



Centre for Sustainability at TRL Ltd

**Dacorum Borough Council**

East Hemel Hempstead Area Action Plan –  
Issues and Options Paper

Sustainability Appraisal (incorporating  
Strategic Environmental Assessment)  
Working Note

June 2009

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# **1 Introduction**

## **1.1 Background**

This Working Note sets out the results of the assessment of Dacorum Borough Council's (DBC) East Hemel Hempstead Area Action Plan (EHHAAP) Issues and Options (Summer 2009). This Working Note does not form part of the formal Sustainability Appraisal (SA) / Strategic Environmental Assessment (SEA) reporting process. It has been produced to contribute to the plan making process, by providing independent assessment of the issues and options, with a view to guiding the production of the next stage of the development of the EHHAAP. Sustainability appraisal is a decision aiding tool rather than a decision making one and the contents of this report should therefore be considered in this light.

This note follows on from the Scoping Consultation Document previously published in March 2009. It should be read alongside the East Hemel Hempstead Area Action Plan Issues and Options document which identifies the issues relating to the AAP and identifies options for the redevelopment of the area.

## **1.2 The SA Framework**

It is typical practice, and recommended by guidance, to produce a series, or framework, of objectives against which elements of an emerging plan can be assessed, in order to determine their likely effects against a range of sustainability topics (e.g. biodiversity, health, economy).

A framework of objectives was developed for Dacorum's Local Development Framework SA/SEA Scoping Report in February 2006 and was then updated following consultation on the Scoping Report with environmental bodies and a wide range of other local interest groups.

This updated framework has been used as a basis for undertaking the assessment activities that form part of the SA/SEA process. The objectives included in the framework focus the assessment to make sure that it considers all the main sustainability issues facing the area. The updated framework has been used for all SA/SEA activities undertaken by the Centre for Sustainability (C4S) and their project partners Halcrow when undertaking SA/SEA for Local Development Documents being prepared by Dacorum and also for three other local authorities that are working in partnership with Dacorum on their SA/SEAs (Three Rivers, St Albans and Watford).

The SA of the Maylands Masterplan and Gateway Development Brief that was undertaken by the consultants WSP in 2006/07 used this same basic framework, but modified it in a number of areas to make it more appropriate to assess the greater level of spatial and planning detail that was present in the Masterplan. Consultation with statutory bodies and other stakeholders was undertaken at the scoping stage of this Maylands Masterplan SA.

As this area specific SA activity and consultation has already been undertaken it seems appropriate to make as much use of this earlier work as possible in order to avoid duplication of effort. Therefore the updated framework developed for the Maylands SA has been used a starting point for the SA/SEA of the EHHAAP.

Based on additional baseline information identified by C4S, some further modifications have been made to the framework prior to consultation on the scope

of this SA in March/April 2009. Further changes were made to take account of responses that were received during this consultation. The finalised framework is presented in Appendix 1 at the end of this document.

Changes to the SA objectives, and more detailed criteria, that have been made to the overarching LDF SA/SEA Framework are marked in red italics (additions) and strikethrough (omissions).

### **1.3 Scope of topics to be covered by the SA/SEA**

Given the wide range of effects, some positive and some negative, that are likely to arise from the implementation of the EHHAAP it has not been possible to scope out any of the topics covered by the LDF SA framework from the assessment that will be undertaken during the preparation of the EHHAAP. The assessment will therefore consider all 20 of the SA/SEA objectives in the framework along with their more detailed assessment criteria (see Appendix 1).

### **1.4 Geographical and temporal scope**

The spatial scope for the assessment has primarily been the AAP area and its immediate environs. However where potential impacts have been identified that could affect areas further afield these have also be assessed for their significance.

### **1.5 Previously Sustainability Appraisal**

As mentioned in Section 1.2, some sustainability appraisal activity has already been undertaken in relation to the redevelopment of the Maylands area of Hemel Hempstead. This was for the Maylands Masterplan.

However as the AAP will carry forward the main thrust of the Maylands Masterplan, including its vision and individual Character Areas for Maylands, so the Sustainability Appraisal for the Masterplan has now been superseded by the SA/SEA that is currently being undertaken on the AAP by the Centre for Sustainability.

## 2 Assessment of the Area Action Plan

### 2.1 Methodology

The assessment of the AAP explored the likely effects of the issues and options against the 20 SA/SEA objectives. Where appropriate the effects have been forecast in terms of their permanence, geographical scale and temporal scale. In undertaking and summarising the findings of the assessment the following significance criteria have been used.

Significance Assessment	Description
✓✓	Very sustainable - Option is likely to contribute significantly to the SA/SEA objective
✓	Sustainable - Option is likely to contribute in some way to the SA/SEA objective
?	Uncertain – It is uncertain how or if the Option impacts on the SA/SEA objective
-	Neutral – Option is unlikely to impact on the SA/SEA objective
x	Unsustainable – Option is likely to have minor adverse impacts on the SA/SEA objective
xx	Very unsustainable – Option is likely to have significant adverse impacts on the SA/SEA objective

### 2.2 Summary of the assessment

Figure 1 provides a summary of the assessment of the AAP issues and options against the SA/SEA objectives. The detailed assessment is provided in Section 2.3 below.

The results of the assessment of the options for relocating tanks at Buncefield are presented in Table 1. These should be read in conjunction with the overall assessment findings.

A range of potential effects have been identified in relation to the various measures and options that are presented in the Issues and Options document.

Any new development, particularly on the scale proposed in the AAP, is likely to have some adverse effects on the environment due to factors including; loss of greenfield sites, with associated impacts on biodiversity, landscapes and soils; increases in airborne emissions; increased use of natural resources, including water; and increased waste generation.

However measures proposed in the AAP seek to minimise these adverse effects and there is also the potential for enhancements to the area, e.g. through creation of greenspace and expansion of the green network; redeveloping areas of degraded townscape; remediation of areas of contaminated land. The proposals for a Green Energy centre and measures that may be introduced through the transport strategy are two other examples of how the AAP and associated strategies should help to mitigate some of the adverse effects.

The effects predicted against the social and economic objectives from the promotion of economic and business activity in Maylands, with the aim of making East Hemel Hempstead the economic beacon for the town, are generally positive with significant positive effects forecast against one of the economic objectives.

The economic regeneration and its associated infrastructure and services should improve the quality of life for those living and working in the area as well as having benefits for a wider area, through for example a new Town Stadium, and potential traffic reductions in Hemel Hempstead as a result of new park and ride.

SA Objective	Biodiversity	Water quality/quantity	Flood risk	Soils	Greenhouse gas emission	Climate change proof	Air quality	Use of brownfield sites	Resource Efficiency	Historic and Cultural assets
Assessment	?	x	-	x	x	✓	x	x	✓	?
		?	?	✓	✓		✓	✓	x	

SA Objective	Landscape and Townscape	Health	Sustainable Locations	Equality and Social exclusion	Good quality housing	Community identity and participation	Crime and fear of crime	Sustainable prosperity and growth	Fairer access to services	Revitalise town centres
Assessment	✓	✓	✓	✓	✓	✓	✓	✓✓	✓	✓
	x		?		?			?		x

**Figure 1: Summary of the Assessment of the AAP Issues and Options**

## 2.3 Detailed Assessment

### 2.3.1 SA Topic: Biodiversity

*Baseline and Issues:*

There are no Special Areas of Conservation, Special Protection Areas, Ramsar Sites or SSSIs within 2km of the AAP area.

Wildlife Sites falling within or directly adjacent to the AAP area are:

- 'Disused Railway Line' - This disused railway forms a wildlife corridor linking habitat from Cherry Tree Lane in the north to the

centre of Hemel Hempstead; now used as a footpath and cycle track

- 'Widmore Wood' and 'Maylands Wood' wildlife sites are both directly adjacent to the AAP area. These are classified as Ancient Woodland.

The Maylands Masterplan SA identifies that there are 6 bat records and 4 badger records within the Masterplan area. It has not yet been determined whether these all fall in the EHHAAP area.

*SA Objective:*

- 1. To protect, maintain and enhance biodiversity and geodiversity at all levels, including the maintenance and enhancement of Biodiversity Action Plan habitats and species in line with local targets.**

*Criteria:*

- To protect, maintain and enhance designated wildlife and geological sites (international, national and local) and protected species to achieve favourable condition
- To restore characteristic habitats and species, to achieve BAP targets
- To protect existing wetland habitats (ponds) and creating new wetlands, e.g. through SUDS
- To consider the effects of light pollution on night flying fauna
- To recognise the potential biodiversity value of brownfield land and identify appropriate mitigation measures
- Provide support for Green/Brown Roofs
- Optimise landscaped areas in the Park and Ride Facility and Stadium
- Actively seek to promote linkages between existing Wildlife Sites, provision of greenspace, and access to the wider countryside as part of a Green Infrastructure strategy for the AAP area.
- To manage woodlands and other habitats of value for biodiversity in a sustainable manner and protect them against conversion to other uses
- To recognise the social/environmental value and increase access to woodlands, wildlife & geological sites and green spaces particularly near/in urban areas
- To encourage people to come into contact with, understand, and enjoy nature

**Assessment:**

?

There is an **uncertain effect** predicted for biodiversity, resulting from proposed new developments that would be taken forward through the AAP.

The developments could have an adverse effect on biodiversity, not only on the greenfield sites that will be developed as part of the AAP, but also potentially on any brownfield sites that may have a high biodiversity value. However the scale and nature of the effects will be dependent on the characteristics of the individual sites. Where developments incorporate biodiversity enhancements, e.g. by providing new open spaces and retaining characteristic habitats and species, there are opportunities to improve the area in terms of biodiversity and potentially contribute towards meeting objectives of the Local Biodiversity Action Plan.

The vision states that the area will be permeated by open space, which will allow enhancement of biodiversity, and increases the social/environmental value of the area, as well as encouraging people to enjoy nature.

In addition to the longer term effects described above, there may also be temporary effects on biodiversity during the construction stages.

### **Recommendations:**

The AAP should consider the preservation of existing trees and hedgerows as well as ponds and other features important for biodiversity. Green roofs and water features could also be considered to provide new ecological habitats and where appropriate the AAP should seek to help deliver the targets of the Local Biodiversity Action Plan. There should be an overall aim for producing a net gain in biodiversity value.

Natural or semi-natural greenspace in the Buncefield buffer zones could provide opportunities for habitat creation and enhancement.

Use of Construction Environmental Management Plans (CEMPs) should also be encouraged to ensure that any construction works minimise impacts on biodiversity.

### **2.3.2 SA Topic: Water (1) – Quality and Quantity**

#### *Baseline and Issues:*

- The AAP area contains a reservoir at the north-east boundary of the AAP and a balancing pond to the south of Breakspear Way.
- There are no rivers running through the AAP area and the area is in flood zone 1, which is a low risk flood zone.
- The River Colne Catchment Abstraction Management Strategy (CAMS) indicates that the water resource in is currently over-abstracted and so any additional water demands will exacerbate this situation.
- Concerns over capacity of the sewerage network.
- The AAP area (which lies in a source protection zone) covers major and minor aquifers which have strategic and local significance for water resources. These are underlain by chalk which is designated as a major aquifer and which is abstracted for drinking water supplies within 2km of the site (although these boreholes have been shut down for the time being until the full extent of the



Buncefield incident is known). Therefore it holds a moderate sensitivity with regards to groundwater.

- The risk to the aquifer is increased significantly by the presence of soakaways along Cherry Tree Lane, which will have permitted direct discharge of fuel and contaminated water to the aquifer following the Buncefield incident.
- There has been some hydrocarbon and perfluorooctane sulfonates (PFOS) contamination to water in and around the Buncefield site.
- In addition to the Buncefield incident there have been pollution incidents to controlled waters within the area involving oils, sewage and chemicals in recent years.

*SA Objective:*

**2. To protect, maintain and enhance water resources (including water quality and quantity) while taking into account the impacts of climate change**

*Criteria*

- To raise awareness and encourage higher water efficiency and conservation by for instance promoting water reuse in new and existing developments.
- To ensure water consumption does not exceed levels which can be supported by natural processes and storage systems
- To take account of the existing and future capacity of sewerage network
- To improve chemical and biological quality and flow of rivers and encourage practices which reduce nitrate levels in groundwater
- To improve flow of rivers
- To reduce the number and severity of pollution incidents
- To take account of the risks to the groundwater resource from contamination
- To consider the potential effects from installing ground source heat pumps if contamination pathways are set up through the surface clay layer to the aquifer below.
- To maintain or restore the integrity of water dependent wildlife sites in the area

**Assessment:**

x	?
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- New development in the AAP may have temporary adverse effects on water quality due to construction works, as well as permanent effects in terms of water usage and availability that will result from increased demand placed by the new developments and their associated activities. The River Colne catchment is currently over-abstracted and so any additional water demands will exacerbate this situation.

- New development would also put pressure on the local sewerage system which could lead to increased pollution in the surrounding environment.
- There is the potential for adverse effects on groundwater and aquifer supplies resulting from new development, especially as there is existing potential contamination from the Buncefield incident. This is being monitored, but should be taken into consideration in order to ensure that new developments do not cause additional pollution. Remediation work that would form part of the redevelopment of the area does however provide opportunities to help resolve the current issues.
- The Environment Agency has raised a concern about the effects that may result from installation of ground source heat pumps as there is the potential to set up contamination pathways through the surface clay layer into the aquifer below. This potential effect will need to be considered at the design stages for new developments.

**Recommendations:**

- Water efficiency and recycling measures should be considered in all new and updated developments.
- Ensure that all developments take into consideration water supply and ongoing investigation into the potential contamination from Buncefield.
- Redevelopment of the Buncefield site should be put in place effective spillage/leakage containment infrastructure and control measures.
- Improvements to the sewer system should be considered during the delivery of the AAP.

**2.3.3 SA Topic: Water (2) - Flood Risk**

*SA Objective:*

**3. Ensure that new developments avoid areas which are at risk from flooding and natural flood storage areas.**

*Criteria*

- To avoid developments in areas being at risk from fluvial, sewer or groundwater flooding (for instance natural flood plains) while taking into account the impacts of climate change
- To ensure that developments, which are at risk from flooding or are likely to be at risk in future due to climate change, are sufficiently adapted
- To take account of additional surface water generated by new development
- To promote properly maintained sustainable urban drainage systems to reduce flood risk and run off in areas outside Source Protection Zones 1 (SPZ), having regard to potential compatibility of SUDS with groundwater protection.

**Assessment:**

-	?
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- Even though the AAP area is not a risk from fluvial flooding, the additional area of impermeable surfaces and associated soil sealing that will result from new developments may increase the risk of flooding through surface run off in times of heavy rainfall (pluvial flooding).

**Recommendations:**

- The AAP should ensure that measures are taken to ensure that new developments incorporate measures to help reduce the risk of surface flooding (e.g. balancing ponds, permeable paving) and to consider how buildings are sufficiently adapted to cope with any flood events. In order to avoid putting additional pressure on existing drainage systems fed from the AAP area, the aim of future development on site should be to reduce off-site discharge rates to the equivalent of the greenfield run-off rate.

**2.3.4 SA Topic: Soil**

*Baseline and Issues:*

Currently undeveloped areas of the AAP have soils classified as Grade 2 agricultural land.

*SA Objective:*

**4. Minimise development of land with high quality soils and minimise the degradation/loss of soils due to new developments**

*Criteria*

- To safeguard high quality soils, such as agricultural land grades 1, 2 and 3a) from development
- To limit contamination/degradation/loss of soils due to development.
- Consider the use of Soil Management Plans and appropriate techniques for the de-contamination of sites.

**Assessment:**

x	✓
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- New developments have been proposed, which would have a negative implication on this objective, as any new building on previously undeveloped sites will result in soil sealing.
- There may also be temporary effects resulting from construction works, and these need to be mitigated to ensure there are no long term effects, such as contamination.

- Redevelopment of the area provides opportunities for remediating any areas of contaminated soil which would have positive effects against this objective.

**Recommendations:**

- The AAP should ensure that soil quality is maintained or enhanced and minimise contamination/degradation of the soils from new developments.
- Construction Environmental Management Plans (CEMPs) can help in ensuring that quality of soils are considered during the construction phase.

**2.3.5 SA Topic: Climatic Factors (1) - Greenhouse Gas Emissions**

*Baseline and Issues:*

No specific climatic factors or climate change information has been identified for the EHHAAP area. Similarly the Maylands Masterplan SA does not identify any baseline information specific to the Masterplan area. Information is however available at a Borough wide level.

*SA Objective:*

**5. Reduce the impacts of climate change, with a particular focus on reducing the consumption of fossil fuels and levels of CO<sub>2</sub>**

*Criteria*

- To minimise greenhouse gas emissions (particularly CO<sub>2</sub>) for instance through more energy efficient design and reducing the need to travel.
- Promote Travel Plans or an EHHAAP – wide Travel Plan
- To promote increased carbon sequestration e.g. through increases in vegetation cover
- To adopt lifestyle changes which help to mitigate and adapt to climate change, such as promoting water and energy efficiency (through for instance higher levels of home insulation)
- To promote all new buildings to incorporate renewable energy technology, e.g. PV Cells.
- To promote carbon neutral development.

**Assessment:**



- New employment and housing development associated with the AAP will inevitably result in increased greenhouse gas emissions, both from the developments themselves and the increased activity that will result, for example increased vehicle usage. However this may be partly countered if those living in the new housing within the

AAP area also work with the local area, thereby reducing their need to travel to work.

- The area around Maylands already suffers from traffic congestion as do other parts of Hemel Hempstead (e.g. the Plough roundabouts). The development elements within the AAP have the potential to result in a significant number of new vehicle trips which would exacerbate the current issues.

A transport study is currently underway which is exploring a range of measures aimed at alleviating congestion. These include new park and ride, a north east relief road, changes to parking arrangements, improved bus services, including links to the railway station, and greater priority for pedestrians and cyclists. The overall effects of implementing the transportation strategy are uncertain, but many of the measures should help to reduce emissions. However, if freed up road space is replaced by induced traffic the benefits of the measures will be lost and therefore demand management measures may need to be implemented to 'lock in' the potential gains.

- Development of a new Town Stadium, which incorporates a range of other sporting facilities, in or close to the AAP proposed boundary is very likely to result in an increase in car trips as it will be located some distance from many of Hemel Hempstead's main housing areas. If park and ride is incorporated into the new facility this would serve the dual purpose of providing alternative transport options for those travelling into Hemel Hempstead town centre and those travelling out to the sports facilities. This would provide an alternative means of access that would be more carbon efficient.
- The vision for East Hemel Hempstead outlines that the area will be the focus for high quality energy efficient development which would encourage achievement of this SA objective.
- The AAP encourages the development of the Gateway to become a high quality office led business park with technology based/green business initiatives. It is not clear what these green business initiatives are, but it provides an opportunity for the AAP to meet this objective by more energy efficient design and promoting renewable energy technology as well as carbon neutral development.
- There is potential for a green energy centre to be built as part of the vision of the expansion of the Maylands area, which could help to adopt lifestyle changes in the area, and promote the incorporation of renewable energy technology in new development.

### **Recommendations:**

- The AAP should promote travel plans, as well as increased carbon sequestration, to help to achieve this SA objective is met.

### 2.3.6 SA Topic: Climatic Factors (2) – Climate Change Adaptation

SA Objective:

#### 6. Ensure that developments are capable of withstanding the effects of climate change (adaptation to climate change)

Criteria

- To promote design measures which enable developments to withstand and accommodate the likely impacts and results of climate change (for instance through robust and weather resistant building structures)

Assessment:



- The AAP is encouraging high quality builds, especially in the Gateway, and this could promote design measures to ensure the buildings withstand the impacts of climate change. This would have a positive effect on this objective.

Recommendations:

The AAP should ensure that all new developments consider adaptation to climate change to make them 'climate change proof'.

### 2.3.7 SA Topic: Air Quality

Baseline and Issues:

Whilst no Air Quality Management Areas (AQMAs) have been declared in Dacorum, St Albans has declared three AQMAs, the closest of which to the AAP area is at the junction of the M1 (Junction 7) and the M10. This site is approximately 2km to the south-west of the AAP area and has been declared for high levels of Nitrogen Dioxide (NO<sub>2</sub>).

SA Objective:

#### 7. Achieve good air quality, especially in urban areas

Criteria

- To integrate land use and transport planning by for instance:
  - o Promoting Green Transport Plans, including car pools, car sharing as part of new developments
  - o Ensuring services and facilities are accessible by sustainable modes of transport
- To ensure that development proposals do not make existing air quality problems worse
- To address existing or potential air quality problems

Assessment:



- There could be a temporary increase in traffic based air pollution from the initial construction works, which would have a temporary short term effect on air quality. There could also be temporary local scale negative implications for air quality, due to dust created from the construction works.
- It is uncertain whether the new developments resulting from the AAP would lead to a significant increase in traffic. However if this is the case this could give rise to potential longer term negative effects on air quality.
- As described for the greenhouse gas emissions objective above there is uncertainty on how traffic levels will be change following redevelopment of the area. The effects described for greenhouse gases will be mirrored by those for local air quality.
- Development of a biomass facility within the area has the potential for creating adverse effects on local air quality.

**Recommendations:**

- The AAP should promote area wide travel plans.
- CEMPs can be implemented to ensure appropriate practices are undertaken during the construction works to minimise the creation of dust.

**2.3.8 SA Topic: Material Assets (1) – Land Use**

*Baseline and Issues:*

- The AAP area includes some areas of greenfield agricultural land, some of which is located in the Metropolitan Green Belt.
- The AAP area includes a caravan storage park which will need to be relocated.
- The British Pipeline Agency managed pipelines UKOP Leg 9 (Leighton Buzzard to Hemel Hempstead) and UKOP Leg 1A (Thames to Hemel Hempstead) run north and south from the Buncefield site respectively, the latter passing through other areas of the AAP area.
- The redevelopment of the Buncefield Depot will have an influence on how the AAP can develop the area around the site. Much will depend on which options are chosen for redevelopment/reconfiguration of the site. Further details on the future of Buncefield can be found on the West London Pipeline & Storage Limited website at URL: <http://www.wlpsrebuild.co.uk/faqs.aspx>.
- The Maylands Masterplan SA identifies the following information for the Masterplan area.
  - There are a number of sites within the masterplan area which due to their historic/current land use may potentially be contaminated: these include:
    - Former brickworks North West of the site close to Maylands Wood (historic)

- A number of licensed waste management facilities/waste transfer sites/landfill sites
- A number of fuel filling stations
- A number of industrial units requiring IPPC Authorisation/Planning hazardous substances consent.

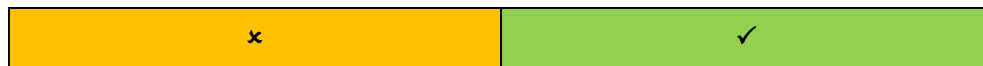
*SA Objective:*

**8. Maximise the use of previously developed land and buildings, and the efficient use of land**

*Criteria*

- To concentrate new developments on previously developed land (PDL)
- To minimise the use of greenfield sites for development
- To optimise the efficient use of land and existing buildings by measures such as higher densities and mixed use developments
- To encourage the remediation of contaminated and derelict land and buildings

**Assessment:**



- Whilst some new development will take place on previously developed land, which has a positive effect on this objective, there are areas of open land that will be lost, for example, in the Gateway. The loss of this open land will have a negative impact on this objective, as it does not encourage development on previously developed land.

**Recommendations:**

- The AAP should concentrate new developments on previously developed land, to encourage more efficient use of land, minimise the use of greenfield sites and reduce the need to expand the area into the Greenbelt.

**2.3.9 SA Topic: Material Assets (2) – Resource Efficiency**

*SA Objective:*

**9. To use natural resources, both finite and renewable, as efficiently as possible, and re-use finite resources or recycled alternatives wherever possible**

*Criteria*

- To encourage maximum efficiency and appropriate use of materials, particularly from local and regional sources
- To require new developments to incorporate renewable, secondary, or sustainably sourced local materials in buildings and infrastructure
- To safeguard reserves of exploitable minerals from sterilisation by other developments



- To promote renewable energy sources as part of new or refurbished developments
- To promote all developments and occupants to minimise waste and optimise the recovery and recycling of waste.
- To require the use of Sustainable Design and Construction techniques
- To increase recycling and composting rates and encourage easily accessible recycling systems as part of new developments
- To promote awareness regarding waste/recycling and renewable energy issues through education programmes in schools and the community

**Assessment:**



- Increased commercial activity coupled with new housing development will inevitably lead to increased waste generation and use of natural resources during construction and operation. However these effects should be reduced through some of the measures assessed below.
- The vision for East Hemel Hempstead outlines that the area will be the focus for high quality energy efficient development which would give a positive, permanent effect for this SA objective.
- The AAP encourages the development of the Gateway to become a high quality office led business park with technology based/green business initiatives. It is not clear what these green business initiatives are, but it provides an opportunity for the AAP to meet this objective by more energy efficient design.
- There is potential for a green energy centre to be built as part of the vision of the expansion of the Maylands area, which could help to adopt lifestyle changes in the area, and promote buildings to incorporate renewable energy technology.
- The potential relocation of the waste management facilities from Cupid Green to a larger site with greater capacity for recycling will help to progress this SA objective.

**Recommendations:**

- The AAP should encourage efficient use of natural resources, both finite and renewable, in all developments.
- Waste management methods should be considered as the AAP is taken forward in order to minimise waste generated in the AAP area.

**2.3.10 SA Topic: Cultural Heritage**

**Issues:**

- There is one Scheduled Ancient Monument (SAM) in the AAP area (Romano-Celtic Temple at Wood Lane End (Ref ex-HT82)). Another

SAM is located 100m from the AAP proposed boundary (Round Barrow East of Highfield (Ref ex-HT33)). These SAMs are both surrounded by larger "Areas of Archaeological Significance".

- There are no Historic Parks and Gardens, Listed Buildings (Grade 2), or Conservation Areas in the AAP area.
- The majority of the AAP area is classified as "Built-up Areas – Modern" within the Hertfordshire Historic Landscape Classification. There are smaller areas of the following other classifications: "Industry"; "20th Century Agriculture"; "Pre-18th Century Enclosure"; and "Water Features". Of these classifications "Pre-18th Century Enclosure" is considered to be the most important of these historically. The area under this classification is situated directly north of Breakspear Way and east of Green Lane.
- The Maylands Masterplan SA identifies the following information for the Masterplan area.
- There was a great deal of activity in the Roman period in Hemel Hempstead, (buildings, villas, roads as well as the Temple/Mausoleum at Wood Lane End).
- Recent excavations for the M1 widening project also support this view. South of junction 8 a late Iron age and Roman settlement was uncovered down the slope, with medieval occupation on the higher ground nearer the junction. North of the junction access road was a length of what may be part of a roman road leading in the general direction of Wood Lane End.
- There are a number of Historic Environment Records (HER) for the masterplan area: the following buildings: a Quaker burial ground and site of meeting house at Redbourn (9664), a former brickworks, Mayland Wood Hemel Hempstead (7126), a site of claydale sidings and brickworks, Cupid Green, Hemel (9819), find spots: Bronze Age Knife, Hemel (584), a flint arrowhead, Hemel (585), Monuments: a supposed Roman Road, Viatores 169B Verulamium to Ivinghoe (4171), a railway bridge, Cupid Green, Hemel (5595), Roman Occupation, Wood Lane End, Hemel (5595), a Roman Occupation, Wood Lane End, Hemel (6824), a former brickworks, Widmore Wood, Hemel (7123) a late Bronze Age/Early Iron Age Occupation North of Wood Lane End, Hemel (9203), Roman Ditches, probable field system, North of Wood Lane End Hemel Hempstead (9205), probable prehistoric occupation, near Wood Lane End Hemel (11824).

*SA Objective:*

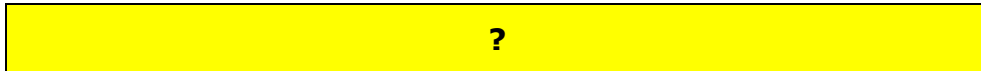
**10. To identify, maintain and enhance the historic environment and cultural assets**

*Criteria*

- To safeguard and enhance the historic environment and restore historic character where appropriate, based on sound historical evidence

- To promote local distinctiveness by maintaining and restoring historic buildings and areas, encouraging the re-use of valued buildings and thoughtful high quality design in housing and mixed use developments – to a density which respects the local context and townscape character, and includes enhancement of the public realm
- To promote public education, enjoyment and access of the built heritage and archaeology

**Assessment:**



- The effect of new developments on the cultural assets and sites as identified above is uncertain as it is not clear from the AAP whether these will be considered when identifying the actual locations of new developments.
- There is also uncertainty, as it is not clear if any of the proposed works will enhance the historic environment, or will encourage restoration of historic buildings and areas.

**Recommendations:**

- The local distinctiveness of the area should be considered in new developments as well as the potential for maintenance and restoration of the historic buildings and features. The AAP should also consider the location of the new developments, to ensure that they do not impact on any of the historic environments and features identified.

**2.3.11 SA Topic: Landscape**

*Baseline and Issues:*

- The AAP area is over 2km from the Chilterns AONB.
- The Maylands Masterplan SA does not identify any landscape baseline information specific to the Masterplan area.

*SA Objective:*

**11. To conserve and enhance landscape and townscape character and encourage local distinctiveness**

*Criteria*

- To protect and enhance landscape and townscape character
- To evaluate the sensitivity of the landscape to new/inappropriate developments and avoid inappropriate developments in these areas
- To protect 'dark skies' from light pollution, and promote low energy and less invasive lighting sources while considering the balance between safety and environmental impacts
- To minimise the visual impact of new developments
- To optimise contribution of the Gateway site

- To encourage contribution of public art. (Secure through Percent for Art)

**Assessment:**



- Opportunities for enhancement of the areas of poor landscape/townscape can be provided through high quality new developments.
- The AAP states that the Gateway will change function from open land to a high tech office park. This would have a negative impact on landscape, due to loss of open space. It is also not indicated whether the new office park will consider the sensitivity of the landscape around it.
- The nearest AONB is over 2km from the AAP area and so the location of development will have a negligible impact on this landscape of national importance.
- The AAP outlines plans to make provision for long term employment land, and indicates that an area adjoining the East Hemel Hempstead Town Gateway next to the M1 could be a possible reserve area. However this is located in the Green Belt, which would have implications for the landscape character of the area.
- The new development is likely to result in an increase in light pollution, although this increase could be minimised if requirements are put in place to use lighting systems which produce less light pollution (e.g. full cut-off lighting which has less 'light-spill'). Redevelopment of the area will provide opportunities to upgrade some of the existing low efficiency lighting thereby resulting in a reduction in light pollution.

**Recommendations:**

- The AAP should ensure that the visual impact of the developments are minimised and that enhancement of landscape and townscape character are taken into consideration when undertaking new developments.
- Light pollution from new developments should be minimised.

**2.3.12 SA Topic: Population and Human Health (1) - Health**

*Baseline and Issues:*

- Several Rights of Way run through the site.
- Hazardous substances are present in the AAP area at the Buncefield depot.
- The AAP area includes a cemetery that may need to be relocated.
- There are no areas of public open space within the AAP area.
- The Maylands Masterplan SA does not identify any population or human health baseline information specific to the Masterplan area.

SA Objective:

**12. To encourage healthier lifestyles and reduce adverse health impacts of new developments**

*Criteria*

- To promote the health advantages of walking and cycling and community based activities
- To identify, protect and enhance open spaces, such as rivers and canals, parks and gardens, allotments and playing fields, and the links between them as part of a Green Infrastructure strategy, for the benefit of people and wildlife
- To include specific design and amenity policies to minimise noise and odour pollution, particularly in residential areas
- To narrow the income gap between the poorest and wealthiest parts of the area and to reduce health differential
- To ensure that redevelopment of the EHHAAP area considers the safety implications relating to the Buncefield facility and other hazardous operations.
- To encourage development of 'healthy buildings'

**Assessment:**



- The AAP considers the safety implications of Buncefield and outlines options that will ensure safety is the first and most important consideration when considering how the site is to be redeveloped. This will therefore give a positive effect on reducing the health impacts of any developments relating to the Buncefield site.
- The AAP encourages the inclusion of open spaces in new developments, such as Heart of Maylands and Spencer's Park, which would have a positive impact on this objective, by encouraging healthier lifestyles.
- The regeneration of the area that will occur under the AAP should help to improve the public realm and have a positive effect on the quality of life and wellbeing of those who live and work in the area.
- If some of the employment sites that result in noise and high levels of heavy goods traffic are relocated from close to existing and new residential areas and consolidated nearer to the M1 motorway there will be positive effects on local residents.
- Making provision for new housing close to employment areas will provide opportunities for residents of the new housing to walk or cycle to work, something that will promote a healthier lifestyle.
- Provision of a range of new sporting facilities at a new Town Stadium will increase the range of leisure opportunities for local residents, thereby supporting this objective.

- The option to provide additional burial space around the town, as opposed to expanding the existing cemetery to the east, should contribute towards improved well-being. The rerouting of HGVs down Green Lane and the redevelopment of the Gateway would mean that the cemetery extension would not be in a very peaceful location and therefore if more appropriate alternatives elsewhere in the town can be identified this would be beneficial.

**Recommendations:**

- The AAP should make it clear as to how open space lost in the Gateway will be replaced and how the AAP will play a role in linking in with Borough wide Green Infrastructure.

**2.3.13 SA Topic: Population and Human Health (2) – Sustainable Location**

*Objective:*

**13. To deliver more sustainable patterns of location of development**

*Criteria*

- To reduce the need to travel through closer integration of housing, jobs and services
- To promote better and more sustainable access to health facilities

**Assessment:**

✓	?
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- The vision states that the area will be easily accessible by an array of transport modes, principally, passenger transport which improves connections to key destinations around the town. This should encourage sustainable patterns of location of development, as this provides access to essential facilities such as health and educational institutes.
- The mix of housing and businesses as proposed in the AAP should help reduce the need for travel by creating jobs close to where people will live. This would have a positive effect on this objective.
- The option to provide additional burial space around the town will reduce the future need for people to have to travel out to Maylands to visit a cemetery.
- Relocation of the Town Stadium further from the town centre, and the provision of other sporting facilities at this site, will increase the need to travel to use these facilities. However if the site is well served by new public transport services, the effects will be partly offset.

**Recommendations**

- The AAP could provide more details on how integration of housing, jobs and services will occur, apart from the specific areas such as the Maylands Gateway.

### **2.3.14 SA Topic: Social Factors (1) – Equality and social exclusion**

#### *Baseline and Issues:*

- There are a significant number of Lower Super Output Areas (LSOAs) within close proximity of the EHHAAP area which fall in the second most deprived quartile when compared with all other English LSOAs.
- There are ten LSOAs in the most deprived quartile nationally, for the Education, Skills and Training domain. This is an issue that could potentially be addressed through the EHHAAP.

#### *SA Objective:*

#### **14. Promote equity & address social exclusion by closing the gap between the poorest communities and the rest**

#### *Criteria*

- To include measures which will improve everyone's access to high quality health, education, recreation, community facilities and public transport and improve public transport links to the AAP area from deprived areas.
- To ensure facilities and services are accessible by people with disabilities and minority groups
- To encourage people to access the learning and skills they need for high quality of life
- To ensure that the LDF does not discriminate on the basis of disability, ethnic minority, or gender.

#### **Assessment:**



- Whilst no specific elements of the AAP have been identified that will help to meet the criteria for this SA objective, overall the regeneration of the area and the increased opportunities that will result should help to provide opportunities for tackling some of the issues relating to deprivation in the parts of the Borough in and around the AAP area. This would have a positive effect on this objective.
- The intention to build a first rate business park with a higher educational presence could encourage local people to access learning courses in order to improve quality of life.

#### **Recommendations:**

- Where appropriate the AAP should provide more detail on measures which will improve access to health, education, recreation, community facilities and public transport.

### **2.3.15 SA Objective: Social Factors (2) - Housing**

#### *SA Objective:*

**15. Ensure that everyone has access to good quality housing that meets their needs**

*Criteria*

- Promote a range housing types and tenure, including high quality affordable and key worker housing

**Assessment:**

✓	?
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- The AAP aims to provide new housing (approximately 500 units) to help meet Dacorum’s target as set by the East of England Plan. This will have positive effects against this objective.
- Whilst key worker housing is mentioned in the AAP, it is uncertain of the proportions of type and tenure of housing that will be developed. There is therefore some uncertainty at this stage as to how far the AAP will help to achieve this SA objective, but there is the opportunity for it to cater for a range of needs, for the local population.

**Recommendations**

- The AAP could make it clearer as to the proportion of housing that will cater for different needs, such as social housing, Lifetime Homes and key worker housing.

**2.3.16 SA Topic: Social Factors (3) – Community identity and participation**

*SA Objective:*

**16. Enhance community identity and participation**

*Criteria*

- To recognise the value of the multi-cultural/faith diversity of the peoples in the region
- To improve the quality of life in urban areas by making them more attractive places in which to live and work, and to visit
- To encourage high quality design in new developments, including mixed uses, to create local identity and encourage a sense of community pride.
- To optimise the contribution of the Maylands Gateway to enhancing community identity.

**Assessment:**

✓
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- Regeneration of the AAP area, including high quality design and a mix of employment, housing and local services should help to contribute towards an improved quality of life and a sense of pride in the local area. As the area is an important gateway into Hemel



Hempstead and the Borough in general, so these benefits could also be felt across the Borough.

- Encouraging enhancement of the environment would allow businesses to flourish and employees to have access to facilities and services, which would have positive implications for the local community. This would lead to an improvement of quality of life, as the area will be a more desirable place to live and work. These benefits would be further apparent in the proposed Heart of Maylands and Face of Maylands development.

**Recommendations:**

- The AAP should be more explicit about improving quality of life by encouraging developments that makes the area a more attractive place to live and work.

**2.3.17 SA Social Factors (4) – Crime and fear of crime**

*SA Objective:*

**17. Reduce both crime and fear of crime**

*Criteria*

- To reduce all levels of crime with particular focus on violent, drug related, environmental and racially motivated crime
- To plan new developments to help in reducing crime and fear of crime through thoughtful design of the physical environment, and by promoting well-used streets and public spaces.
- To help address issues around on-street parking.
- To support government-sponsored crime/safety initiatives, maximising the use of all tools available to police, local authorities and other agencies to tackle anti-social behaviour

**Assessment:**



- The AAP does not include any measures that would directly help to meet this objective. However, regeneration could mean that the area is a more attractive and safer environment, by having well lit areas to reduce levels of crime.
- The increased vehicle and pedestrian activity outside normal working hours that will result from provision of mixed use areas of housing and employment could help to discourage criminal activity.

**Recommendations:**

- The AAP should consider designing out crime through for example, building layout and natural surveillance, mixed use areas, and adoption of 'secured by design' principles.

**2.3.18 SA Topic: Economic Factors (1) – Sustainable growth**

*Baseline and Issues:*

The Dacorum Draft Economic Development Strategy (2008-11) provides the following overview for the Borough's economy.

- Dacorum is ranked 327th out of 408 districts for growth.
- There has been a slight reduction in job numbers since 1999 against a backdrop of growth nationally of 7%.
- The Borough performs comparatively well on education and skills, being ranked 101st of 408. However employability skills (NVQ level 2) fall below the Hertfordshire average and the UK skills base generally lags behind international competitors.
- There are a relatively high proportion of knowledge workers, ranking 157th of 408.
- Dacorum has suffered low growth in terms of commercial and industrial floor space, ranking 295th out of 356 districts in England and Wales. Recent increases have been sluggish (2.2%) compared the national average (8.6%). Growth in office space is just 25% of the national norm.
- The proportion of Dacorum residents working elsewhere is the lowest in the Hertfordshire.
- The proportion of jobs taken by within Dacorum non-residents is lower than the rest of Hertfordshire.
- Dacorum ranks in the bottom 20% nationally against the set of 'Economic Change' indicators employed by The Local Futures Group (e.g. in relation to job growth which has been poor).

A Business Intelligence Report produced for Dacorum Borough Council in April 2008 by Market Measures includes the following information relating to the Maylands Business area:

- The Maylands urban area contains 541 businesses representing 4.96% of the total business population of Dacorum. They employ 14,562 people representing 22.09% of the total employment within Dacorum.
- The four main employment types are "Wholesale and Retail" (44.65%); "Manufacturing" (17.82%); "Transport" (12.95%); and "Real Estate and Business" (11.03%).
- 48.67% of employees work for businesses that are "growing"; 32.9% for businesses that are "stable"; and 18.64% for businesses that are "declining". These classifications are based on Oxford Economic Forecasting's Business Growth Model.
- Congestion on local road network.
- Buncefield poses a threat to area profile and attractiveness to new firms.

*SA Objective:*

**18. Achieve sustainable levels of prosperity and economic growth**

*Criteria*

- To support an economy in the Authority which draws on the knowledge base, creativity and enterprise of its people.
- To promote and support economic diversity, small and medium sized enterprises and community-based enterprises. Optimising the mix of premises in the area (B1, B2 and B8). Promote starter and incubator units.
- To support the economy with high quality infrastructure and a high quality environment

**Assessment:**

✓✓	?
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- It is proposed that employment should be concentrated in East Hemel Hempstead, reflecting the broad direction set by the East of England plan. This would have a positive local, long term impact on the area, having significant positive effects against this SA objective.
- The AAP aims to create new businesses and employment opportunities, which would have a positive effect for the SA objective. However there is a need to consider whether these jobs match the local skills/needs.
- Retaining the Buncefield storage tanks in their original location (Option 1) would limit the redevelopment opportunities in the area to the west of the site, particularly along Boundary Way. Option 2 and even more so Option 3 would remove some of the restrictions to the types of development allowed, thereby enabling a greater diversity of economic and employment opportunities.

**Recommendations:**

- The AAP should encourage economic diversity by encouraging small, medium sized enterprises and community based enterprises.

**2.3.19 SA Topic: Economic Factors (2) – Fairer access to services**

*SA Objective:*

**19. Achieve a more equitable sharing of the benefits of prosperity across all sectors of society and fairer access to services, focusing on deprived areas in the region**

*Criteria*

- To encourage local provision of and access to jobs and services

**Assessment**

✓
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- AAP aims to provide better services in the area for the daytime population, which will have a positive implication during the long term for the economy. However, there are likely to be adverse effects on those local businesses located outside the area which are

currently utilised by those working in the Maylands area, for example for shopping at lunchtime.

- The AAP encourages the development of flexible opportunities for businesses to flourish and to provide the employees with the facilities and services in which to thrive. This implies that local provision and access to jobs is encouraged, and thus would have a positive effect on achieving a more equitable community in the surrounding area.

### **2.3.20 SA Topic: Economic Factors (3): Revitalise town centres**

*SA Objective:*

#### **20. Revitalise town centres to promote a return to sustainable urban living**

*Criteria*

- To promote the role of local centres as centres for sustainable development providing services, housing and employment, drawing on the principles of urban renaissance. Considering links to nearby centres.
- To encourage well-designed mixed-use developments in the heart of urban areas, create viable and attractive town centres that have vitality and life, and discourage out-of-town developments

**Assessment:**



- The potential to build a first rate business park with additional services and facilities as well as some housing should revitalise the local centre and promote sustainable development principles.
- However development of a new Town Stadium on the edge of the town goes against the principle of discouraging out-of-town developments and would therefore have adverse effects against this objective.

## **3 Next Steps**

Following consultation on the Area Action Plan Issues and Options further work will then be undertaken by Dacorum Borough Council to establish the most appropriate planning framework for the area. The findings of the SA/SEA included in this Working Note, along with other technical work and evidence gathering, will influence how the AAP is further developed.

Further consultation will be undertaken before the final AAP is produced (known as the Pre-Submission document) in Spring 2011.

The Pre-Submission document will be accompanied by a Sustainability Appraisal Report (incorporating the SEA Environmental Report). This SA

Report will be subject to consultation with statutory environmental bodies, other stakeholders and the general public.

**Table 1: Assessment of the tank relocation options at Buncefield**

SA Objective (abridged)	Options for the tanks at HOSL West (Buncefield)					
	Option 1: Reinstatement of tanks		Option 2: Rationalisation of the site		Option 3: Removal and location of tanks	
Biodiversity	No predicted effects	-	No predicted effects	-	Moving the tanks to the east could result in a restriction on development of the land between Buncefield and the motorway with potential positive effects on biodiversity.	?
Water quality/ quantity	No predicted effects	-	No predicted effects	-	No predicted effects	-
Flood risk	No predicted effects	-	No predicted effects	-	No predicted effects	-
Soils	All options should result in remediation of soils affected by the major incident.	✓	All options should result in remediation of soils affected by the major incident.	✓	All options should result in remediation of soils affected by the major incident. Restriction of development to the east of the site would help to reduce soil sealing in this area and safeguard the grade 2 agricultural land.	✓
Greenhouse gas emissions	No predicted effects	-	No predicted effects	-	No predicted effects	-
Climate change proof	No predicted effects	-	No predicted effects	-	No predicted effects	-
Air Quality	No predicted effects	-	No predicted effects	-	No predicted effects	-
Use of brownfield sites	All options will make use of brownfield sites over greenfield ones.	✓	All options will make use of brownfield sites over greenfield ones.	✓	All options will make use of brownfield sites over greenfield ones. This option would allow an increased level of development to the west of Buncefield which would reduce the need to develop elsewhere in the area on greenfield land. However the option may result in some greenfield development to the east of	?

					Buncefield.	
Resource efficiency	No predicted effects	-	No predicted effects	-	No predicted effects	-
Historic & cultural assets	No predicted effects	-	No predicted effects	-	Moving the tanks to the east could result in a restriction on development of the land between Buncefield and the motorway which may safeguard archaeological assets.	?
Landscape & Townscape	All options would help in repairing the existing degraded landscape.	✓	All options would help in repairing the existing degraded landscape.	✓	All options would help in repairing the existing degraded landscape. Moving the tanks to the east may result in the need to also extend the Buncefield site into greenfield land. However it could also result in a restriction on development of the land between Buncefield and the motorway with potential positive effects on landscape in the Greenbelt.	✓
Health	This option would result in no change over the risks that were present "pre-incident".	*	This option has benefits over option 1 as it moves the tanks further away from existing commercial areas, thereby reducing risks to those working in these areas.	✓	This option has benefits over option 1 as it moves the tanks further away from existing commercial areas, thereby reducing risks to those working in these areas. The area benefitting from this option would be larger than that for option 2.	✓
Sustainable locations	No predicted effects	-	No predicted effects	-	No predicted effects	-
Equality & social exclusion	No predicted effects	-	No predicted effects	-	No predicted effects	-
Good quality housing	No predicted effects	-	No predicted effects	-	No predicted effects	-
Community Identity & participation	No predicted effects	-	Moving the tanks further away from Buncefield's western	?	Moving the tanks further away from Buncefield's western boundary may have the effect on local quality of	?

			boundary may have the effect on local quality of life as the perceived hazards are likely to be reduced.		life as the perceived hazards are likely to be reduced.	
Crime and fear of crime	No predicted effects	-	No predicted effects	-	No predicted effects	-
Sustainable prosperity & growth	This option would restrict certain types of economic activity within the consultation boundaries.	*	Compared to option 1 this would allow a greater range of commercial activities to operate to the west of Buncefield, particularly on Boundary Way.	✓	Compared to option 1 this would allow a greater range of commercial activities to operate to the west of Buncefield, particularly on Boundary Way.	✓
Fairer access to services	This option would restrict the range of job opportunities that could be provided in the AAP area to the west of Buncefield.	*	This option would allow for a greater range of jobs to be provided in the area around Boundary Way.	✓	This option would allow for a greater range of jobs to be provided in the area around Boundary Way.	✓
Revitalise town centres	No predicted effects	-	No predicted effects	-	No predicted effects	-



## Appendix 1: The SA/SEA Appraisal Framework

Objective	Criteria	Indicators (bold indicates existing)
<b>Biodiversity</b>		
1. To protect, maintain and enhance biodiversity and geodiversity at all levels, including the maintenance and enhancement of Biodiversity Action Plan habitats and species in line with local targets	To protect, maintain and enhance designated wildlife and geological sites (international, national and local) and protected species to achieve favourable condition	<b>Herts QoL WH6 Condition of SSSIs (contextual indicator) and HBRC number, area and condition of SSSIs</b>
	To restore characteristic habitats and species, to achieve BAP targets	<b>HBRC Change in areas designated for their intrinsic value</b>
	<i>To protect existing wetland habitats (ponds) and creating new wetlands, e.g. through SUDS</i>	<b>HBRC Change in Priority Habitats</b>
	<del>To support farming and countryside practices that enhance wider biodiversity and landscape quality by economically and socially valuable activities (e.g. grazing, coppicing, nature reserves)</del> <del>[not applicable to urban boroughs, such as Watford]</del>	<b>Herts QoL WH3 Wildlife Sites and HBRC number and area of Wildlife Sites</b>
	<i>To consider the effects of light pollution on night flying fauna</i>	<b>HBRC no. of Wildlife Sites lost or degraded by development or gained/secured by agreements</b>
	<i>To recognise the potential biodiversity value of brownfield land and identify appropriate mitigation measures</i>	<b>Herts QoL WH1 Water voles</b>
	<i>Provide support for Green/Brown Roofs</i>	<b>Herts QoL WH2 Birds (contextual indicator)</b>
	<i>Optimise landscaped areas in the Park and Ride Facility and Stadium</i>	<b>Herts QoL WH4 Pipistrelle bats</b> <b>Herts QoL WH5 Butterflies</b> <b>HBRC distribution/change of key</b>

Objective	Criteria	Indicators (bold indicates existing)
	<i>Actively seek to promote linkages between existing Wildlife Sites, provision of greenspace, and access to the wider countryside as part of a Green Infrastructure strategy for the AAP area.</i>	<b>species in Herts</b> <b>HBRC distribution/change of protected species in Herts</b> <b>COI 8 Changes in areas and populations of biodiversity importance</b> <i>% of new developments incorporating biodiversity enhancement measures</i>
	To manage woodlands and other habitats of value for biodiversity in a sustainable manner and protect them against conversion to other uses	% woodland cover in District
	To recognise the social/environmental value and increase access to woodlands, wildlife & geological sites and green spaces particularly near/in urban areas	Percentage of wildlife sites accessible by sustainable modes of travel
	To encourage people to come into contact with, understand, and enjoy nature	Number of visitors to wildlife sites
<b>Water</b>		
2. To protect, maintain and enhance water resources (including water quality and quantity) while taking into account the impacts of climate change	To raise awareness and encourage higher water efficiency and conservation by for instance promoting water reuse in new and existing developments.	Level of awareness of water issues and the need for water saving (contextual indicator)
	To ensure water consumption does not exceed levels which can be supported by natural processes and storage systems	Average household water consumption per capita Commercial water consumption
	<i>To take account of the existing and future capacity of sewerage network</i>	Proportion of housing (existing and new development) with installed water

Objective	Criteria	Indicators (bold indicates existing)
	To improve chemical and biological quality and flow of rivers and encourage practices which reduce nitrate levels in groundwater	efficient devices/water metres <b>Herts QoL WR3 River quality objectives</b> <b>EA Biological and chemical river quality (contextual indicator)</b> Number and severity of pollution incidents to surface water and groundwater <i>Capacity of local sewerage infrastructure</i> <i>Environment Agency monitoring on groundwater contamination</i>
	To improve flow of rivers	
	To reduce the number and severity of pollution incidents	
	<i>To reduce the risks to the groundwater resource from contamination</i>	
	<i>To avoid the potential effects from installing ground source heat pumps; for example if contamination pathways are set up through the surface clay layer to the aquifer below</i>	
	To maintain or restore the integrity of water dependent wildlife sites in the area	
3. Ensure that new developments avoid areas which are at risk from flooding and natural flood storage areas	<p>To avoid developments in areas being at risk from fluvial, sewer or groundwater flooding (for instance natural flood plains) while taking into account the impacts of climate change</p> <p>To ensure that developments, which are at risk from flooding or are likely to be at risk in future due to climate change, are sufficiently adapted</p> <p><i>To take account of additional surface water generated by new development</i></p>	<p>Number of properties at risk from flooding</p> <p>Proportion of runoff from new developments which is directed into Sustainable Drainage Systems (SUDs)<sup>1</sup></p> <p><i>Results of flood risk assessments (FRA)</i></p>

<sup>1</sup> Sustainable Drainage Systems (SUDS) are management practices and physical structures designed to drain surface water in a more sustainable way than conventional systems.

Objective	Criteria	Indicators (bold indicates existing)
	To promote properly maintained sustainable urban drainage systems to reduce flood risk and run off in areas outside Source Protection Zones 1 (SPZ), <i>having regard to potential compatibility of SUDS with groundwater protection.</i>	
<b>Soil</b>		
4. Minimise development of land with high quality soils and minimise the degradation/loss of soils due to new developments	To safeguard high quality soils, such as agricultural land grades 1, 2 and 3a) from development [Might not be applicable for urban boroughs, such as Watford]	Amount of high quality agricultural land degraded/lost to development Area/percentage of contaminated land remediated
	To limit contamination/degradation/loss of soils due to development. Consider the use of <i>Soil Management Plans and appropriate techniques for the de-contamination of sites.</i>	Number of development sites having a policy to safeguard soils Area of proposed new developments on greenfield sites
<b>Climatic Factors</b>		
5. Reduce the impacts of climate change, with a particular focus on reducing the consumption of fossil fuels and levels of CO <sub>2</sub>	To minimise greenhouse gas emissions (particularly CO <sub>2</sub> ) for instance through more energy efficient design and reducing the need to travel. <i>Promote Travel Plans or an EHHAAP – wide Travel Plan</i>	<b>NAIE Emissions of greenhouse gases (particularly CO<sub>2</sub>) per capita grouped per type of source</b> <b>BV 63 Energy efficiency - average SAP rating of authority dwellings</b> <b>BV 80a (i) Actual/'Typical' energy consumption LA buildings - electricity</b> <b>BV 80a (ii) Actual/'Typical' energy consumption LA buildings - fossil</b>
	To promote increased carbon sequestration e.g. through increases in <i>vegetation</i> woodland cover	
	To adopt lifestyle changes which help to mitigate and adapt to climate change, such as promoting water and energy efficiency (through for instance higher levels of home insulation)	

Objective	Criteria	Indicators (bold indicates existing)
	<i>To promote all new buildings to incorporate renewable energy technology, e.g. PV Cells.</i>	<b>fuels</b> <b>Herts QoL EN1 Energy efficiency in homes - overall reduction in CO<sub>2</sub> emissions %</b> <b>Herts QoL EN2 Energy efficiency in public buildings</b>
	<i>To promote carbon neutral development.</i>	
6. Ensure that developments are capable of withstanding the effects of climate change (adaptation to climate change)	To promote design measures which enable developments to withstand and accommodate the likely impacts and results of climate change (for instance through robust and weather resistant building structures)	Percentage of new developments considered to be 'climate change proof' (For indicators regarding renewable energy see section on material assets)
<b>Air Quality</b>		
7. Achieve good air quality, especially in urban areas	To reduce the need to travel by car through planning settlement patterns and economic activity in a way that reduces dependence on the car and maintains access to work and essential services for non-car-owners	<b>NAIE Levels of key air pollutants (e.g. Benzene, 1,3-Butadiene, CO<sub>2</sub>, Lead, NO<sub>2</sub>, PM10, SO<sub>2</sub>) within the local authority area, and within the East of England</b> <b>Herts QoL QoL27 Air Pollution</b> <b>Herts QoL TR1 Volume of motor traffic</b> <b>Herts QoL TR2 Modal split</b> Number of days when air pollution reported as moderate or higher within the local authority area Number of designated AQMAs
	To integrate land use and transport planning by for instance: <ul style="list-style-type: none"> <li>▪ Promoting Green Transport Plans, including car pools, car sharing as part of new developments</li> <li>▪ Ensuring services and facilities are accessible by sustainable modes of transport</li> </ul>	
	To ensure that development proposals do not make existing air quality problems worse	
	To address existing or potential air quality problems	

Objective	Criteria	Indicators (bold indicates existing)
<b>Material Assets</b>		
8. Maximise the use of previously developed land and buildings, and the efficient use of land	To concentrate new developments on previously developed land (PDL)	<b>COI 1(a) &amp; (c) Amount of land developed for employment by type and percentage which is on previously developed land</b>
	To <del>avoid</del> <i>minimise</i> the use of Greenfield sites for development	<b>COI 1(b) Amount of land developed for employment by type, which is in development and/or regeneration areas defined in the LDF</b>
	To <del>maximise</del> <i>optimise</i> the efficient use of land and existing buildings by measures such as higher densities and mixed use developments	<b>COI 2(b) Percentage of new and converted dwellings on previously developed land</b>
	To encourage the remediation of contaminated and derelict land and buildings	<b>COI 2(c) Percentage of new dwellings completed at: less than 30, between 30 and 50 and above 50 dwellings per hectare</b> <b>Herts QoL LU3 Residential development on previously developed land</b> <b>BV106 % of new homes built on previously developed land</b>
9. To use natural resources, both finite and renewable, as efficiently as possible, and re-use finite	To encourage maximum efficiency and appropriate use of materials, particularly from local and regional sources	Amount and percentage of secondary and recycled materials (including minerals and aggregates) used in construction
	To require new developments to incorporate renewable, secondary, or sustainably sourced local materials in buildings and infrastructure	<b>BV82a Household waste -</b>

Objective	Criteria	Indicators (bold indicates existing)
resources or recycled alternatives wherever possible	To safeguard reserves of exploitable minerals from sterilisation by other developments	<b>percentage recycled</b> <b>BV82b Household waste - percentage composted</b> <b>BV82c Household waste - percentage of heat, power and other energy recovered</b> <b>BV82d Household waste - percentage landfilled</b> <b>BV84 Kg of household waste collected per head</b> <b>Herts QoL WS1 Household waste per capita</b> <b>Herts QoL WS3 Percentage of waste recycled</b> Proportion of developments which incorporates design measures to facilitate sustainable household waste management
	To promote renewable energy sources as part of new or refurbished developments	
	<i>To promote all developments and occupants to minimise waste and optimise the recovery and recycling of waste.</i>	
	<i>To require the use of Sustainable Design and Construction techniques</i>	
	To increase recycling and composting rates and encourage easily accessible recycling systems as part of new developments	
	To promote awareness regarding waste/recycling and renewable energy issues through education programmes in schools and the community	
<b>Cultural Heritage</b>		
10. To identify, maintain and enhance the historic	To safeguard and enhance the historic environment and restore historic character where appropriate, based on sound historical evidence	<b>Number of Listed Buildings at Risk</b> <b>Number and condition of Scheduled</b>

Objective	Criteria	Indicators (bold indicates existing)
environment and cultural assets	To promote local distinctiveness by maintaining and restoring historic buildings and areas, encouraging the re-use of valued buildings and thoughtful high quality design in housing and mixed use developments – to a density which respects the local context and townscape character, and includes enhancement of the public realm	<b>Ancient Monuments (SAMs)</b> <b>Number and condition of Registered Parks and Gardens</b> <b>Number of Conservation Areas</b> <b>% of Conservation Areas with character appraisals</b> Percentage of historic buildings and structures open to the public Numbers of historic assets taken from the 'at risk' category Number of historic assets restored/reused Number of locally important buildings to be demolished Changes inconsistent with historic landscape Quality in the built environment as measured by public perception surveys A measure of increased public access or interpretation of sites
	To promote public education, enjoyment and access of the built heritage and archaeology	
<b>Landscape</b>		
11. To conserve and enhance landscape and	To protect and enhance landscape and townscape character	<b>CQC Changes inconsistent with (local) landscape character</b>



Objective	Criteria	Indicators (bold indicates existing)
townscape character and encourage local distinctiveness	To evaluate the sensitivity of the landscape to new/inappropriate developments and avoid inappropriate developments in these areas	Area of designated landscapes affected by/lost to development <b>CPRE Light pollution and tranquillity mapping</b>
	To protect 'dark skies' from light pollution, and promote low energy and less invasive lighting sources while considering the balance between safety and environmental impacts	
	To minimise the visual impact of new developments	
	<i>To optimise the contribution of the Gateway site to enhancing townscape</i>	
	<i>To encourage contribution of public art (Secure through Percent for Art)</i>	
<b>Population and Human Health</b>		
12. To encourage healthier lifestyles and reduce adverse health impacts of new developments	To promote the health advantages of walking and cycling and community based activities	Length and condition of cycle / footpath network Number and condition of sports facilities <b>COI 4(c) Percentage of eligible open spaces managed to green flag award standards</b> Percentage of population with access to public open space <i>Achievement of Accessible Natural Greenspace (ANGS) targets</i> <b>Herts QoL NO1 Noise complaints</b>
	To identify, protect and enhance open spaces, such as rivers and canals, parks and gardens, allotments and playing fields, and the links between them, for the benefit of people and wildlife	
	To include specific design and amenity policies to minimise noise and odour pollution, particularly in residential areas	
	To narrow the income gap between the poorest and wealthiest parts of the area and to reduce health differential	

Objective	Criteria	Indicators (bold indicates existing)
	<i>To ensure that redevelopment of the EHHAAP area considers the safety implications relating to the Buncefield facility and other hazardous operations</i>	<b>received per 1000 population</b> <b>Herts QoL NO2 Source of noise complaints</b>
	<i>To encourage development of buildings designed to take health issues into account</i>	
13. To deliver more sustainable patterns of location of development	To reduce the need to travel through closer integration of housing, jobs and services	Percentage of health facilities accessible by sustainable modes of travel
	To promote better and more sustainable access to health facilities	<b>Herts QoL TR2 Modal split</b> Accessibility modelling
<b>Social Factors</b>		
14. Promote equity & address social exclusion by closing the gap between the poorest communities and the rest	To include measures which will improve everyone's access to high quality health, education, recreation, community facilities and public transport <i>and improve public transport links to the AAP area from deprived areas.</i>	<b>Index of Multiple Deprivation</b> <b>BV156 % of local authority buildings suitable for and accessible by disabled people</b>
	To ensure facilities and services are accessible by people with disabilities and minority groups	<b>BV170a Number of visits to/usage's of museums per 1,000 population</b>

Objective	Criteria	Indicators (bold indicates existing)
	<p>To encourage people to access the learning and skills they need for high quality of life</p> <p>To ensure that the LDF does not discriminate on the basis of disability, ethnic minority, or gender.</p>	<p><b>BV 117 Visits to libraries Number per capita</b></p> <p><b>Herts QoL SE3 Transport: access to public services</b></p> <p><b>COI 3(b) Percentage of new residential development within 30 minutes of a GP, hospital, primary &amp; secondary school, employment and major health centre</b></p> <p><b>Herts QoL ED1 GCSE performance</b></p> <p><b>Herts QoL ED2 Adult education level 2*</b></p> <p><b>Herts QoL QoL9 Young people with Level 2 qualifications</b></p> <p><b>BV38 % of pupils achieving 5 or more GCSEs at grades A* - C or equivalent</b></p> <p>% pensioners in households with below average income</p> <p>% children in households with below have half average income</p>
<p>15. Ensure that everyone has access to good quality housing that meets their needs</p>	<p>Promote a range housing types and tenure, including high quality affordable and key worker housing</p>	<p><b>COI 2(d) Affordable housing completions</b></p> <p><b>BV184a LA homes which were non-decent at start of year</b></p> <p><b>BV184b Change in proportion on non-decent homes (negative means</b></p>

Objective	Criteria	Indicators (bold indicates existing)
		<b>deterioration in stock)</b> <b>Herts QoL HS1 Affordable housing (house price/earnings affordability ratio)</b> <b>Herts QoL HS2 Statutorily unfit homes</b> <b>Herts QoL HS3 Homelessness</b>
16. Enhance community identity and participation	To recognise the value of the multi-cultural/faith diversity of the peoples in the region	Number of community facilities per 10,000 population
	To improve the quality of life in urban areas by making them more attractive places in which to live and work, and to visit	Town centre health checks CABE design review of schemes with significant impacts (if conducted)
	To encourage high quality design in new developments, including mixed uses, to create local identity and encourage a sense of community pride.	
	<i>To optimise the contribution of the Maylands Gateway to enhancing community identity.</i>	
17. Reduce both crime and fear of crime	To reduce all levels of crime with particular focus on violent, drug related, environmental and racially motivated crime	<b>BV126a Burglaries No. per 1,000 households</b> <b>BV127a Robberies per 1000 population and percentage detected</b>
	To plan new developments to help in reducing crime and fear of crime through thoughtful design of the physical environment, and by promoting well-used streets and public spaces.	<b>BV127b violent offences committed in a public place per 1,000 population</b>
	<i>To help address issues around on-street parking.</i>	<b>BV127c violent offences committed</b>

Objective	Criteria	Indicators (bold indicates existing)
	To support government-sponsored crime/safety initiatives, maximising the use of all tools available to police, local authorities and other agencies to tackle anti-social behaviour	<b>in connection with licensed premises per 1,000 population</b> <b>BV127d violent offences committed under the influence per 1,000 population</b> <b>BV128a Vehicle crimes No. per 1,000 population</b> <b>BV174 Number of recorded racial incidents per 100,000 population</b> Fear of crime statistics
<b>Economic Factors</b>		
18. Achieve sustainable levels of prosperity and economic growth	To support an economy in the Authority which draws on the knowledge base, creativity and enterprise of its people.	<b>Herts QoL EC1 Percentage rise in GVA</b> <b>Herts QoL UN1 Long term unemployment</b> <b>Herts QoL QoL1 Proportion of people of working age in employment</b> <b>COI 1(f) Amount of employment land lost to residential development</b> Business start up failures
	To promote and support economic diversity, small and medium sized enterprises and community-based enterprises. <i>Optimising the mix of premises in the area (B1, B2 and B8). Promote starter and incubator units.</i>	
	To support the economy with high quality infrastructure and a high quality environment	
19. Achieve a more equitable sharing of	To encourage local provision of and access to jobs and services	<b>Herts QoL QoL5 The percentage increase/decrease in the number of</b>

Objective	Criteria	Indicators (bold indicates existing)
the benefits of prosperity across all sectors of society and fairer access to services, focusing on deprived areas in the region	To improve the competitiveness of the rural economy <del>{not applicable for urban boroughs, such as Watford}</del>	<b>local jobs</b> In/out commuting balance Rate of growth of businesses (urban and rural)
20. Revitalise town centres to promote a return to sustainable urban living	To promote the role of local centres as centres for sustainable development providing services, housing and employment, drawing on the principles of urban renaissance. <i>Considering links to nearby centres.</i>	<b>COI 4(b) Percentage of completed retail, office and leisure development in town centres</b>
	To encourage well-designed mixed-use developments in the heart of urban areas, create viable and attractive town centres that have vitality and life, and discourage out-of-town developments	