account the effects of domestic water metering and limited demand management. The peak week (during the dry summer) is the critical period and a supply/demand deficit is anticipated by 2009-2010. The proposed solution to this deficit is inter-resource zone transfer schemes and groundwater enhancements within existing licenses. However the prudence and sustainability of such technical fixes beyond the short term is questionable. The supply of drinking water will be constrained by the Environment Agency's National Environment Programme and Catchment Area Management Strategy, aimed at restoring low flows in rivers, including the Stour which will continue to be adversely

affected by ground water extraction. The EA's low flow alleviation programme will reduce the amount of water available for extraction for domestic purposes in the medium to long term.

Further pressures are exerted by increasing household consumption trends. Mid Kent Water estimate that per capita daily consumption is increasing by more than 1 percent per year.³¹ Since the same drivers of increasing demand and reducing supply are likely to operate throughout the south-east of England, it would be unwise for one part of the region to assume it can bridge the gap by importing water from others. Furthermore the review of Mid Kent Water's Water Resource Management Programme shows metering to have fallen below the OFWAT target of 28.9% for 2000/2001. Mid Kent Water are not optimistic about achieving the 5 year total of 39% penetration by 2004/2005, with potentially adverse consequences for average household water consumption (see below for metering).

Average Household Water Consumption ³²		
USE	% ³³	l/day
Toilet flushing	35%	175
Baths, showers and hand basins	28%	140
Kitchen sinks	15%	75
Washing machines	12%	60
Outdoor taps	6%	30
Dishwashers	4%	20
Total	100	500 l/day³⁴

³¹ This is consistent with other research commissioned by the Institute of Hydrology which indicates an anticipated 20% rise in per capita consumption between 1991 and 2021 (source: www.environment-agency.gov.uk).

³² This does not take account of increased demand as a consequence of climate change

³³ Water for Growth – a Fair Share? Regional Consultation by the Environment Agency May 2000

³⁴ Mid Kent water estimate the average household daily demand in Ashford to be 500 l/household/day

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Climate change will have a further impact, reducing supply and increasing demand particularly during the peak summer periods. Research commissioned by the Institute of Hydrology indicates that local warming will potentially result in a 5% increase in per capita demand by 2021. Components which are anticipated to face particular demand pressures as a consequence of local warming include: Outdoor taps (for watering gardens and lawns) and showers.

Substitution Options/ Opportunities

Substitution options include:

- (a) Alternative/ new supply
- (b) Reduction in demand in new development itself and/or retrofit in existing development

Restrictions on further ground water extraction in the Stour catchment to be imposed by the National Environment Programme will limit future supply from ground water sources³⁵. The potential for strategic transfers from other areas is also limited, given levels of growth throughout the South East. The longer term options include the raising of Bewl Reservoir (and potentially the development of Broadoak Reservoir). However, the lead in time for this is likely to be after 2011 and these schemes are likely to have environmental impacts. The transfer of water from these sources will also have cost implications for new development which will be passed on to the developers and paying customers.

Good Practice Example: Beddington Zero Energy Development (BedZED)

- BedZED aims to cut household mains water consumption by a third by:
- Installing water-efficient appliances such as washing machines
 - Using lower-volume baths and fitting taps with water-saving flow restrictors
 - Installing 'dual flush' toilets (this alone could save an estimated

³⁵ There is a close link between ground water extraction and water quality (see section on water quality).

- 55,500 litres of water per household per year).
- Making the most of rainwater: it is predicted that nearly a fifth (18%) of daily water consumption at BedZED will be met from rainwater and recycled water, stored in large tanks built into the foundations.
 - Highly-visible water meters in the kitchen to encourage water efficiency.
 - A handbook for every household with tips on reducing water use.

Source: BedZED website: www.bedzed.org.uk

Demand reduction can reduce pressure on water resources and can be implemented through a range of methods, including:

- Promotion and reward of waste-avoiding behaviour, e.g. through metering and tariffs
- Water saving methods such as grey water recycling and rain water collection
- Installing water-efficient equipment and appliances

Best Practice Example: Greenwich Millennium Village

Promoters of the Greenwich Millennium Village have taken the opportunity to set innovative standards for sustainable urban development, promoting the Village as a model project that will influence future actions taken by developers, investors, consumers and government. Target 3 is to reduce water consumption by 30%. This is to be achieved gradually through each phase with a forecast reduction from current consumption by 10% during phase 1, 20% during phase 2, 25% at phase 3, and 30% at phase 4. The intention is that developments will be required to meet performance targets before the next phase can begin.

Innovations necessary to achieve this include:

- Water efficient taps and cisterns
- water metering
- Water efficient appliances
- Irrigation from collected water
- Grey water recycling

Source: Greenwich Millennium Village Master Plan Datasheets

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- *Metering and tariffs*

In studies carried out by Mid Kent Water, metering has resulted in a reduction of approximately 7-8% in water consumption in new housing development. Southern Water's compulsory metering of 90% of customers on the Isle of Wight resulted in significant reductions of up to 20% of which 10% was due to reduction in consumption and 10% due to leakage control.

Mid Kent Water operate a system of compulsory metering for new properties in Ashford. However, the Water Act 1999 restricts compulsory metering of existing properties. Mid Kent Water operates a subsidised domestic meter option scheme for existing properties in Ashford. Currently the metering technology prevents the introduction of tariff structure although this is a prospect in the long term, provided the needs of disadvantaged households are taken into account.

- *Water saving technology*

Green technology can take a range of forms, including grey water recycling, non-water toilets, rainwater collection and water efficient appliances and taps. It is considered that the impacts of grey water recycling and alternative technologies such as water-free composting toilets will be restricted in the short to medium term by current levels of reliability and hygiene, smell and fouling problems as well as public acceptability. The EA considers that grey water recycling is unlikely to be a realistic option until post 2010, when it is assumed public health aspects will be resolved³⁶

However, rainwater collection is a feasible option as part of new development and will have particular benefits in respect of alleviating the impacts of climate change on overall demand. This might take the form of cisterns in the basements of new buildings or outdoor storage tanks. It is considered that the financial and space costs to new development will be minimal. However, potential constraints on

³⁶ EA (2001) Water Resources for the Future: Strategy for the Southern Region page 63.

implementation include limitations of LPA powers and difficulties in ensuring maintenance and replacement.

- *Water efficient equipment and appliances*

Although an option, this also has potential problems relating to local planning authority powers of implementation and long term maintenance and replacement. The potential impacts of water saving technology and water efficient equipment/ appliances on typical household consumption patterns are set out in the following tables.

Similar measures are applicable to 'domestic' water uses in commercial buildings, with potential advantages of scale. Some industrial processes use water heavily for washing or cooling: dramatic savings are often possible through for example, replacing linear with 'closed loop' water cycles.

Use	% total consumption	Alternative Technologies and Potential Savings
Toilet flushing	35%	Low flush toilets can save 30 l/day ³⁷ (15%) Dual flush toilets savings potential = between 45 and 150 l/day ³⁸ (25% or more) Hippos can save 30% ³⁹
Baths, showers & hand basins	28%	Fit lower volume baths and low volume taps with flow restrictors/ spray taps ⁴⁰ resulting in saving of 50-70%.
Kitchen sinks	15%	Fit taps with water restrictors/ spray taps 50-70%

³⁷ EA (2001) Water Resources for the Future: Strategy for the Southern Region page 76

³⁸ High estimate based on an assumed saving of up to 55,500 litres of water per household per year. Source BedZED website (www.bedzed.org.uk). This is probably too optimistic. That the EA/Southern Water Dual flush project indicates flush volume reduction of 25% (see Water for Growth – a Fair Share?, p 34)

³⁹As reported by the EA in Water for Growth – a Fair Share?, p 28

⁴⁰ The EA reports the manufacturers claim that spray taps can reduce water use by 60-70%, while flow restraint taps can save 50% of normal consumption % (see Water for Growth – a Fair Share?, p 28).



Washing machines	12%	Install water efficient appliances which can reduce volumes to 50 l per cycle ⁴¹
Outdoor taps	6%	Rainwater collection tanks/ water butts for rainwater harvesting. Savings up to 100%
Dishwashers	4%	Install water efficient appliances.
Total	100	

With the introduction of a combination of these water saving options, it is estimated that demand in new developments can be reduced by between 25-45%⁴², as indicated in the table which follows.

Use	% savings	Potential Savings (l)
Toilet flushing	15-30%	25 –50
Baths, showers & hand basins	50-70%	70-100
Kitchen sinks	50-70%	35-50
Washing machines	5-10%	3-5
Outdoor taps	Up to 100%	0 – 30
Dishwashers	5-10%	1-2
Total savings, based on average household consumption of 500l/day		134 – 237 litres/ household/day

However, given the likely impacts of climate change, a realistic target for demand reduction in domestic consumption is probably in the region of 30% in the short to medium term. In the longer term, there is the potential to introduce grey water recycling which on its own has the potential to result in cumulative savings of up to 35%⁴³. The extent to which this technology has the potential to impact on existing

⁴¹ See EA Water Resources for the Future: Strategy for the Southern Region page76

⁴² Greenwich Millennium Village aims to reduce consumption by 30% of conventional use.

⁴³ Based on figures provided for Greenwich Millennium Village.

development in the absence of supportive measures is likely to be minimal.

Depending on the type and location of development, retrofitting rainwater recycling systems to existing properties will often be prohibitively expensive or unacceptably awkward. Nevertheless, a 'hippo' or similar volume-reducing object in a cistern can save up to 5% of a household's total water consumption at a cost of under £1 and is easy to install. This can be positively promoted by the local planning authority, the water companies and through agreements with developers to subsidise the provision of hippos and meters to existing households. In the longer term, equipment and appliances might be replaced with more water efficient equipment with the aid of metering and tariffs. The use of mains sizing/ pressure and loft tanks as a mechanism to control supply rate (particularly during peak periods) is a further option. However, the water providers' ability to affect this is limited by their statutory duty to provide water, based on peak requirements which necessitates the provision of a minimum pressure.

Management Aims

In view of the existing environmental constraints on water abstraction, the fact that development already planned for will increase demand, and the likelihood that climate change will cause increased demand and reduced supply, planning for any further increase in water consumption in Ashford is imprudent. The analysis above points to a management aim that all future development should be 'water neutral' - that is, using a combination of on-site and off-site measures to achieve no net increase in water consumption. This has been shown to be technically possible for individual houses in areas with lower average rainfall than Ashford. This is however more ambitious than some stakeholders feel comfortable with. Thus there is a clear need for political decisions to be taken as to how far this aim should be achieved. It is considered that any move in the directions outlined will be positive, but that the extent to which demand can be reduced will have an impact on the levels of future growth that can be sustainably accommodated.

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It is suggested that with increasing population, reducing per capita consumption can go some way to delaying the need for major infrastructure investment, but unless such development is 'water neutral' such investment cannot be put off indefinitely. However, it is proposed that in the short to medium term demand reduction of 30% may be achievable in new development. Based on Mid Kent Water's current Resource Plan predictions, this could extend the water resource capacity beyond 2025 to 2030⁴⁴ OR permit an increased rate of development, for example by 30% to 900 units per annum until 2025. However, Mid Kent Water's Water Resources Plan predictions are based on an enhancement of 1.8Ml/day on peak from the Kingston source in 2006 and on transfers from other regions. This is likely to be incompatible with the objectives of the National Environment Programme and may not be sustainable. Moreover, climate change will place increasing stresses on regional supply, and could undermine the potential for water transfers from other regions. This emphasises the requirement in the medium to long term to bring forward other options such as Bewl Reservoir.

Short term:

- To achieve a reduction in average per capita water consumption in new and existing development

Short to Medium term:

- To further investigate, test and promote water saving technology
- To achieve a review of legislation that supports demand reduction

Medium Long term:

- Smaller scale local options should be considered, including for example multi-functional headwater storage.
- To investigate the feasibility of increasing water supply capacity without damaging important environmental benefits e.g. the raising of Bewl Reservoir and Broadoak Reservoir.

⁴⁴ This is based on a crude calculation based on Mid Kent Water's Resource Plan which assumes that growth is constant at 700 dwellings per annum, and that a 30% decrease in water consumption is achievable in new developments.

Measures	Mechanism/ Agency	Timing
<i>Establish Clear Link between Development and Resource Efficiency</i>		
Link acceptable housing numbers to water efficiency	Incorporate into plan monitor and manage, as part of RPG, Structure Plan and Local Plan Review and Water Company Strategies by SEERA, KCC, ABC and Water Companies	
<i>Technological advances necessary</i>		
Further investigation, testing and promotion of green technology through pilot schemes	EA, water companies and LPA	Short to Medium Term
Introduction of scaled tariffs	Water company to investigate feasibility and technology requirements	Long term
Reduce average household consumption by 20-30% in new development	To be promoted by the LPA through local plan policies, development briefs, developer agreements, with the support of the EA & water companies. Phasing of development with water saving targets whereby developer is given "credits" when targets are met, allowing the next phase to go ahead. To be promoted by the LPA with support of water companies	Short term. To be increased in the longer term
<i>Marketing and promotion</i>		
Demonstration projects	ABC, HC, Water Companies: to develop demonstration projects setting high targets for Ashford,	
Promote water efficient appliances	Marketing and promotion by all government departments/ agencies	
<i>Impacts on existing properties</i>		
Metering and backfitting of existing properties with hippos	Developers to fund as part of development agreements. To be promoted by the council, supported	Short term

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Measures	Mechanism/ Agency	Timing
	by the water companies	
Retrofitting of existing urban area	LPA, EA and MKW to examine potential for 'retro-fitting' water saving devices in conjunction with a package of incentives. This will require a review of regulations and relates to developer obligations issues raised in the Planning Green Paper.	
<i>Legal and institutional changes at the national level</i>		
Compulsory metering for all households	Changes to the Water Act 1999- OFWATT, EA and water companies	Medium term
Use of mains sizing/ water pressure to control demand	Changes to the Water Act 1999 Change to the Water (Supply and Fittings) Regulations - OFWATT, EA and water companies	Medium to long term
Switch to water efficient taps	Change to the Water (Supply and Fittings) Regulations	Medium Term
Water efficient technology/ appliances	LPA, EA, Water companies and regional authorities to press for changes to Building Regulations	Short Term
<i>Legal and institutional changes at the national level</i>		
Compulsory metering for all households	Changes to the Water Act 1999- OFWATT, EA and water companies	Medium term
Use of mains sizing/ water pressure to control demand	Changes to the Water Act 1999 Change to the Water (Supply and Fittings) Regulations - OFWATT, EA and water companies	Medium to long term
Switch to water efficient taps	Change to the Water (Supply and Fittings) Regulations	Medium Term
Water efficient technology/ appliances	LPA, EA, Water companies and regional authorities to press for changes to Building Regulations	Short Term

Headline Indicator

Household water consumption

Key Links

Biodiversity
Flood plain
Water Quality



Benefit/ Service – Clean Water

Who Does this Matter to/ At what Scale/ Level of Importance?

Clean water is vital to human, animal and plant life

- The EU has issued a range of directives which impact on water quality⁴⁵
- The UK government is responsible for implementing water quality standards pursuant to EU directives
- The Environment Agency has responsibility for ensuring the quality of ground and surface waters
- Southern Water Company has responsibility for waste water treatment
- water is a vital input to industrial and agricultural activities, and water quality has direct implications for aquatic bio-diversity

Water quality (treatment) and quantity (supply) issues are closely related, thus reference should also be made to the Water Resources section.

Trend/ Is there Enough?/ Future Threats

Current trends

Both the Stour and the River Beult (to the west of Ashford) currently provide limited baseflows relative to the amount of effluent flows which they accept. This places stresses on water quality in these rivers, particularly during the dry summer periods during which flows are further restricted. This is further exacerbated by abstraction which has an impact on base flows in the rivers.

⁴⁵ Including the Urban Wastewater Treatment Directive, Dangerous Substances Directive, Freshwater Fisheries Directive, Surface Water Abstraction Directive, and Habitats Directive. Implementation of the recently adopted Water Framework Directive will drive more stringent effluent quality standards.

The Bybrook Wastewater Treatment Works serves Ashford town and surrounding villages, discharging treated effluent into the Great Stour. Currently, treatment consists of biological filtration with chemical phosphate stripping. Designation of the receiving river under the Urban Waste Water Directive⁴⁶ requires 80% phosphate removal with reference to the water entering the works. The Agency sets maximum permissible concentrations⁴⁷ of suspended solids, biochemical oxygen demand and ammonia, all of which have an impact on aquatic life.

Average dilution of treated effluent is about five to one but can be as little as one to one during prolonged dry periods, owing to low flows in the receiving river. This is particularly acute during dry summer periods. Even though the quality of the treated effluent entering the river is generally considered to be satisfactory, the high discharge rates⁴⁸ result in significant pollutant loading to the river.

Compliance with the River Quality Objective targets for the Great Stour downstream of Bybrook was “marginal” for the three year assessment period between 1997 and 1999. This implies that the target is potentially not being met. In particular the dissolved oxygen saturation in the river is reported to be of concern. The EA indicate that the biological quality of the river has been under pressure since 1996. This may indicate that monitoring is not picking up events such as storm sewage discharges at the head of the works. Further downstream (near Godmersham) River Quality Objective targets are more onerous and are not being met consistently, partly due to effluent discharge from Bybrook.

⁴⁶ The river is a designated Sensitive Area under the Urban Waste Water Treatment Directive. This designation extends downstream to Canterbury.

⁴⁷ By means of the discharge consent.

⁴⁸ Note that because in practice, Southern Water cannot control the amount of waste water entering the sewerage system, the Agency focuses on control over effluent quality limits.



Background water quality is dependent on the management of upstream pollutant sources. Low dissolved oxygen are recorded upstream of Ashford and there is a recognised nutrient problem leading to weed choking in the River.

Infrastructure capacity

Southern Water indicate that there is sufficient capacity at Bybrook to accommodate development allocations in the Local Plan to 2005. Bybrook was not identified for improvement during the current period of water company investment (AMP3: 2000-2005). The Agency is likely to target the works for investment during AMP4 (2005-2010), based on the deterioration in biological quality in the river, the high risk of failing River Quality Objectives and discharge flow in excess of consented flow.

The existing sewerage network has Combined Sewer overflows and pumping station overflows to the Great Stour and East Stour, designed to spill to the river in wet weather conditions in order to prevent foul flooding of properties. The capacity and impacts of storm overflows have been examined by Southern Water and the Agency. However, funding for improvements has not been forthcoming from OFWAT owing to lack of evidence of a problem.

Future Threats

Further increases in Ashford's population will intensify pressure on water quality by increasing the quantities of effluent produced. In particular, the disposal of additional effluent to the Stour will threaten the phosphorous levels observed in the Stour⁴⁹. Climate change is expected to adversely affect baseflows (and hence water quality) further in the future.

⁴⁹ Pursuant to the Urban Wastewater Treatment Directive, the Great Stour is designated a "Sensitive Area" between Bybrook and Canterbury, requiring the removal of phosphorous from Bybrook effluent. Standards arising from other directives would constrain the quality of effluent in terms of substances such as metals, organic compounds and ammonia.

The lack of spare capacity at Bybrook and the existing sewerage network which has Combined Sewer Overflows and pumping station overflows to the Great and East Stour have particular implications for the timing and scale of growth beyond the Local Plan allocations.

Investment in the upgrade of Bybrook is only likely to occur after 2005. Upgrade is anticipated to have a lead in time of 2-3 years to bring on stream. The capacity of the upgraded Bybrook in the medium term will depend on the level of population growth anticipated and the water quality standards set by the Agency.⁵⁰ Southern Water has indicated concerns that currently available technology will place a ceiling on development growth and/or river quality.

Investment in reducing the environmental impact of combined sewer overflows remains a reactive process, with a lead in time of up to five years. This presents a further risk of short to medium term deterioration in water quality in the Stour.

Trunk infrastructure issues

Southern Water anticipates that the existing trunk infrastructure cannot accommodate flows associated with significant development to the south west of the CTRL, without additional trunk crossings of the railway. The construction costs involved will be significant (estimated at approximately £ 1 million per day). This cost will be passed on to developers. This suggests that if development was to occur south west of the CTRL, this would need to be of a threshold such that the cost can be borne by developers.

In terms of trunk infrastructure, brownfield sites are less easy to serve than development on greenfield sites. They require more careful consideration, as providing the trunk infrastructure capacity to serve development can be disruptive. If the urban capacity study

⁵⁰ Indications are that the non-statutory River Quality Objectives (RQOs) are to be revised upwards in the near future. Statutory Instruments arising from European Directives will place further restrictions on the disposal of effluent to surface waters.



identifies a significant grouping of sites within the present urban boundary, future development may necessitate significant improvement of the trunk infrastructure. This may be particularly disruptive to residents who have already been subjected to prolonged periods of inconvenience as part of the CTRL construction.

Substitution Options/ Opportunities

Clean water can clearly not be substituted. EU Directives are expected to drive more stringent water quality standards. Unless these standards can be met through appropriate measures to improve water quality in the Stour, this will have an inhibiting effect on Ashford's capacity to accommodate population growth. The range of measures to be considered in respect of water quality include:

- *Improvements upstream of Ashford*

The EA consider that in order to create the conditions under which discharges from Bybrook might be increased, it may be necessary to promote water quality improvements upstream of the works.

- *A new waste water treatment facility*

Depending on the standard of treatment required and the level of population growth anticipated, a new waste water treatment facility is likely to be necessary. The adjacent Beult catchment is not a suitable candidate as a recipient of effluent⁵¹. Such a facility is thus likely to discharge to the Stour. Southern Water's concerns as to the limitations and risks associated with water treatment technology remain a constraining factor. The lead in time for a new facility could be up to 10 years, and could involve considerable delay through the planning process, with implications for the timing of future development. Given the ramifications of the planning process, a high level of political support would be necessary to ensure planning approval was obtained.

⁵¹ Much of the Beult is an SSSI. The River is acknowledged to be eutrophic and stretches are failing to meet water quality objectives. There are already 13 waste water treatment works in this catchment, all of which are programmed to be upgraded before 2005.

Based on the costs of new works elsewhere, the cost of a new treatment plant could be in excess of £50 million⁵². This is a substantial amount. Given that new works are generally funded through income from customers, it is considered that the population served would necessarily be required to be of sufficient size to ensure that sufficient income can be generated to cover the cost of the works. The upgrade and expansion of the existing works may be the most realistic option in the medium term, provided this will permit the relevant water quality standards to be met.

- *Supplementing base flows*

An integrated approach to new development would include measures to improve the water quality of the Stour through supplementing base flows in the Stour. This may comprise a suite of potential solutions, including for example an attenuation pond (or series of ponds). The design, location and operational issues associated with such structures are a matter for further consideration. However, potentially this option could be used to supplement flows during dry periods by balancing flows from development, and supplementing flood storage capacity. Such a system would optimally be located in the Wealden Clay to the south or west of Ashford. Preliminary indications are that flows could be achieved which might positively affect water quality in the Stour during dry periods.⁵³ However, it is considered that the benefits of such a pond system would be difficult to realise through the development of dispersed brownfield sites, and thus are more likely to be associated with greenfield development in the medium to longer term.

⁵² Based on information provided by Southern Water on the costs of works at Ford (serving Bognor and Littlehampton).

⁵³ For example, it was considered that a system of lakes with a total area of 10ha and a depth of 2m might provide 200,000m³ of additional flood storage which could supplement base flows with positive impacts on water quality for up to 40 days during dry summers.



- *Other small scale site specific measures*

There is potential for the introduction of a number of smaller scale on-site measures that might be introduced as part of proposed developments, reducing stresses on water quality, e.g.: Reed beds

Good Practice Example: Wilden Marsh

Wilden Marsh, situated next to a beet sugar processing factory near Kidderminster, is a 37.5 ha area of natural wetland that has partially dried out over the last 15 years. A sugar factory has constructed a wetland system to clean its high ammonia wastewater to a standard such that it can be discharged to the marsh. The treatment process removes around 50% of BOD₅ and suspended solids. Four reed beds have been constructed on 12 ha next to the River Stour. The remaining 23.6 ha. of the site, together with 13.9 ha. of adjacent land owned by Worcestershire Wildlife Trust, was designated as a biological SSSI in 1971.



Wilden Marsh Reedbed

Management Aims and Implications

Improving the quality water of the Stour catchment is a high priority and has implications for the extent and timing of future development

in Ashford. Future development should be based on the capacity of the Stour to receive wastewater discharge without compromising water quality and the provision of the necessary infrastructure for wastewater treatment.

Capacity at Bybrook is a pressing issue which needs to be addressed immediately. Although a number of measures might be introduced which can enhance water quality in the Stour, the capacity to treat water generated by new development will be a key constraint after 2005. It is considered that upgrading of the waste water treatment works at Bybrook could satisfy effluent quality requirements, however other options such as aeration of the Stour may be more cost effective in addressing issues relating to low dissolved oxygen levels. It is considered that the key issue in achieving River Quality Objectives in the Stour lies in addressing low flow levels and the impacts on water quality from inputs (for example from diffuse sources and combined sewage overflows upstream of Bybrook). The Water Framework Directive (due to be incorporated into UK legislation by 2003) will drive this investment in river basin management programmes to start delivering environmental objectives by 2012 (to be met by 2015).

Thus future growth should be seen in the context of an integrated strategy for the Stour catchment which includes consideration of water supply issues, water quality flooding and environmental issues and comprises a combination of inter-related measures. This could build on the EA's Catchment Area Management Strategy. The scale and timing of any growth beyond the levels identified in the Local Plan will thus be determined by the achievement of water quality standards, which themselves require a range of measures and investment initiatives. It is considered therefore that an integrated strategy would comprise the elements set out in the table which follows.

WHAT MATTERS? WATER QUALITY



Measures	Mechanism/ Agency	Time Frame
Upstream water quality improvements	EA	Post 2005 (Part of AMP4)
Expansion and upgrade of Bybrook to improve effluent quality and capacity	EA/SW	Decision required imminently for construction to take place as part of AMP4 2005-2010
Potential new water treatment plant	EA/SW Significant political support necessary Income derived from customers	Decision required imminently – process likely to be long term to 2010
Supplement base flows in the Stour through an integrated pond system as part of new development	EA/LPA/developer contributions	Greenfield development post 2005
Funding for trunk crossing of CTRL	Southern Water/ Development Corporation LPA to include in LP	Post 2005
Changes to funding regime to allow problems associated with combined sewage overflows to be addressed in a proactive manner	OFWAT	Immediate

It should be noted that a new waste water treatment plant in Ashford is likely to require significant political will in order to overcome potential obstacles which may emerge as part of the planning

process. In respect of trunk infrastructure provision for the crossing of the CTRL, the implications are that future development south west of the CTRL will need to be of a threshold such that this cost of the trunk crossing of the railway can be recovered by developers. Secondly, future development will need to be co-ordinated in a strategic manner, so that the first developer is not solely responsible, but the cost can be spread between developers. A “development corporation” may be required in order to facilitate funding in advance.

Headline Indicator

Length of river of good or fair chemical and biological water quality
Baseflows in the Stour
Standards of effluent discharge

Key Links

Water Resources
Bio diversity
Floodplain



Benefit/ Service – Flood protection of life and property

Who does this matter to/ At what Scale/ Level of Importance?

- The Environment Agency has statutory responsibility for flood protection
- Residents and businesses in the floodplains of the Great Stour, East Stour and tributaries are prone to flooding
- Landowners/developers

The issue is of sub-regional importance as large areas of land to the south and east of the town are in the floodplain, and in particular some sites identified for future development.

Trend/ Is there Enough?/ Future Threats

Historically Ashford has been prone to severe flooding. Without intervention, flood risk is likely to increase as development pressure increases on or near the floodplain and climate change leads to warmer, wetter winters and more extreme weather events.

Areas of southern and eastern Ashford have traditionally provided flood plain storage on areas of grassland. As the floodplain has been developed storage reservoirs have been provided at Hothfield and Aldington, which provide retention of flood waters upstream of Ashford during flood flows, thereby reducing peak flows through Ashford. The EA reports that approximately 300 properties are protected from flooding from the Great Stour by means of these reservoirs. Excess floodwater is retained in the reservoirs by hydro-brakes which automatically restrict the discharge to 4 cubic metres per second, achieving a standard of protection to 1:100 years. However, it is considered that the East Stour and Great Stour remain at risk from flooding. Furthermore, the retention schemes do not have an impact on intense local events occurring downstream.

Canterbury and Ashford experienced high flows on the Great Stour during the heavy rains of November 2000. The principal source of high flows was the volume of rain falling over short periods onto

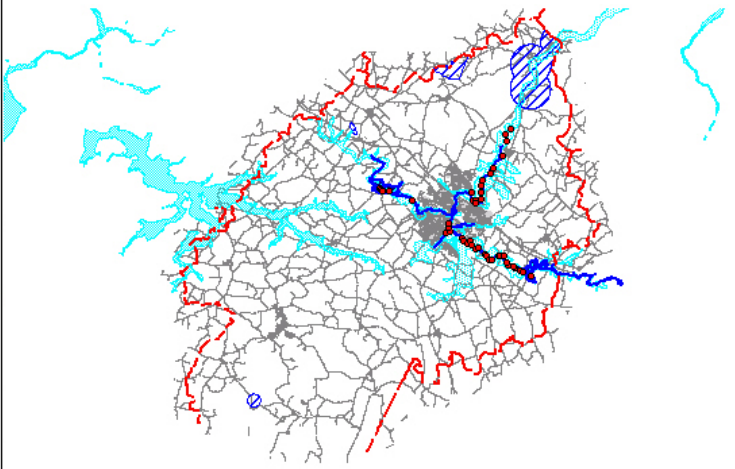
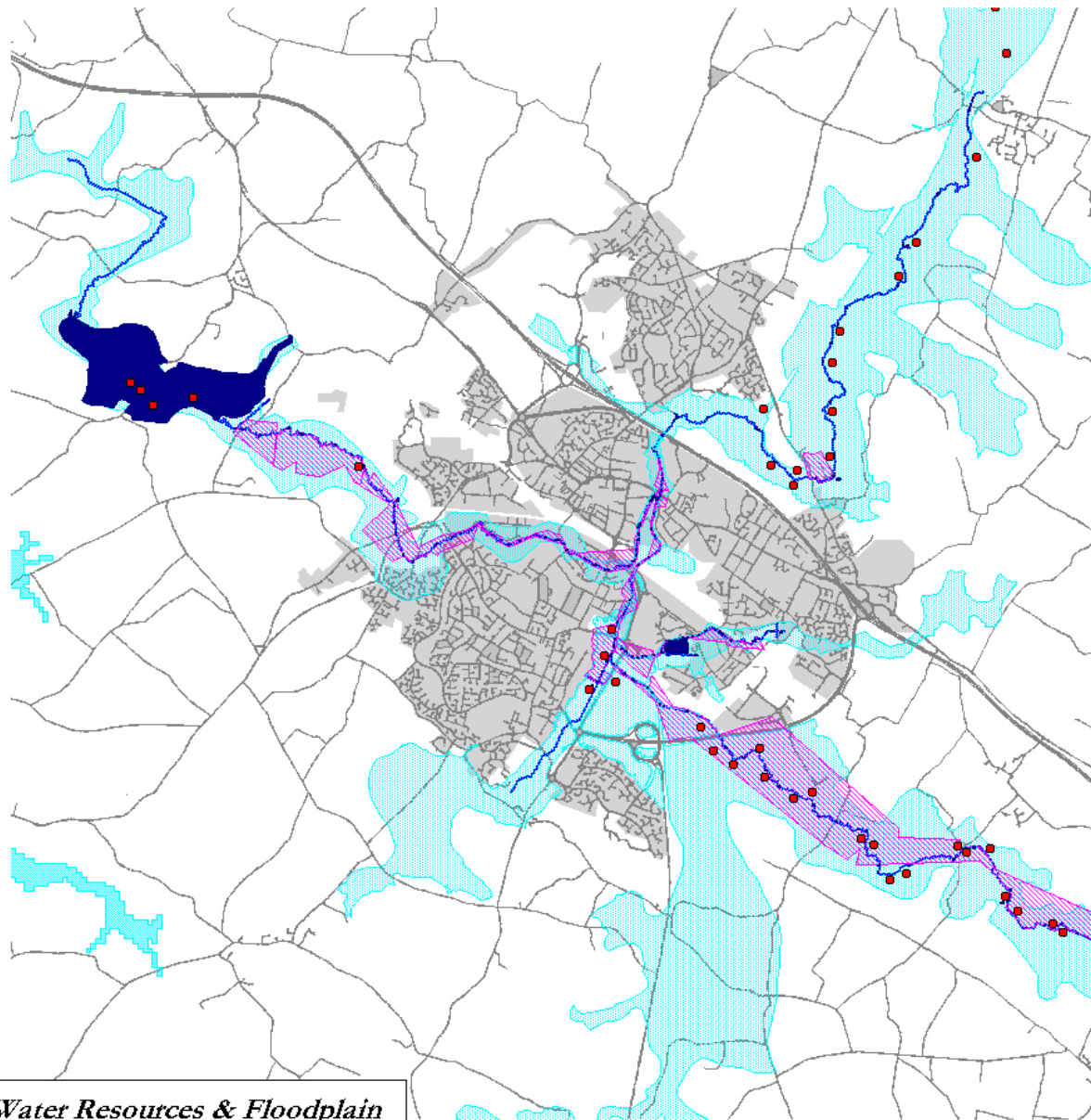
already wet and saturated catchments. Levels did not reach the point where emergency evacuation was necessary in these urban areas. However, the overflow resulted in 12 cubic metres per second being discharged over the spillway at Aldington Reservoir. The reservoir had only partially emptied following a previous event and both minor watercourses and main rivers overflowed their banks in places. Locations on which flooding occurred are shown on the Water Resources plan.

• Definition of Floodplain

The most up to date flood plain mapping currently available is based on a study undertaken in the 1980s. It depicts the indicative 1:100 year flood plain prior to the construction of the reservoirs. This is the best information currently available. The Environment Agency has commissioned consultants to undertake revised floodplain mapping of the Stour catchment as part of the section 105 mapping requirements. The standard of service of the existing defences is to be reviewed once the results of the Section 105 investigations for Ashford have been obtained. The results of the flood plain mapping are programmed for completion in March 2002 and will be incorporated in later stages of this study, if available.

The Environment Agency and the Borough Council have set the guidelines for the interpretation of floodplain extent as the “undefended” condition with an increase of peak inflows by 20%. The “undefended” condition is similar to the no maintenance case used in benefit cost analysis⁵⁴, in which it is assumed that all existing defences stop working. The “undefended” condition for Ashford assumes the full deterioration of the Hothfield and Aldington storage reservoirs. The 20% increase in inflow hydrographs is a common Environment Agency policy and it is the consequence of climate change studies and the investigation of recent rainfall patterns. However, it is also important to identify the flood extent for the “defended” condition assuming that the two storage reservoirs

⁵⁴ Flood and Coastal Defence Project Guidance Notes for DEFRA grant applications



Water Resources at District level

Scale: 1 : 3700

Water Resources & Floodplain

Water Resources

- Reservoirs
- Flooding in October 2000
- River
- EA Indicative floodplain
- Undefended floodplain (part)
(Source: Halcrow for CTRL)
- Major aquifers
- Urban area

N
↑
Scale: 1 : 5000



perform in accordance with their design specifications. This approach will provide additional information about the possible 1 in 100 year Flood Alleviation Scheme in place and has implications for brownfield sites in the town centre.

Various studies⁵⁵ have updated information on the floodplain in response to specific development proposals. The best currently available information on the area prone to flood risk is shown on the Water Resources plan. It is important to note that this data was originally constructed for the “defended” condition only; therefore not all the watercourse cross sections extend sufficiently far to show the “undefended” condition. The consequence is that the floodplain extent at these locations will only indicate that flooding occurs beyond that boundary.

Substitution Options/ Opportunities

There are a variety of technical solutions available to reduce flood risk, such as:

- flood defence works on river embankments
- flood storage areas or balancing ponds

Good Practice Example: Milton Keynes Balancing Ponds

The planned development of Milton Keynes has been accompanied by the creation of flood balancing structures on or by the Ouse tributaries which drain the area. These lakes have effectively protected the urban area from flooding and now have considerable wildlife and recreational interest; Willen Lake South receives over 1 million visitors a year and Willen Lake North is of considerable interest for migratory birds.

However, given the increased risk of extreme weather as a result of global warming, and evidence of increased flooding in recent years, it is prudent not to rely entirely on technical solutions but to adopt a

⁵⁵ For example, Halcrow, for RLE as part of the CTRL and International Terminal design works

precautionary approach to development in the floodplain, based on risk assessment, in accordance with recent government guidance⁵⁶.

This suggests that in high risk areas (i.e. probability of flooding of 1% or higher) the appropriate planning response should vary according to the land use status of the area:

- for developed areas (e.g. Ashford town centre) – these are suitable for residential, commercial and industrial development provided the appropriate minimum standard of flood defence (including suitable warning and evacuation procedures) can be maintained for the lifetime of the development
- for undeveloped areas (e.g. south and west of Ashford) – these are not suitable for residential, commercial and industrial development unless a particular location is essential, e.g. for navigation and water-based recreation uses, agriculture and essential transport and utilities infrastructure
- functional flood plain – these areas may be suitable for some recreation, sport, amenity and conservation uses (provided adequate warning and evacuation procedures are in place). Built development should be wholly exceptional and limited to essential transport and utilities infrastructure that has to be there

The risk based precautionary approach will ensure that new development does not increase flood risk. In the longer term it is prudent to plan for a reduction in flood risk via a programme of environmental management of river catchments. The challenge is to find solutions that will not only deliver flood protection but also help to restore the wildlife of rivers and floodplains. This can be achieved by better incorporation of environmental objectives into floodplain management, through strategic and co-ordinated planning and greater use of the natural water-retention capacities within the upper catchment and floodplain.

⁵⁶ DTLR 2001, PPG 25



Naturally-operating floodplain wetlands perform important functions such as water storage, flood alleviation and nutrient retention. The construction of more flood embankments can actually exacerbate flooding, with sudden releases through breaches, and, when river levels recede, flood waters can be trapped behind the banks. Retaining rainfall in the upper-catchment gathering grounds of rivers is important in moderating peak flows, by spreading them over a longer period. This will ease the pressure on urban flood defences. Ways of improving water retention include restoration to a more natural profile of canalised streams, and the re-creation of meadows, fens, pasture and wet woodland - all of which benefit biodiversity.

Good Practice Example: Ouse and Nene Washlands

The creation of washlands, into which river flows can be diverted, has been shown to be a cost-effective approach to flood alleviation in places where dwellings are not at risk. Their value in flood management is shown in places like the Ouse Washes, which were constructed to protect Bedford from flooding, and the Nene Washes, which afford protection to Peterborough. Both these washlands are designated as areas of international importance for waterfowl.

Consideration of flood issues should not be confined to the functional flood plains. Development throughout a river catchment can have a significant impact on flooding simply by increasing run-off. It is not only important to ensure that new development is not at direct risk from flooding, but also that development does not indirectly increase the risk of flooding elsewhere. It is therefore necessary to consider a sustainable approach to run-off from redeveloped or newly built up sites and to control both the rate and quality of discharge close to the source.

Management Aims and Implications

In view of recent flood events, and increasing evidence of long term climate change, it is prudent to plan for increased risk of flooding. The short term priority is to update flood risk mapping, based on detailed topographical surveys and taking account of current

development commitments and recent flood events. It will then be necessary to maintain a precautionary approach to the location of new development in the functional floodplain, along the lines suggested in PPG25. Outside the floodplain, but within the river catchment, greater attention must be paid to Sustainable Urban Drainage Systems, again in accordance with PPG25. Experience shows that SUDS are easier to implement on a co-ordinated basis and a planned approach to SUDS provision needs to be looked at as part of future development strategy.

In the longer term, the objective must be to more effectively manage floodplains and river catchments to deliver bio-diversity and recreational benefits, as well as relief from flooding. Environmental management initiatives need to be planned at the catchment scale, creating a mosaic of wildlife habitats - from woodland, through meadows and marshes to wetland washes. Incentives may be required (from restructuring of agricultural funding) to encourage landowners to manage their land to achieve greater environmental and flood risk benefits.

Measures	Mechanism/ Agency	Time Frame
Updated and enhanced mapping of flood risk areas	Environment Agency	2002
Maintain controls over new development in the functional floodplain, in keeping with PPG25	Ashford Borough Council/Developers	ongoing 2003 (Local Plan Review)
Greater use of SUDS in new development	Ashford Borough Council/Developers in development control	Immediate

WHAT MATTERS? FLOOD PLAIN



Measures	Mechanism/ Agency	Time Frame
<i>Policy Change at National Level</i>		
Environmental management of river catchments	LPA/EA/KCC/landowners Developer contributions to catchment management programmes, potentially as part of a countryside management project.	Medium to long term
<i>Note, ongoing efforts to restructure agricultural funding regimes (CAP) offer opportunities to change emphasis from (surplus) food production to better environmental management</i>		

Headline Indicator

Number of properties at risk (1% or greater) from flooding

Key Links

Bio diversity
Agriculture
Water Quality



Benefit: Environmental Health & Local Amenity

Waste is the 'flip side' of consumption of environmental resources, a symptom of resource depletion which is aggravated by waste "disposal" – for example to landfill. Wastes are also an opportunity for resource recovery. All methods of managing waste cause some combination of impacts through traffic, land take, noise, smell, air and/or water pollution which affect local amenity. The optimum path is that with the least amenity and environmental impacts, but also that which is economically feasible and practicable.

Who does it matter to / At what Scale/ Level of Importance?

These concerns are reflected in policies at a range of levels:

- EU – sets targets for waste management. Framework Directive on Waste requires waste is managed without harming the environment, in particular: water, air, soil, plants, animals or human health
- National Government – sets statutory targets for waste management. Can risk fines if EU targets are not met
- EA – has responsibility for regulating arrangements needed for the treatment and disposal of waste under the EPA 1990
- KCC – as Waste Disposal Authority & Planning Authority
- ABC – responsible for household waste collection
- Local residents/ businesses – as waste producers and who are affected by amenity and health impacts of waste management facilities

Trend/ Is there Enough?/ Future Threats

Household waste in Kent has grown by a 5% annually during the three years to 1999/2000.⁵⁷ The latest figures for the 2000/2001 financial year indicate that the total household waste arisings in Kent was 715,000 tons, of which 590,000 tons (84%) were landfilled.⁵⁸

⁵⁷ Kent Waste leaflet

⁵⁸ KCC Cabinet Report, 17 September 2001: 2.

The total remaining landfill capacity in Kent in April 1999 was such that there was considered to be sufficient remaining capacity for a further 6.4 years only.⁵⁹ The acute shortage of appropriate facilities for the disposal of Kent's household, commercial and industrial waste is such that approximately 40% of Kent's household municipal waste is currently exported to landfill in Essex.

According to the Kent Waste Forum, households in Ashford each produced an annual average of 1.29 tons of waste in 1999-2000. This figure is average for Kent where the highest waste producers are households in Tonbridge and Malling (1.48 tons per household) and the lowest is Thanet (1.15 tons per household). The Kent Waste Forum figures show that overall, Ashford recycled 14.48% of household waste in 1999/2000. This is less than the Kent average of 15.38% and is well short of Central Government targets for 2005, which are 40% recovery (including incineration with recovery, recycling and composting) and 25% recycling and composting. KCC also aims to reduce the growth of waste produced per capita in Kent to nil by 2003.

The Waste Local Plan identifies Waste to Energy (including incineration with energy recovery) as being a suitable technology for achieving an 80% reduction in the volume of household and commercial waste disposed of, where waste segregation has been carried out to reclaim and recycle materials⁶⁰. The WLP considers that 5 new facilities might be accommodated in Kent and Medway.

However, this approach has proved intensely controversial. Of the planning applications for Energy from Waste facilities submitted in Kent since 1998, two (at Ridham Dock and Richborough) raised much public opposition and have been refused on the basis of

⁵⁹ The Environment Agency's Strategic Waste Management Assessment for the South East (2000)

⁶⁰ The Waste Management Plan considers that pre-sorting of materials at source of generation is the most viable option as, despite the employment of sophisticated machinery, the performance of sorting plants in producing a satisfactory quality of material is generally not very successful.



insufficient information in respect of air quality/ public health impacts and other grounds.

Only one facility in Kent (at Allington) has been granted planning approval, but this facility is still to begin operating. This has significant implications for the achievement of targets for the diversion of waste from landfill in Kent and for the waste generated by future growth in Ashford.⁶¹ Given the strong public reaction to energy from waste facilities in Kent and nationally, it will be necessary to consider potential increases in recycling to make up for the shortfall in reaching targets for reduced landfill. This will become even more critical if development in Ashford is to increase.

In an effort to meet recovery targets, the Council has introduced a kerbside collection service for some dry recyclable waste including: paper, glass, and cans in August this year.⁶² This kerbside recyclable collection service is currently centred on the urban area of Ashford. It will be extended to Tenterden, and within eighteen months will be extended to an estimated 30,000 households.

Substitution Options/ Opportunities

Following the hierarchical approach to waste management, waste reduction is a priority, all the more so if significant development is to be accommodated in Ashford. Although Local Planning Authorities generally have limited control over waste production (for example in packaging), they can potentially influence construction waste as part of new development. Construction accounts for 40% of the total waste produced in the UK.

Construction Waste

The Waste Local Plan considers that 50% of inert/ construction waste could be avoided or re-used. New plant will be required for the

⁶¹ Significant growth in Ashford may generate further pressure for an Energy from Waste facility, unless suitable alternative waste reduction or recycling measures can be guaranteed as part of the new development.

⁶² This is in addition to the existing “bring” facilities for paper, glass and metals in the Borough.

processes related to re-use. The site at Sevington is a proposed location and could be required to support future growth.

Best Practice Case Study: Copenhagen

Copenhagen reduced construction/demolition waste going to landfill by 90% through requiring all such waste to be taken to one of a handful of sites where sorted separated reusable waste (e.g. timber, concrete rubble, steelwork) was accepted free of charge or even paid for, but mixed waste charged a punitive ‘gate fee’. This was achieved by powers of intervention not available to any UK public agency (and which have been challenged on free trade grounds) - but indicates that extremely high levels of waste reduction are *technically* possible and that the limitations are usually *institutional*.

Best Practice Case Study: Greenwich Millennium Village

As part of the urgent need to set standard best practice in minimising construction waste before, during and after construction occurs, Greenwich Millennium Village is undertaking waste management audits and waste reduction initiatives. These include:

- Consideration of materials’ life expectancy
- Low maintenance materials
- Local sources for materials
- Use of recycled materials and potential for future recycling
- Waste reduction on site

Recycling and composting of municipal waste

Based on long term studies of household waste composition in Ashford, the Kent Waste Forum report that: approximately 19% is paper and cardboard, 6% is metals, 8% is glass, 19% is kitchen waste, while 14% is garden waste. More than 30% is estimated to be recyclable while over 50% is bio-degradable⁶³. There is thus

⁶³ The high level of bio-degradable waste lends weight to the importance of removing this waste stream from landfill to reduce greenhouse gas emissions and comply with EU Landfill Directive Requirements.



considerable scope for increased recycling and composting in the borough.⁶⁴

If composting is to play a significant role in Ashford's Future and in the future of the County, more composting facilities are likely to be required. Home composting could also be promoted to a greater extent. As part of the promotion of recycling, further facilities are likely to be required. Sites identified in the waste local plan include Sevington and Chart Leacon. Similarly, kerbside collections will need to be extended, and supported by reduced collections of landfill waste.⁶⁵

Management Aims and Implications

Increasing pressure on limited landfill capacity within Kent, limits to the physical possibility and political acceptability of shipping waste outside the area (contrary to the 'proximity principle') and the extreme political contentiousness and environmental impacts of incineration all point firmly to the priority of reducing waste arisings associated with new development. The ideal would be 'waste neutral' development, that combines on-site methods of reducing and recovering waste with off-site investments to offset the new housing's waste. However this would require coordinated interventions beyond what is currently possible. We therefore suggest the following more limited and pragmatic aims:

- To reduce the amount of waste produced as part of new AND existing development
- To ensure that EU and national waste targets are met in Ashford
- To maximise opportunities for re-use and recycling of construction and household waste
- To promote waste segregation at the household level

⁶⁴ According to the Waste Local Plan, 1998, less than 5% of collected household waste in Kent is currently composted.

⁶⁵ It is reported in Ashford's Local Agenda 21 Action Plan that the recent MORI poll of residents indicated that improvements in recycling was considered a particular area of need. 55% opted for reduced fortnightly collections of landfill waste to support recycling

Measures	Mechanism/ Agency	Time Frame
Provide for on-site composting and maximum separation of other waste streams in all new housing. Consider local CHP from incineration of wood and paper waste	development briefs /design guidance	Short term
Extend kerbside collections throughout the borough & support this with fortnightly collections of residual mixed waste	ABC and waste contractors, in conjunction with KCC	Short term
Promote the necessary infrastructure required to support recycling, composting and recovery	Through the promotion of sites in the Waste Local Plan	Short to medium term
Ensure minimisation of household and construction waste	By means of planning policy, planning conditions, and development briefs. Need to ensure that Steering Group Partners lead by example for projects for which they are client.	Short term, through long term
Ensure the design of new development is such that kerbside collections of household waste can be easily accommodated.	As above	Short term through long term



Headline Indicator

- Amount of waste sent to landfill
- Amount of waste recycled.
- Availability of recycling and composting facilities

Key Links

Air quality, Water quality



Benefit/ Service – Food production and land management

Who Does this Matter to/ At what Scale/ Level of Importance?

Agriculture is one of the primary industries and a source of (declining) rural employment. It still plays a vital role in the life of rural communities and in managing and shaping the countryside. Food is an essential ingredient of life, and Kent (the Garden of England) is responsible for production of many specialist agricultural products of national importance (e.g. hops). Agriculture is the major land use in Kent and Ashford.

Trend/ Is there Enough?/ Future Threats

In Kent there are approximately 1,019 km² of Grades 1 & 2 agricultural land, which amounts to approximately 16.1% of the total Grade 1 & 2 land availability in England. Kent also contains approximately 2,214 km² of Grade 3 land, which amounts to 43.6% of the total Grade 3 land in England.⁶⁶ Pockets of Grade 1 agricultural land are to be found to the north east of Ashford town, and to the south of the borough. Grade 2 land is more widespread around the borough. In particular, pockets of Grade 2 land are to be found to the west and east of the town.

As a growing town the relationship between Ashford and its rural hinterland needs to be carefully managed. Farming on the urban fringe has particular attributes and problems. The farming landscape plays an important role in creating the setting for Ashford, but this must be balanced with demands for access to the countryside and for urban expansion. Farmland on the urban fringe may be particularly prone to problems of trespass and vandalism.

⁶⁶ Source: EA (1998) Local Environment Agency Plan, Kent Area, September, page 17.

Agricultural trends and policy are increasingly determined by the EU Common Agricultural Policy (CAP). Since the 1980's the system has involved a mixture of quotas, voluntary set-aside and direct income support measures, which have resulted in substantial market distortions, complex systems, and heavy administrative costs⁶⁷. In environmental terms the system has produced more intensive and industrialised agriculture, large-scale use of fertilisers, herbicides etc, and increased pollution. The CAP is widely seen to have been an expensive failure and pressures are developing for significant change in agricultural policy. The stimulus for reform is likely to come from a number of areas including: budgetary concerns; taxpayer resistance; environmental concerns; and enlargement of the EU by the Central and Eastern European countries. The details of future changes are unclear, but it is likely that there will be a continuing reduction in reliance on supply control and subsidy payment. This will create important opportunities to switch funding towards environmental management schemes.

Substitution Options/ Opportunities

The Rural White Paper signalled the Government's intention to relax policy on the development and protection of the Best and Most Versatile Agricultural Land. In March 2001, the DTLR introduced an amendment to guidance contained in PPG7. The new guidance effectively relaxes controls over development on agricultural land. The guidance recognises that in some cases development on agricultural land may be unavoidable, but that planning authorities should seek to use poorer quality land, except when sustainability considerations dictate otherwise. These considerations include importance for biodiversity, the quality and character of the landscape, amenity value, heritage interest and accessibility to infrastructure, workforce and markets.

This new guidance has been introduced to promote rural diversification and places agricultural protection on more of an equal

⁶⁷ CLA 2001, A Future for Farming



footing with other environmental constraints (e.g. nature conservation). However, like some habitats, it should be remembered that good quality soil has taken centuries to produce, but can be quickly destroyed. Soil is a finite resource and in the longer term it is not inconceivable that policies may be introduced to require soil stripping and replacement elsewhere, before high quality agricultural land can be developed.

Good Practice Example: Arable Stewardship Scheme

Arable Stewardship was a DEFRA pilot scheme which offered payments to arable farmers to manage their land in ways which encourage wildlife. The two pilot areas were East Anglia and the West Midlands. The Scheme was open from 1998 to 2000 and is now closed to new applications. Changes in arable farming over the last few decades have contributed to a loss of wildlife habitats and the decline in the population of a number of species of birds, insects, mammals and plants. DEFRA wants to help farmers recreate and enhance wildlife habitats in arable areas. Arable Stewardship was set up to test whether certain arable farming methods could help to do this. The scheme was designed to achieve these benefits whilst recognising the practicalities of commercial arable farming. The pilot was run as part of Countryside Stewardship which is a DEFRA grant scheme offering payments to farmers for conservation of the English countryside.

Management Aims and Implications

Agricultural activities are still largely outside planning controls but changes to EU policy create opportunities to give a higher priority to environmental management objectives in agricultural funding. As land is farmed less intensively so opportunities will improve for increased access to the countryside and for a wide range of environmental benefits. The changing policy context towards development of agricultural land creates opportunities to consider a selective release of land for development on the edge of settlements or in other accessible locations, provided other sustainability criteria are met. Urban fringe farming has a long term role to play in food production close to the point of consumption (to reduce energy

consumption in transport to markets) and in creating environmental awareness for urban dwellers. This implies greater decentralisation and less specialisation within the agricultural sector, and better management of relationships in the urban/rural fringe. In the longer term the focus may change from protection of agricultural land to a focus on soil as a finite resource which needs to be husbanded and re-used when affected by development.

Measures	Mechanism/ Agency	Time Frame
Review development allocations on agricultural land	ABC/KCC/SEERA	LP/SP/RPG Review
Review policies towards rural diversification	AABC/ KCC/SEERA	LP/SP/RPG Review
Review funding and policy to environmental stewardship schemes	EU/DEFRA/farmers/ landowners	> 3 years
Manage relationships on urban fringe	LPA, farmers, landowners & residents groups	Short term ongoing
<i>Changes in National Policy</i>		
Extend controls over agricultural development to afford greater protection to agricultural landscapes and soil		

Headline Indicator

Number and extent of environmental stewardship schemes
Agricultural land lost to development

Key Links

Bio Diversity
Landscape

WHAT MATTERS? AGRICULTURE



Benefit/ Service: Regional character/local distinctiveness

Who Does this Matter to/ At what Scale/ Level of Importance?

The landscape character contributes to the quality of life at the regional, county and local levels:

- regional landscape features (North Downs, High Weald) help establish the character and identity of the region
- local landscape features contribute to local distinctiveness and provide an attractive setting for towns and settlements
- the natural landscape is an environmental asset with recreational and tourism benefits and a source of spiritual renewal and inspiration

Trend/ Is there Enough?/ Future Threats

Ashford Borough is characterised by significant landscape designations including the Kent Downs and High Weald Areas of Outstanding Natural Beauty, which are designations of national importance. In addition, there are five Special Landscape Areas (SLA) in the Borough of County importance including:

- The North Downs
- The High Weald
- The Greensand Ridge
- Old Romney Shoreline
- Eastern Low Weald

These landscapes are important by virtue of their rarity, representativeness and variety. They are of high scenic quality and are generally unspoilt by large scale intrusive development. Protected areas of landscape importance also often include features of nature conservation importance.

The landscape character of the wider countryside, outside these designated areas, is also of value. The Countryside Agency's Character initiative provides the following characterisations of Character Areas which include Ashford Borough:

• *The North Downs*

The North Downs are characterised by dramatic and distinctive Chalk downland with a continuous and steep scarp giving extensive views across Kent (Wye and Crundale Downs is an outstanding example). The Downs also provide a striking northern backdrop to Ashford. The unifying characteristic of the Downs is the Chalk topography and the open rolling expanses of downland, emphasised by the pattern of woodlands and shaws which are a characteristic of the ridgetops. The North Downs SLA runs up to the northern outskirts of Ashford and provides an attractive foreground to the scarp slope of the Downs. The main settlements include Wye and Chilham which fall within the AONB and Charing which is bounded by the AONB and SLA designations on all sides except the West.

• *Wealden Greensand*

Within Ashford District, the Wealden Greensand has a gentle and open aspect with belts of woodland, but with a sandy, "heathy" feel. Heathland commons have been compromised by encroaching birch, oak and pine scrub due to a decline in traditional management regimes. The Wealden is characterised by medium- and small-sized irregular fields and enclosed strip fields with a diminished hedgerow component. Distinctive wooded commons ('called charts') with oak/birch woodland are found to the north west of Ashford town. Farming is predominantly mixed with fruit growing still a notable characteristic feature. The landscape includes deer parks and 18th century parklands. Godington Park is a notable Historic Park to the west of Ashford.

The area shows evidence of modern human influence with major towns and settlements such as Ashford and numerous communication routes. Notable are the M20 and rail lines around Ashford which follow the vale below the North Downs scarp. New

WHAT MATTERS? LANDSCAPE



roads and improvements have led to the erosion of the enclosed and winding character of the local road network.

- *Low Weald*

Broad, low lying and gently undulating clay vales underlie this small-scale intimate landscape with small woodlands and a patchwork of fields of varying size, defined by hedgerow enclosures. Grassland predominates on the heavy clay soils which is difficult to cultivate so that permanent pasture is the main farming use. The Low Weald is also rich in ponds and small streams with riparian willows and alders reflecting its wet nature. Ponds are also evidence of a history of brickmaking and of the iron industry. Where major river valleys, notably the Beult in Ashford District, cross the Low Weald this wet character is accentuated by wet grazing lands with willow and sallow scrub.

Parts of the Low Weald have an unusual remote quality. Elevated landforms outside the character area such as the Wealden Greensand, the North and South Downs and the High Weald form important backdrops to many views. The well-wooded character restricts many views within the area although even small rises in terrain permit longer views.

- *High Weald*

The well-wooded landscape rises above the Low Weald and contains a complex pattern of ridges and steep stream valleys with scattered sandstone outcrops. A network of hedges and shaws link the small, irregular fields created from cleared woodland. Many of these contain flower-rich meadows bordered by species-rich hedgerows. The trees, woods and hedgerows combine to create a sense of enclosure which given the area's comparative inaccessibility, provides a sense of remoteness. The dominant land-use is grassland supporting mixed farming, mainly sheep grazing with some cattle and pigs. The cultivation of fruit and hops, together with the associated distinctive oast houses and the seasonal appearance of hop poles, are still a characteristic feature.

The High Weald in Ashford is characterised by a dispersed settlement pattern of hamlets and scattered farmsteads dating from the medieval period linked by a network of small, narrow, and winding lanes. Ribbon development along the network of lanes has, in many places, brought a suburban feel to the well-wooded landscape.

- *Romney/ Walland Marsh*

The marshes are characterised by flat, open and agricultural landscape, with distinctive drainage dykes, marshes and open skies. The treeless, low-lying, reclaimed marshland is now maintained by manmade drainage and river floodplain improvements. Walland Marsh which overlaps with the south eastern part of Ashford district is particularly distinctive as it contains the greatest surviving concentration of small fields, dykes and unimproved pasture. Much of Walland Marsh consists of Sites of Special Scientific Interest. Stock grazing still persists over most of this area giving some semblance of the once more traditional appearance of the overall landscape.

The present day landscape of Romney Marsh is relatively young in geological and historical terms. The Old Romney Shoreline (SLA) marks the edge of the marsh, which began to emerge from the sea in the early 9th century.

- *Ashford Town Landscape*

Green corridors fulfill an important role in Ashford's landscape, providing a break in the developed areas, important leisure/recreation resource, a wildlife habitat, access routes as well as providing flood water control and alleviation. Private developers are currently required to make a positive contribution where their sites adjoin these spaces. However, the Green Corridor Action Plan identifies ongoing maintenance as a key issue of concern. The preferred approach is by means of commuted sums from private developers, which allows a consistent approach and economies of scale. It is considered that private companies can assist through grants and sponsorship



Substitution Options/ Opportunities

The present day landscape is the result of geological forces and Man's influence over centuries. These features either cannot be replaced or require many generations to reach an approximate level of substitution. The character of regional-scale landscape features can be easily eroded by the cumulative impacts of small scale changes (e.g. loss of woodland cover). The loss of habitats recorded in the bio diversity section frequently translates into negative landscape impacts.

Planning policies generally seek to control development which might detract from landscape character, but are less successful in preventing changes to traditional management practices on which many landscapes depend. Effective landscape conservation and enhancement depends on land management and here the role of the farming community is vital (cf. agriculture section).

Policies to promote greater rural diversification imply a relaxation over change of use and conversion of agricultural buildings, particularly for business purposes. Authorities will need to control the details of such conversions to ensure that proposals are in keeping with their rural setting and do not detract from important landscape assets. The creation of new access points, car park areas, etc. need to be handled with care and the careful deployment of new landscaping (with reference to the character of the landscape) can help to assimilate new development into the countryside.

The bio diversity section includes reference to the substitution of important habitats when these may be affected by development. The ranking of habitats has incorporated consideration of their value as landscape features. Thus ancient woodland for example, is categorised as an area of significant benefit which should not be compromised. Some habitats (and landscapes) cannot be substituted and must be protected over the long term. These are generally included within designated landscape areas. Other (typically smaller scale) landscape features may be vulnerable because they form part of the agricultural landscape (hedgerow trees, old orchards). These

are currently outside the scope of planning controls. In the last 10 years planning controls have been extended to cover some farm buildings, as well as ancient hedgerows. It is not inconceivable to contemplate an extension of controls over important agricultural landscapes during the life of this study.

Good Practice Example: Greenwich Millennium Village Landscape Strategy

Porous landscapes are used to filter surface water run off. The trees selected reflect sunlight into shaded buildings in the summer, as well as shelter the buildings from the wind in the winter. The landscape is continuous into the circulation spaces of the buildings to enhance the environmental quality of these spaces. Species have also been selected to provide privacy to balconies whilst not obstructing views.

Further ways to enhance the landscape will be provided as follows:

- Courtyards are used to provide areas for recreation and public enjoyment.
- Soft landscape areas are used to regulate storm water run off.
- Landscape is used to filter dust, pollutants and associated smells as well as helping oxygenate the air and ameliorate the microclimate.
- The car park roofs are designed to carry soil and plant material for existing and future landscape designs.
- Irrigation systems are provided to sustain the landscape using water collected from roofs.
- Adequate growing medium depth is provided to ensure a wide variety of trees can be introduced without undue restriction to their root systems.

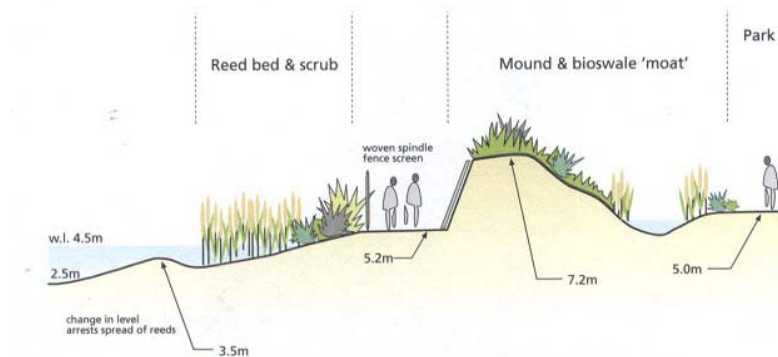
In the urban environment there is considerable potential to enhance and strengthen landscape features. The Green Corridors within the town could be the focus of enhancement schemes to promote and encourage their landscape, bio diversity and recreational benefits. Current best practice provides some important illustrations of how this can be achieved. Planning policies to increase urban densities, do not imply any loss of valuable greenspace within towns and settlements.

WHAT MATTERS? LANDSCAPE

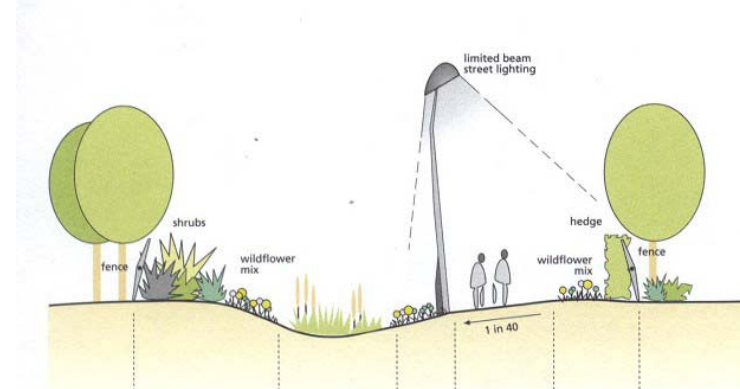


The river corridors within the town form an important structural framework for the urban landscape as a whole. Other strategic areas of landscape importance include the urban edge and the gaps between settlements (e.g. between Ashford, Kingsnorth, Chilmington Green and Great Chart). These areas are allocated as open space in the Local Plan. Large scale woodland planting in these areas⁶⁸ would help to define a clear urban edge and maintain the separation and distinctiveness of town and country.

Greenwich Millennium Village: Landscape variety with earth mounds to walkway



Greenwich Millennium Village: Energy Efficient Lighting to Enhance the Landscape



Management Aims and Implications

North Downs

- The restoration of suitable arable areas to chalk grassland, traditional management regimes, and the conservation of existing unimproved chalk and remnant grassland
- Management and regeneration of the wooded areas
- Emphasis of the open character of the Downs (except on the top scarp) through the retention and re-creation of views from the scarp crest and from major corridors
- Restoration and retention of historic parklands
- The assimilation of major transport corridors into the landscape through positive planning and design guidelines

⁶⁸ KCC Structure Plan para 4.28 and Policy ENV8 suggest Community Forests may be one option



Wealden Greensand

- Traditional coppice woodland should be encouraged
- The sensitive design, layout and routes for major communications development is important within the character area
- The enhancement of hedgerows and other features needs consideration through appropriate agri-environmental land management schemes

Low Weald

- The loss and decline of hedges and hedgerow trees as a result of lack of management and farm diversification is resulting in the fragmentation of landscape structure and needs to be addressed
- Conservation of traditional hop gardens, orchards and associated wind-break features as well as characteristic shaws, ancient woodlands and coppice should be considered
- New woodland planting of shaws and hedgerows would help integrate existing and proposed developments
- The conservation of farm woodlands, riparian landscape features and ponds would be beneficial to the overall environment and landscape
- The retention of the character of rural lanes is important.

High Weald

- Appropriate management measures would prevent a further decline in the extent and quality of coppice woodlands and shaws.
- New native broadleaved woodland planting should be considered.
- The conservation and restoration of traditional orchards and hop gardens where appropriate should be addressed.
- Hammer ponds, meadows and parklands are important aspects of the history of the area.
- Vernacular styles and building materials should be an important aspect of new developments.

- The replacement of conifers, concrete and close-boarded fences with new hedges would be beneficial in many areas.
- The character of more remote areas needs to be safeguarded.

Romney Marsh

- The maintenance and enhancement of the distinctive network of ditches should be addressed, together with less frequent and intensive dredging of the channels, and the control of water levels.
- The re-creation of wetland, seasonal flooding and areas of damp pasture should be considered.
- Planning and design guidelines would discourage inappropriate developments which might impinge on the remote, undeveloped quality of the Marshes and shoreline.

Ashford Town

- Explore innovative funding mechanisms for landscape enhancements
- Review of standardised design standards for Green Corridor
- Strengthen and define urban edge
- Enhance gaps between settlements

Measures	Mechanism/ Agency	Time Frame
Landscape enhancement/ restoration of traditional landscapes	Farmers/landowners using environmental stewardship schemes	>5years
Development Control	LPA – identify landscape features outside designated areas	LP review
Design Guidance	LPA/SEERA – to guide rural diversification schemes	LP/RPG Review

WHAT MATTERS? LANDSCAPE



Measures	Mechanism/ Agency	Time Frame
Review highway designs standards	DTLR/KCC/ABC to improve designs in sensitive landscapes	immediate
Enhancement green corridors	LPA/developers Link development to cross funding of improvements	
<i>Review of National Policy Context</i>		
Review policies controlling agricultural landscapes		

Headline Indicator

Loss of landscape (habitat) features
Extent and quality of management of urban greenspace

Key Links

Bio Diversity
Agriculture



Benefit/ Service - Energy Supply

Who does this matter to / At what Scale/ Level of Importance?

Burning fossil fuels is the main contributor to climate change by increasing the level of CO₂ emissions. CO₂ is the primary greenhouse gas which is damaging the environment through global warming. This is likely to have major impacts on human security, health and welfare throughout the world. In the Ashford sub-region, direct effects of climate change are likely to include: more extreme weather (including increasing flood and storm events); reductions in rainfall (and therefore water available for use); as well as higher temperatures, increasing demand for water; more heat stress and resulting illness.

Energy makes a significant contribution to quality of life. However it is energy *services* - heat, light, motive power - that people require rather than energy itself. There are opportunities to provide these services with less and/or less damaging forms of energy. As the autumn 2000 fuel protests indicated, *security* of energy supply has great value.

It is necessary that energy use / greenhouse gases are understood in an holistic manner. Thus it is not only the source of energy which needs to be examined, but also the design of development to:

- reduce the need for travel,
- provide alternatives to the car; and
- reduce energy consumption.

Trend/ Is there Enough?/ Future Threats

Energy markets are national and increasingly becoming international, while the main environmental damage from energy is global. There are no specific local or sub-regional capacity limits because both energy supply and energy-related impacts are globally mobile. It is thus more useful to consider capacity in terms of Ashford's ability to meet or contribute to national and international targets. This can be achieved in a range of ways.

The UK Government has signed up to energy cuts of between 12% (Kyoto) and 20% (domestic, CO₂ only). This could be interpreted as meaning that new development should be 12% - 20% more energy efficient than existing development. The IPCC have argued that the Kyoto targets are only a first step towards at least 60% global reduction in the long term. If everyone was to contribute equally to this global target, this implies that reductions of 90% are required in the UK.

There is no single simple target for Ashford. The regulatory framework provides the basis for any level of reduction of between 10% to 90%. The only robust conclusion we can draw is that *any* reduction of energy use is desirable. However the IPCC science plus fair distribution points to reductions of 50% or more as appropriate.

Government Renewable Energy Targets

The National Government has proposed that 5% of the UK's electricity requirements should be met from renewables at a reasonable cost by the end of the year 2003, increasing to 10% by 2010. This is seen as an initial target to stimulate action, and does not represent a final level of development. The South East Region is recommended to adopt a target for renewable energy (RE) installed electricity generation capacity of 750MW for the year 2010. This figure represents some 6.6% of current electricity generation capacity within the Region. It is also recommended that the Government Office for the South East (GOSE) Region adopt a target to increase generation from renewable sources further to an equivalent of 10% of the Region's generation (believed to be practicable by 2015). In this way, enabling the Region to 'do its bit' (albeit a little later than 2010) and contribute fully to the national imperative of cutting greenhouse gas emissions and combating global climate change.

Source: <http://www.go-se.gov.uk> & GOSE - "Development of a Renewable Energy Assessment and Targets for the South East"

WHAT MATTERS? ENERGY EFFICIENCY



Note that current pricing policy in the region is a disincentive to reduced energy use/ energy efficiency. Standard domestic tariffs currently decrease as kWh is increased. This means that as consumption increases, price per unit decreases.

Substitution Options/ Opportunities

Greenhouse gases have the same effects whatever the emission source. Energy used by development, that used to service development, motorised trips generated by the development, as well as that used in construction and demolition should all be considered together. Poor performance in one area can be offset by better performance in others. 'Greenhouse' gas emissions can be:

- *avoided* by reducing the need for energy - for example in the design of buildings, by insulating and draughtproofing buildings better, reducing exposed surfaces (e.g. through higher density terraced buildings), promoting mixed use which reduces the need for travel
- *reduced* by switching to lower-carbon fuels, especially 'renewables' which release minimal greenhouse gases and by using energy more efficiently, for example in low-energy lights, turning appliances off when not being used
- *offset* locally by planting or maintaining additional woodland (provided the carbon is either kept locked up in the timber or used to replace fossil fuels).

Energy Efficiency Commitment (EEC)

The Electricity Act 1989 and Gas Act 1986, make provision for energy efficiency obligations to be set for electricity and gas suppliers by the Secretary of State. It is Ofgem's duty to administer this programme, to be known as the Energy Efficiency Commitment. And to be launched in April 2002. The EEC sets energy efficiency targets to be met by utility companies over a three year period and presents a particular opportunity. Energy suppliers will be required to meet this target by providing and installing energy efficiency measures in homes. Around 50% of the EEC incentives are to be targeted on priority groups, the elderly and those on benefit, many of whom will be social housing residents.

The aim of the EEC is to improve the energy efficiency of the housing stock in the form of greater thermal comfort and lower fuel bills. The EEC will also contribute to the alleviation of fuel poverty and, through the reduction of CO₂ emissions into the atmosphere, and to the Government's climate change strategy. This presents an opportunity for the promotion of partnerships between housing associations and utility companies to ensure that the EEC benefits as many residents as possible. The targets will require them to invest in energy saving opportunities in the most cost-effective way. Insulation measures, energy efficient boilers, appliances, light bulbs and CHP will all be eligible under the scheme.

Source: www.housingcorporlibrary.org.uk

Best Practice Example: Greenwich Millennium Village

The designs for this development focus on reducing energy consumption and pioneer new ways to address this. The primary objective is to reduce annual energy consumption and also high seasonal demand, contributing to the economic viability of localised energy systems such as Combined Heat and Power.

- Reduction in heating is achieved through peak "lopping" measures including: wind protection, solar penetration, increased insulation, air tightness, improved control systems
- **Lighting:** all rooms are naturally lit. Energy efficient lights are used in dwellings
- **Appliances:** energy efficient appliances are given preference
- **Water Heating:** design issues are being trialed to assist in reducing hot water demand, including: metering of water supply, spray mixer taps, efficient showers, minimised bath size, reducing hot water use appliance. Average hot water demand may be reduced in this way from 160l/ day for a 2 person households to 110 l/day or by 29%.



The following provisional figures from the KCC-sponsored renewable energy study illustrates the range of opportunities which could be realised in Ashford:

- **PASSIVE SOLAR DESIGN:** orienting houses south can save 10-15% of energy over other orientation. A package of measures incorporating high thermal mass, double-glazed/ low-emission windows, responsive heating controls and high levels of insulation should save another 10% of heating energy.
- **SOLAR THERMAL:** A standard 3-4 sq ms of flat-plate panel could meet about 75% of the annual hot water needs of an average household.
- **WIND:** a 1.5 MW wind turbine (65 m height to hub) could provide enough electricity for about 3,000 houses.
- **BIOMASS:** a 100 KW combined heat and power (CHP) system would require around 4 ha. per annum of coppice woodland to supply the woodchip required to provide heating for 80-100 well-insulated homes (NHER 10 standard). In 1997 Kent was estimated to have about 9,400 ha of chestnut under coppicing. On a 20 -year coppicing cycle for chestnut, about 80 ha would therefore be required to provide fuel for the above 100 homes.⁶⁹
- **COMBINED HEAT AND POWER:** whatever fuel is used, combined heat and power can increase conversion efficiency from about 55% for on-site boilers and imported power to 80-90%. New development is the ideal opportunity for CHP because it is much cheaper and easier to build heat distribution infrastructure in at the start rather than retrofitting it later.
- **PHOTO-VOLTAICS:** can provide 50-75% of electricity needs of a house, from an array of around 30 sq. ms. Cost of £8-£10,000 per house, but grants likely to be available from 2002.

⁶⁹ Note that this would in turn require a developed supply infrastructure, which does not at present exist.

Best Practice Example: Greenwich Millennium Village

The community heating and electricity power plant (CHP) will provide inexpensive bulk energy supply for heat and electricity. It will reduce CO₂ emission and can be upgraded to accommodate future biomass fuels.

The first phase of housing requires the establishment of a central district heating scheme using natural gas. The CHP plants are to be constructed in a phased basis as the development proceeds. Once the development is completed, all the CHP and power systems are to be connected. As the localised plants reach the end of the design life they may be resold and replaced with more efficient systems, or replaced by a large site wide plant.

The system is made more cost effective through the combination of high density housing (reducing distribution costs), multi-service metering (including gas, water, electricity, heat) and the provision of site infrastructure by a single contractor.

Management Aims

While the ideal is cumulatively carbon-neutral development, as a minimum requirement the 'whole life' energy consumption of new development should be reduced, and as far as possible the remaining energy consumption should be offset elsewhere.

Specifically:

- Development should be as energy efficient as possible
- Car dependence and car use should be minimised
- Opportunities for renewables as part of development package should be considered

A number of specific measures might be considered, depending on the options pursued. These are set out in the table which follows.



Measures	Mechanism/ Agency	Time Frame
Energy neutral growth	Waste to energy including further investigation of small scale solution such as energy crops, alternative fuels for transport. Opportunity for Study Partners to use own resources for demonstration projects	Short term - ongoing
Not increasing pollution to land, air or water	ABC, SEERA: <ul style="list-style-type: none"> • Link growth to energy targets • Link release of land to targets • Retro-fitting • National building regulations currently pretty soft on energy efficiency • Develop sustainable energy charter • Demonstration projects 	Short term - ongoing
Implementing energy efficiency	There is a need for further review of building regulations. ABC, KCC, GOSE & SEERA to contribute/ lobby	Short term - ongoing
<i>Energy efficient design</i>		
To be supported through the planning system	LPA to prepare development briefs to focussing on standards for energy efficient design in developments ⁷⁰	Short term

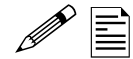
⁷⁰ Bedford Borough Council has prepared such briefs for the Elstow Storage Depot development site, for example

Measures	Mechanism/ Agency	Time Frame
	Requirement for developers to provide an Energy Plan as part of the planning application, indicating how the proposal will achieve energy targets	Short term
To be promoted, popularised and marketed in Ashford	ABC/KCC in conjunction with house builders to promote and support energy efficient demonstration projects ⁷¹	Short term
Reduce embodied energy associated with the growth of the town.	ABC/KCC to promote and provide guidance on the use and accessing locally sourced materials, for example Kent Oak and Chestnut	Short term
<i>Promotion of alternative energy sources</i>		
Increase awareness of alternatives and improve access to funding	LPA to promote and assist developers/ residents in gaining access to grants, for example for photovoltaics ⁷²	Short to medium term
Promote coppicing in agricultural industry, and skills training for harvesting	Incentives and measures to promote coppicing and support for training KCC, GOSE and KWT, Forestry Authority, EN	Short to medium term
Promote energy crops	Permit energy crops to be planted on well located land awaiting development	Short to medium term

⁷¹ For example, housing exhibition sites are particularly successful in Sweden and Finland (where they attract up to 300,000 visitors).

⁷² Grants are anticipated to be available for 50% of the cost.

WHAT MATTERS? ENERGY EFFICIENCY



Measures	Mechanism/ Agency	Time Frame
<i>Institutional changes required</i>		
Changes to pricing policy	Agencies to lobby OFGEM for restructuring of pricing policy to promote reduction in consumption	

Headline Indicator

Greenhouse gas emissions
'Greenhouse intensity' of lifestyles being provided for in the new housing

Key Links

Transport
Air Quality
Floodplain



Benefit/ Service – Clean Air

Who does this matter to/ At what Scale/ Level of Importance?

Clean air is vital to human health and is an indicator of overall pollution levels. Certain aspects of air quality (ozone, green house gas emissions) may have implications for human health and climate at the global level. Other health implications of air pollution are felt at the local level.

- Local authorities have responsibility for local air quality management
- The Environment Agency controls emissions from industrial processes
- Local residents and businesses experience air quality at the local level, which affects health and amenity
- Bio diversity can be affected by air quality

The section on energy efficiency deals with the wider global implications of emissions.

Trend/ Is there Enough?/ Future Threats

The Kent Air Quality Partnership co-ordinates action on air quality in the County. The Partnership keeps an emissions inventory of the County which indicates that the primary source of Sulphur Dioxide and particles (Total Suspended Particles) is industry, but that Nitrogen Oxide arises from both industry and road traffic. Monitoring for Kent shows higher than average concentrations of sulphur dioxide and nitrogen dioxide, but these levels currently appear to be generally within the European guidelines.

Ashford Borough Council has completed its three stage review of air quality. The third and final stage has indicated that two of the air quality standards are not likely to be met by 2005. It was concluded that industry in Ashford is not a significant source of air pollution. However, road traffic has a direct impact on air quality. The two pollutants most likely to be exceeded are:

Nitrogen dioxide – the 2005 annual standard for nitrogen dioxide is likely to be exceeded along the M20 and A2070 Bad Munstereifel Road

Particulate Matter – the 2004 24 hourly mean standard for particulate matter is likely to be exceeded along the M20, the A2070 Bad Munstereifel Road, the A292 Ashford Ring Road, the A292 New Street, the A28 Chart Road and the A28 Canterbury Road.

There is a regional dimension to air quality issues, which can be affected by weather conditions and wider influences (e.g. London air quality).

The EA controls emissions to the environment at two IPC sites in Ashford.

Substitution Options/ Opportunities

There are no substitutes for clean air. There are opportunities to substitute and reduce private car usage, the main source of air pollution in Ashford.

Management Aims and Implications

National trends show that while there is a steady reduction in releases from industrial emissions recorded since 1970, this reduction has been against a trend of increasing road transport emissions. Cleaner fuels are leading to reduced emissions, but this trend is being offset by increased car ownership and useage.

According to the Local Plan, currently 22% of the borough's households have no car. The number of cars is likely to increase along with improved affluence, increased investment and increased population. This could lead to a significant increase in the amount of emissions, with impacts on pollution concentrations, particularly along major roads. In order to ensure that air quality objectives are maintained, future development will have to be accompanied by viable and attractive public transport alternatives to private vehicles as well as measures to curb car usage.

WHAT MATTERS? AIR QUALITY



The manufacturing sector has performed strongly in the Ashford economy in recent years. It will be important to ensure that any future growth is not at the expense of increased emissions from industrial plants.

Measures	Mechanism/ Agency	Time Frame
Promote public transport usage	KCC/LPA/transport providers	continuous
Improve emissions standards to the atmosphere	EA	ongoing

Headline Indicator

Air Quality Strategy targets

Key Links

Transport

Energy Efficiency



Benefit/ Service – Chronological continuity

Who does this matter to/ At what Scale/ Level of Importance?

In order to plan for the future we must understand the past. Historical assets are irreplaceable and enrich our understanding of the past and present. They help record local distinctiveness, to create an attractive environment and are of considerable tourism and recreational value.

Trend/ Is there Enough?/ Future Threats

The historic environment comprises a wide range of environmental assets, including historic buildings and areas, ancient monuments, historic landscapes/parks and gardens.

There are 30 Scheduled Ancient Monuments (SAMs) in Ashford District, defined and protected by English Heritage as monuments of national importance. The Royal Military Canal is of particular note, constructed with the dual purpose of fortification against potential Napoleonic armies, as well as a drainage channel. Several SAMs are medieval sites where moats form a significant aspect to the heritage interest. Some SAMs include significant wetland interest. As well as built features of archaeological significance, the area includes significant sites where features from prehistoric, Roman, early Medieval and later periods are likely to be buried.

Ashford includes 6 historic parks and gardens, including Godington Park on the western boundary of Ashford town. Other parks include Chilham Castle, Godmersham Park, Great Maytham (Rolvenden), Hatch Park (Mersham) and Olantigh Park (Wye). These are parklands laid out before 1939 that are historically important. They also contribute to the sense of place and sense of history of the Borough.

There are 43 conservation areas in Ashford Borough, designated to protect and enhance land or buildings of special conservation interest. These areas contain some of the finest historic townscapes in the borough as well as attractive areas of landscape which provide

the setting for these areas. The character of the smaller market towns and villages which surround Ashford are of particular note. Tenterden is the largest of these villages has an historic environment and character of especially high quality. Biddenden, is characterised by medieval and 17th century buildings which line the main street and is considered one of the most attractive and most unspoilt villages in the country. Neighbouring Smarden is noted for its beautiful period houses and is the site of more than 100 listed buildings. Wye is best known for the fine medieval buildings of Wye College, part of the University of London. Chilham is a 15th century village with church, pub and castle all set around a central village square.

There are over 3,000 listed buildings in the borough noted for their special historical or architectural interest. These buildings form an important part of Ashford's heritage. These buildings and their settings will need to be retained, maintained and enhanced as part of any new development.

Some country lanes date back to medieval, Saxon and Roman times. These are notable features within the Ashford countryside, providing a link with the past and are also important in terms of wildlife and archaeology. Many are lined and defined by hedgerows and trees. The character of rural lanes, as well as the trees and hedgerows which line them are under threat from engineering standards which demand particular standards of highway safety and visibility splays based solely on the needs of traffic.

There are numerous threats to the historic environment, particularly buried archaeological resources. These include threats to the present character of the landscape through market-led intensive agriculture or abandonment of farmland. Historic landscapes and the character of small settlements may be at risk from greenfield developments, the spread of suburbia and the quasi-urbanisation of villages. The village appraisals⁷³ highlight concerns about too much

⁷³ Wye Village Design Statement, 2000

WHAT MATTERS? HISTORIC ENVIRONMENT



inappropriate housing development, resistance to executive style homes, as well as the importance of rural facilities and services.

In towns there are threats to the character, familiarity and comfort of the urban fabric through over-intensive use of spaces and fabric and threats to the survival of historic industrial sites through brownfield development and the decline of manufacturing industry. There are equally significant threats to the condition of buildings and sites simply through lack of regular maintenance and care. Finally, perhaps the biggest threat is ignorance; sites can be destroyed because no-one knows of their existence or appreciates their significance. Ongoing research is an important part of conservation.

Substitution Options/ Opportunities

Conservation of the historic environment is an important component of environmental stewardship. Once destroyed, or neglected, historic environmental assets cannot be replaced.

Good Practice Example: William Morris, 1889

In 1889 William Morris⁷⁴ told the Society for the Protection of Ancient Buildings that 'These old buildings do not belong to us only; ... they have belonged to our forefathers, and they will belong to our descendants unless we play them false. They are not in any sense our property to do as we like with. We are only trustees for those that come after us.'

There are opportunities to base regeneration strategies around conservation initiatives. Chatham Maritime is a good example. Communities and neighbourhoods can be revitalised by programmes which involve finding new economic uses for historic buildings, caring for special features such as parks and green spaces and providing valued cultural facilities and visitor attractions. Such work depends upon working with the existing grain of the place, and

⁷⁴ English Heritage, 2000 Enriching Life through the Historic Environment

helping the community to respect their own sense of what matters and why. The results can transform communities, and act as a catalyst for private investment.

Good Practice Example: Grainger Town, Newcastle Upon Tyne⁷⁵

Improvements to the public realm have been key to the regeneration of this important Georgian streetscape, attracting people back to live and work in the core inner city area. Half way through the project about £2.5 million has been spent. Public and private investment totals £60 million and both business and domestic property values have risen. Not long ago nearly 50% of the listed buildings were at risk. Through bringing back 35 buildings into use, 290 new homes have been created, many in previously unused upper floors above shops. So far, 393 jobs and 141 new businesses have been created. The public sector is making available expertise and support to help property owners and occupiers take advantage of the opportunities via a dedicated project team.

Regeneration budgets are set to grow. Development Agency (RDA) budgets will grow from £1.2 billion in 2000/1 to £1.7 billion in 2003/4⁷⁶. From April 2002 RDAs will have more flexibility in using these resources and there are opportunities to direct increased funding to conservation of the historic environment, as a catalyst for regeneration.

Within Ashford town there is a long history associated with the railway industry, culminating in the International Passenger Station. Ashford Railway Works at Newtown were established in 1847 and expanded over the years to such an extent that an entire residential district was developed around the works to house the workforce. The works were closed in 1984 and the Newtown site is now a major strategic development opportunity. The heritage importance of the rail industry is an under-utilised resource within the town and an

⁷⁵ From English Heritage, 2000, Power of Place

⁷⁶ English Heritage, 2000, Power of Place

WHAT MATTERS? HISTORIC ENVIRONMENT



asset which could be developed sensitively to help establish the unique identity of the town.

Management Aims and Implications

The character and setting of historic environments must be protected when new development is considered and as such, they have an impact on the capacity for Ashford to absorb growth. The various conservation designations which apply to the historic environment denote the need to pay particular attention to the desirability of enhancing their character and setting. This is not to say that development is not appropriate in these areas, but rather that the scale, design and detailing of new development should pay particular respect to the historic context. This applies with extra force given the emphasis of current policy guidance on increasing urban densities and re-use and adaptation of buildings. Care must be taken to ensure that this is not at the expense of the historic environment.

A balance needs to be struck between the need to conserve the historic environment with the need for change, adaptation and reuse of old buildings. The positive aspects of conservation must be harnessed to promote town centre regeneration. Conservation of the historic environment in the town centre can help to retain businesses, provide an incentive to relocate into it and attract tourism. The railway heritage needs to be better exploited and presented in re-development of key sites within the town centre.

Measures	Mechanism/ Agency	Time Frame
Conservation of historic environment	LPA through development control process	ongoing
Conservation based regeneration initiatives	SEEDA/SEERA/LPA	>2002

Headline Indicator

Historic assets restored/reused

Key Links

Town centre

Landscape