Centre for Sustainability

Dacorum Borough Council

Sustainability Appraisal (incorporating Strategic Environmental Assessment) Working Note for the Emerging Core Strategy

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1 Introduction

1.1 Background

New regulations require planning authorities to replace their Local Plans with Local Development Frameworks (LDFs). As part of their Local Development Framework, Dacorum Borough Council (DBC) produced and consulted upon an Issues and Options Document in May 2006 which focused on issues and options for the development of the Core Strategy. The views expressed in this consultation have helped to inform the development of the Emerging Core Strategy which begins to firm up DBC's approach to planning within the Borough.

Local Development Frameworks must be subject to both Sustainability Appraisal (SA) and Strategic Environmental Assessment (SEA) under the Planning and Compulsory Purchase Act (2004) and The Environmental Assessment of Plans and Programmes Regulations (2004) which implement European Directive 2001/42/EC, known as the Strategic Environmental Assessment (SEA) Directive. Although the requirement to carry out both an SA and SEA is mandatory, it is possible to satisfy the requirements of both pieces of legislation through a single assessment process. Government guidance for undertaking SEA[1] and SA of Development Plan Documents[2] in particular details how the SA and SEA should be integrated into one process.

The SA/SEA process helps planning authorities to fulfil their objective of contributing to the achievement of sustainable development by providing a structured assessment of the objectives and strategies against key sustainability issues as a basis for plans.

C4S is currently undertaking an SA/SEA of the Emerging Core Strategy for Dacorum Borough Council. SA/SEA is an iterative process involving several stages that are closely linked to the development of the Core Strategy. The stages include:

- Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope;
- Stage B: Developing and refining alternatives and assessing effects;
- Stage C: Preparing the Sustainability Appraisal/Environmental Report;

[1] A Practical Guide to the Strategic Environmental Assessment Directive (ODPM, 2005)

[2] Sustainability Appraisal of Regional Spatial Strategies and Local Development Documents (ODPM, 2005)

- Stage D: Consulting on the draft plan or programme and the Sustainability Appraisal/Environmental Report; and
- Stage E: Monitoring the implementation of the plan or programme.

In February 2006, a Scoping Report was produced and then consulted upon, which focused on the scope of the assessment that would be undertaken. An Issues and Options working paper was then produced which assessed the options outlined in the Council's Issues and Options consultation document in May 2006.

This Working Note summarises the interim findings of the Sustainability Appraisal (SA), incorporating Strategic Environmental Assessment (SEA), on the Dacorum Borough Council Emerging Core Strategy. This Working Note should be read alongside the Emerging Core Strategy Document.

The Working Note does not form a formal part of the SA/SEA reporting process. It has been produced to contribute to the ongoing plan-making process, by providing an independent assessment of the Emerging Core Strategy, with a view to guiding the next stage of its development. 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 Working Note will be posted alongside the Emerging Core Strategy Consultation Document and the Council will invite comments on its content. It will then be followed by a Sustainability Appraisal Report which will accompany the publication of the Core Strategy Pre Submission Document. The SA Report will assess the preferred options against the established SA/SEA Framework.

The format of this working paper is as follows:

- Section 1: Introduction and a description of the appraisal approach taken;
- Section 2: The sustainability of the emerging strategy put forward within DBC's Consultation Document is discussed;
- Section 3: Recommendations have been made related to identified sustainability issues for consideration by DBC in the next stages of developing Preferred Options for the Core Strategy;
- Appendix A: The Sustainability Appraisal Framework; and
- Appendix B: Sustainability Appraisal assessment tables for the Emerging Core Strategy.

1.2 Assessment Methodology

The appraisal approach taken within this working paper utilises the SA/SEA Framework Objectives that were developed for the Sustainability Appraisal Scoping Report for Dacorum Borough Council. This SA Framework has been updated as a result of consultation comments received on the Scoping Report. The SA Framework is provided in Appendix A.

The Emerging Core Strategy's Objectives have been assessed for their compatibility with the SA objectives. The other sections of the Emerging Core Strategy have been assessed against the SA framework objectives in terms of their overall performance ranked from 'very sustainable' to 'very unsustainable', using the scoring criteria outlined below.

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

The effects have also been forecast in terms of their:

- Permanence: permanent or temporary;
- Scale: local (within Dacorum), regional (the East of England region or nearby authorities in the South East and London), national/international (UK or a wider global impact); and
- Timescale: in the short term (1-10 years), medium term (10-20 years) or long term (after the life of the plan).

Where uncertainties were identified, possible measures to offset these effects have been considered, with recommendations provided. The majority of the recommendations have been formulated as part of the ongoing plan making process and have been adopted through continuous improvement of the Core Strategy.

2 Assessment Results

The following section provides a summary of the assessment results. Full assessment tables providing more detailed information can be found in Appendix 2.

2.1 Borough Vision and Aims

Dacorum Borough Council's Sustainable Community Strategy '*Towards 2021'* has the vision of:

> *Working together to make Dacorum a happy, healthy, prosperous and safe place to live, work and visit* (SCS, 2008).

The Local Development Framework contains a list of aims which will help to achieve this vision. The majority of the Borough's aims are assessed as compatible or having no relationship with the SA objectives (Figure 1). However, for six of the objectives a number of incompatibilities and uncertainties have been identified and these are discussed below.

Key to assessment

C	Compatible
N	Not compatible
?	Uncertainty over compatibility
-	No relationship

Figure 1: Compatibility Assessment Borough Aims vs SA Objectives

SA Objectives / Core Strategy Aims	Biodiversity 1	Maintain/enhance water quality/quantity 2	Flood risk 3	Soils 4	Greenhouse gas emissions 5	Climate change proof 6	Air quality 7	Use of brownfield sites 8	Resource efficiency 9	Historic & cultural assets 10	Landscape & townscape 11	Health 12	Sustainable locational development 13	Equity & social exclusion 14	Good quality housing 15	Community identity & participation 16	Crime & fear of crime 17	Sustainable prosperity & growth 18	Fairer access to services 19	Revitalise town centres 20
Establishing a planning framework that ensures a high quality of life and a sustainable future for the borough.	-	-	-	-	C	C	-	-	C	-	-	C	C	C	C	C	C	C	C	C
Delivering the required level of new homes in the borough and meeting the mix of types, tenures and dwelling sizes that are needed.	N	N	?	N	N	-	N	-	-	?	?	-	-	C	C	?	-	C	-	-
Creating opportunities for a vibrant and prosperous economy across the Borough, focussing on improvements to the Maylands area and re-establishing economic confidence in Hemel Hempstead.	?	-	-	?	N	-	N	?	-	-	?	-	C	C	-	-	-	C	C	?
Ensuring the provision of suitable infrastructure to enable the successful delivery of new neighbourhoods and other development.	?	-	-	?	-	-	-	-	-	-	?	C	C	C	C	C	C	C	-	-
Promoting an integrated transport network, with an emphasis on encouraging the use of public transport, cycling and walking, and reducing the overall need to travel by private car.	-	-	-	-	C	-	C	-	C	-	-	C	-	C	-	-	-	C	-	-
Ensuring that all forms of development address climate change through requiring sustainable methods of construction, energy efficient buildings and measures to protect from and reduce the risk of flooding.	-	C	C	-	C	C	-	-	C	-	-	-	-	-	-	-	-	C	-	-
Promoting a sustainable use of natural resources.	C	C	-	C	C	-	-	C	C	-	C	-	-	-	-	-	-	-	-	-
Enhancing Hemel Hempstead's role as the main centre within the Borough, with a thriving sub regional business and shopping hub.	-	-	-	-	-	-	-	-	-	-	-	-	-	C	-	-	-	C	C	C
Protecting and strengthening the role of the borough's two market towns and large villages as attractive local shopping, service and cultural centres.	-	-	-	-	-	-	-	-	-	C	C	-	-	C	-	C	-	C	C	C
Conserving and enhancing the countryside, Green Belt and Chilterns Area of Outstanding Natural Beauty.	C	C	-	C	-	-	-	C	-	-	C	C	-	-	-	-	-	C	-	-
Focusing on the re-use of urban sites, using high quality design, to create safe and attractive environments.	?	-	-	-	C	-	-	C	-	C	C	C	C	C	C	C	C	C	-	C
Ensuring the efficient use of existing land, whilst maintaining the variety and character of the towns and villages.	C	-	-	C	-	-	-	C	-	C	C	-	C	C	-	C	-	-	-	-
Supporting agriculture and other countryside-based enterprises.	?	-	-	?	-	-	-	-	-	-	?	-	-	C	-	-	-	C	C	-
Conserving and enhancing the borough's landscape character, open space, biological and geological diversity, heritage and cultural facilities.	C	C	-	C	?	-	-	C	-	C	C	C	-	-	-	C	-	C	-	-
Making provision for a full range of social, leisure and community facilities.	?	-	-	-	-	-	-	-	-	C	-	C	C	C	-	C	C	C	-	C
Promoting diversity, equality of opportunity and social inclusion in order to meet the different needs within the community.	-	-	-	-	-	-	-	-	-	-	-	C	C	C	-	C	C	C	C	C

2.1.1 Aim: Delivering the required level of new homes in the Borough and meeting the mix of types, tenures and dwelling sizes that are needed

The aim is incompatible with a number of the SA objectives:

- The level of housing development required in the Borough will require development of greenfield land. Development of greenfield land is not compatible with biodiversity due to landtake, potential habitat fragmentation and urban pollution issues. Development on greenfield land would also result in soil sealing.

- Providing new homes in the Borough will put direct pressure on water resources which are already identified as 'over-abstracted'.
- Housing development will result in increases in greenhouse gas emissions from new housing and associated activities. It will also contribute to background emissions through an increase in the number of vehicles on the road thereby reducing air quality.

The aim also has uncertain compatibilities with a number of the SA objectives:

- Parts of the Borough lie within areas of floodrisk and a number of the potential housing sites are within these zones.
- Housing development on greenfield sites is potentially incompatible with the SA objectives on historic & cultural assets, landscape & townscape and community identity & participation depending on the location and quality of the development.

2.1.2 Aim: Creating opportunities for a vibrant and prosperous economy across the Borough, focussing on improvements to the Maylands area and re-establishing economic confidence in Hemel Hempstead

The aim is incompatible with the SA objectives on greenhouse gas emissions and air quality as activities relating to the new employment sites, such as transport and travel, will result in increases in greenhouse gas emissions and other airborne emissions.

The aim also has uncertain compatibilities with a number of other SA objectives. For example, developing employment sites on greenfield land will have uncertain effects on biodiversity, soils and landscape & townscape depending on the exact location and type of employment to be provided. The plan's aim to focus employment development at Maylands could see development on greenfield land, which is potentially incompatible with the SA objective on use of brownfield land.

There is also potential for incompatibility with revitalising town centres as the strategy aims to focus economic development in Maylands which is an out of town development.

2.1.3 Aim: Ensuring the provision of suitable infrastructure to enable the successful delivery of new neighbourhoods and other development

There are potential incompatibilities with biodiversity, soils, and landscape & townscape as providing infrastructure, e.g. roads, utilities, services and community facilities, could lead to effects such as habitat fragmentation and soil sealing depending on the location and design of the infrastructure.

2.1.4 Aim: Focusing on the re-use of urban sites, using high quality design, to create safe and attractive environments

Although this aim should be compatible with the SA objective on biodiversity due to the provision of high quality and attractive environments, potential incompatibilities have been identified as urban brownfield sites could have high biodiversity value. Therefore re-using these sites could be incompatible with biodiversity depending on the sites to be developed.

2.1.5 Aim: Supporting agriculture and other countryside-based enterprises

This aim could lead to an increase in the intensification of agriculture in the Borough which has the potential to be incompatible with the SA objectives on biodiversity, soils and landscape & townscape.

2.1.6 Aim: Conserving and enhancing the borough's landscape character, open space, biological and geological diversity, heritage and cultural facilities

If this aim leads to the creation of woodlands this may be compatible with the SA objective on greenhouse gas emissions due to improved carbon sequestration.

2.1.7 Aim: Making provision for a full range of social, leisure and community facilities

There are potential incompatibilities between this objective and biodiversity as although it could lead to the creation of new nature areas, the objective could also lead to increased disturbance to habitats and species due to recreation activities.

2.2 Borough Themes

The following section summarises the assessment undertaken on the overarching Borough Themes.

2.2.1 Theme 1 – Sustainable Development

Overall the elements that make up this theme are forecast as being likely to have minor positive effects on the SA objectives. Focusing development in Hemel Hempstead is forecast as likely to have positive effects on biodiversity and landscape, due to the protection of countryside, and for greenhouse gas emissions and air quality as a result of reducing the need to travel. The theme supports the use of the Code for Sustainable Homes and promotes measures to help the Borough respond to climate change, including improving water and energy efficiency, encouraging the use of renewable energy and minimising

waste. These measures should have positive effects on the 'water', 'greenhouse gas emissions' and 'resource efficiency' objectives.

Encouraging high quality design and promoting sustainable forms of transport is forecast as likely to have positive effects on the environmental and social objectives, for example high quality urban design could help to "design out" crime from developments. In addition, providing for economic growth should help to increase employment opportunities and could reduce levels of out commuting.

Although the use of previously developed land should reduce the need to develop on greenfield land, brownfield sites can be important areas for urban biodiversity. Therefore the effect of focusing development on previously developed land is considered to be uncertain on the SA objective of 'biodiversity' and is dependent on the biodiversity value of the individual sites.

A sequential approach to land selection for new development that prioritises the use of previously developed land will have a positive effect on the SA objectives 'use of brownfield sites' and 'soils' in the short term. However, the effects in the medium and long term are uncertain as once brownfield land is used there could be need for greenfield development.

Allowing infilling within Greenbelt villages is forecast as having an uncertain effect on landscape and townscape. The effect will be dependent on the land area to be infilled and the location.

Focusing development and associated services in Hemel Hempstead could lead to communities in other settlements becoming isolated if it results in a loss of facilities in the smaller settlements. Therefore adverse effects have been forecast against the 'equality & social exclusion' SA objective. However, improving neighbourhood service provision in local centres should help to mitigate this effect.

2.2.2 Theme 2 – Social and Personal Welfare

Overall the elements within this theme are forecast as being likely to have positive effects on the social and economic SA objectives, while adverse effects have been forecast for the environmental SA objectives. Providing a minimum of 9,000 new homes within the Borough is forecast as likely to have adverse effects on the following SA objectives:

- 'Biodiversity' – The level of housing required in the Borough will require some development on greenfield land. Development of greenfield land could have adverse impacts on biodiversity due to landtake, habitat fragmentation and urban pollution

issues. However, measures included in Theme 4 should help to mitigate these effects as the Theme requires that where new developments involve key habitats, they must not result in any net loss of or fragmentation to biodiversity value.

- 'Water quality/quantity' – The Borough is within an area already identified as 'over abstracted'[3] and therefore providing 9,000 new homes will put direct pressure on these already under pressure resources. Domestic daily water consumption in the Borough is above the national average and the effect is likely to become more **significant** in the longer term as more dwellings are built and the risk of periodic water shortages increases. Elements in Themes 1 and 4 encourage the use of water minimisation methods which should help to mitigate these effects. New development on greenfield sites will inevitably increase the area of impermeable surfaces resulting in increased water run-off and potential pollution to water courses.
- 'Soils' and 'use of brownfield sites' – Although Theme 1 advocates a sequential approach in which previously developed land will be used before greenfield land the level of housing required in the Borough will require some building on greenfield land in the medium and long term. Development on greenfield land will result in adverse effects on soil as a result of soil sealing and potential soil loss.
- 'Greenhouse gas emissions' – Building a minimum of 9,000 new homes could lead to an increase in greenhouse gas emissions of approximately 52,000 tonnes per annum[4]. Elements in Themes 1 and 4 should help to mitigate these effects by encouraging the generation of renewable energy and improvements in energy efficiency.
- 'Air quality' – Housing development in the Borough will contribute to background emissions through an increase in the number of vehicles on the road. Themes 1 and 2 should help to mitigate these effects by encouraging the use of sustainable modes and locating community facilities in accessible locations. During construction there are also potential adverse effects on local air quality close to the development sites.
- 'Resource efficiency' – Housing growth will put demands on natural resources and result in increased waste generation. Maximising opportunities for the use of recycled materials and encouraging on site recycling, as identified by Theme 4, should help to

[3] Colne Catchment Abstraction Management Strategy (Environment Agency, 2007)

[4] This is based upon estimated per capita domestic CO_2 emissions of 2.4 tonnes multiplied by the average number of occupants per household in the Borough of 2.4 [Source: Audit Commission Local Area Profile].

mitigate these effects. The Core Strategy should consider encouraging recycling and composting.

- 'Landscape & townscape' – With some of the proposed housing development being located on greenfield sites and within the Greenbelt, there are likely to be adverse effects on landscape.

A **significant positive** effect on the SA objective 'sustainable locations' is forecast for the element of the Theme that aims to provide health care facilities in locations accessible by walking, cycling and public transport. In addition, several of the elements within the Theme which aim to provide community facilities in locations accessible by walking and cycling and improve access to leisure and recreation facilities could allow for increased participation in healthy activities thereby having a positive effect on the 'health' SA objective.

A **significant positive** effect on the SA objective 'housing' is forecast as providing a higher level of affordable housing should help to deal with the existing shortage of affordable homes in the Borough.

Minor positive effects have been forecast for the other social and economic SA objectives as providing 9,000 new homes will increase the availability of accommodation, will support the local economy by providing the necessary infrastructure and provide a high quality environment in which people will want to live and work.

Other elements that make up this Theme are forecast as likely to have minor positive effects against the SA objectives. The draft policy approach for gypsy and traveller accommodation aims to consider important environmental features and conservation of natural resource which should minimise the adverse effects of these sites on 'biodiversity', 'soils', and 'landscape & townscape'. Also considering the integration of both the gypsy and traveller communities and the settled community could encourage social cohesion, a shared sense of place and reduced fear of crime. Protecting and enhancing existing open spaces should have positive effects on 'biodiversity', 'soils' and 'landscape & townscape'.

2.2.3 Theme 3 – Economic Prosperity

Similar to the effects forecast for Theme 2, the elements within this theme are forecast as likely to have positive effects on the social and economic SA objectives, while some adverse effects have been forecast for the environmental SA objectives.

Providing 18,000 new jobs and creating new employment sites is forecast as likely to have similar effects as Theme 2 on 'biodiversity', 'soils', 'water quality/quantity', 'greenhouse gas

emissions', 'air quality', 'use of brownfield sites' 'landscape & townscape' and 'resource efficiency'. This is a result of developing on greenfield land and increasing water and energy consumption. Uncertain effects have been forecast against a number of the other environmental objectives, including:

- 'Flood risk' – A number of the potential employment sites are located within flood risk zones. Therefore should these sites be developed there is potential for adverse effects on this objective.
- 'Water quality/quantity' – Increasing the number of visitors using the Grand Union Canal and other water courses in the Borough may have an adverse effect on water quality.
- 'Historic & cultural assets' – During construction employment development could have adverse effects on known or unknown cultural assets.

The element of the Theme which aims to focus employment development in and around three towns and smaller settlements is forecast as likely to have positive effects on greenhouse gas emissions and air quality as a result of reducing the number and length of trips. Similarly the elements which aim to maintain the retail hierarchy and discourage out of town shopping are also likely to have positive effects on these SA objectives. Although, the Core Strategy's aim intensify the use of Jarmen Fields as an out of town centre contradicts this policy.

Protecting and enhancing employment opportunities in the Borough is forecast as likely to have **significant positive** effects on the economic and social objectives. For example, providing 18,000 new jobs and regenerating the Maylands business area will help to support the local economy, while providing new jobs could also result in reduced levels of crime.

Other elements that make up this Theme are forecast as likely to have minor positive effects on the economic and social SA objectives. Protecting retail opportunities in the Borough including local retail centres could make the urban areas more attractive places in which to live and work and help to maintain access to local shops for residents.

2.2.4 Theme 4 – Looking after the Environment

Overall the elements within this theme are forecast as likely to have positive effects on the SA objectives. Supporting a hierarchical approach to biodiversity that promotes the creation of a network of greenspaces and green infrastructure is forecast as likely to have a **significant positive** effect on the 'biodiversity' SA objective as it should help to enhance

biodiversity and could help to achieve Biodiversity Action Plan targets depending on the habitats created. In addition, other minor positive effects have been forecast on biodiversity as a result of the strategy's aim to minimise emissions of pollutants and control the impact of contaminated land. However, the effects of the production of biomass on biodiversity remain uncertain as they will be dependent on the type of biomass being used, i.e. the type of crop and the scale of the production.

The Core Strategy's aim to protect and enhance the Borough's high quality built heritage, biodiversity, and landscape character should have positive effects on the environmental, social and economic SA objectives. The provision of a high quality environment will support the local economy, help the urban areas to be attractive places in which to live and work, and improve access to greenspaces. The Core Strategy's aim to minimise pollutants into the natural environment is also forecast as likely to have positive effects on the SA objectives 'water quality/quantity', 'air quality', 'soils' and 'health'.

Promoting efficient use of water and energy should help to progress the SA objectives on 'water quality/quantity', 'greenhouse gas emissions' and 'resource efficiency'. Also encouraging efficient use of water resources through the use of water conservation measures and the effective management of grey water could help new developments to cope with drier summers thereby helping to progress the 'climate change proof' SA objective. Locating development away from floodplains and managing run-off should help to minimise the risk of flooding.

2.3 Borough Places

The Emerging Core Strategy contains spatial strategies for the each of the main settlements within the Borough and the Borough's Countryside. Each spatial strategy contains the following elements which have been assessed against the SA objectives:

- A Vision;
- Development Options; and
- Themes
    - Theme 1: Looking after the Environment
    - Theme 2: Social and Personal Welfare
    - Theme 3: Economic Prosperity
    - Theme 4: Location and Access

Generic issues, such as those relating to the effects of house building, have not been assessed for the individual spatial strategies themes as these issues have been assessed within the overarching Borough Themes assessment. Also, specific site issues have been picked up within the assessment of the development options.

However for the Hemel Hempstead Spatial Strategy, as specific development site options have not been assessed, some generic issues have been considered within the assessment of this strategy.

The following sections summarise the main findings of the assessment. The full assessments are provided in Appendix B.

The visions for the individual settlement spatial strategies support the majority of the SA objectives, particularly those that relate to social aspects, such as housing, economy, and access and provision of services. The visions also reflect a consideration of the natural environment (i.e. landscape, water, cultural heritage and biodiversity). In terms of the less tangible SA topics such as air and soil, the visions are less supportive; however, this is not indication of any negative relationships being identified. In relation to the local economy, the visions provide support for local supply chains which should help to achieve the related SA objectives.

There is uncertainty over how the visions will meet the SA objectives 'resource efficiency' and 'climate change proof', which could be considered at the next stage during the preparation of the Core Strategy if appropriate.

The vision for the countryside similarly supports the majority of the SA objectives, particularly those that relate to landscape, water, biodiversity and access by improving public transport. However, although the need for housing and employment development in the countryside is recognised in the vision it is less prominent than within the other spatial strategies.

2.3.1 Berkhamsted

Development Options Assessment

- Option 1: Land off New Road
- Option 2: Land south of Hilltop Road
- Option 3: Land adjacent to Hanburys, Shootersway
- Option 4: Land adjacent to Blegberry Gardens, Shootersway

Options	SA Objectives (Abridged)																			
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	×	?	-	×	×	-	×	×	-	×	×	×	× ✓	× ✓	✓	-	-	✓	✓	✓
2	×	-	-	×	?	-	?	×	-	-	×	×	✓	✓	✓	-	-	✓	✓	✓
3	×	-	-	×	×	-	×	×	-	-	×	×	× ✓	× ✓	✓	-	-	✓	✓	✓
4	×	-	-	×	×	-	×	×	-	-	×	×	×	×	✓	-	-	✓	✓	✓

Similar adverse effects have been forecast for the 'biodiversity', 'soils', 'use of brownfield sites' and 'landscape' SA objectives for all four options as all of the sites are greenfield, within the Greenbelt and would therefore result in loss of landscape character, loss of habitats and soil sealing. Positive effects have been forecast for the 4 options on the 'housing', 'sustainable prosperity and growth', 'fairer access to services' and 'revitalise town centres' objectives. All of the options will provide housing, including affordable. The provision of additional housing means there will be more residents in the community making facilities and shops more viable. This would help support the local economy. As option 4 is the largest this would provide more housing than the other options, thereby having a greater effect on the local economy, it would also provide for greater developer contributions.

A number of differences have been identified between the options. With regard to 'greenhouse gas emissions' and 'air quality', options 1, 3 and 4 are located at a distance from the town centre, which could encourage greater car use thereby leading to increasing emissions. Option 2 is relatively close to the town centre and the railway station which should reduce the need to travel by car. However, the gradient between the town centre and the site may make walking and cycling difficult. Options 3 and 4 are the least accessible by walking and cycling due to the gradient between the development site and town centre.

The location of the options and the topography of Berkhamsted has lead to options 1, 3 and 4 being forecast as likely to have adverse effects on health as active travel such as walking and cycling would be discouraged. Option 2 would be closer to the town centre however this option would result in loss of playing fields, which could limit leisure opportunities and again

restrict opportunities for healthier lifestyles. Options 3 and 4 are located near to the A41 which could result in noise levels that could affect adversely effect health.

Adverse effects have been forecast for option 4 on 'sustainable locations' and 'equality & social exclusion' as the site is located at a distance from the town centre and state schools. Combined positive and adverse effects have been forecast on these objectives for options 1 and 2 as although they are both located a distance from the town centre, the sites are close to schools or employment.

Adverse effects have been forecast for option 1 on 'historic & cultural assets' as the site is located in an area of archaeological significance and development could impact upon the setting of the Grand Union Canal. Uncertain effects have been forecast for this option on 'water quality/quantity' due to the proximity of the site to the canal and potential for polluted run-off entering the water course.

Spatial Strategy Theme Assessment

Themes	SA Objectives (Abridged)																			
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	✓	✓	✓	-	-	-	-	✖	-	-	✓	✓	-	-	✓	-	-	-	-	-
2	-	-	-	-	-	-	-	✓ ✖	-	-	-	-	✓	✓	✓✓	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	✓	✓	✓	✖	✓
4	?	-	-	-	✓	-	✓	-	-	-	✓	✓	-	✓	-	-	-	-	-	-

Elements within Theme 1 are forecast as having likely positive effects on the environmental SA objectives. Elements within the Theme aim to protect, maintain and enhance designated wildlife, geological sites and water courses. Measures also aim to deculvert the river which could have positive effects for the river's biodiversity and water quality and could also reduce flood risk. Preventing new development along open valley sides and ridge top locations, due to farmland, mixed woodlands, large country estates and historic parklands as well as scenic views is forecast as likely to have positive effects on protecting landscape character. However, elements within Theme 1 also encourage lower density development

away from the town centre and this would have adverse effects on the 'use of brownfield sites' objective which encourages maximising efficient use of land.

Positive effects have been forecast for elements within Theme 2 on the social SA objectives. In particular, **significant positive** effects have been identified for the 'housing' objective as the spatial strategy recognises the need to maximise opportunities for the provision of affordable housing within the settlement. To meet the needs of the local area, Theme 2 recognises that there may be use of a greenfield site to provide housing. This does not meet the 'use of brownfield sites' objective which aims to avoid use of greenfield sites for developments.

Measures contained within Theme 3 are forecast as having likely positive effects on the social and economic objectives. The spatial strategy encourages development within the town to ensure that it is a more attractive place in which to live and work. This should progress these objectives by contributing to providing a sense of community and identity. Protecting existing employment will help to support the local economy. However, as expansion of the British Film Institute (BFI) is limited to due to the surrounding Green Belt, this could mean that local provision of jobs is affected if the BFI move elsewhere if there is no opportunity for further jobs to be created.

Uncertain effects have been forecast for a number of the environmental objectives as a result of elements within Theme 4. There is recognition in the spatial strategy that there is a need for improved and additional footways and cyclepaths. This may have a positive effect on greenhouse gas emissions and air quality, as transport is a key source of emissions, and should private car users change their mode of travel and use the cyclepaths/footpaths instead of cars this could reduce airborne emissions.

2.3.2 Bovingdon

Development Options Assessment

- Option 1: Duckhall Farm
- Option 2: Rear of Green Lane
- Option 3: Grange Farm
- Option 4: North of Chesham Road

Options	SA Objectives (Abridged)																			
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	×	-	-	×	✓ ×	-	✓ ×	×	-	×	×	?	✓	-	✓	-	×	✓	✓	✓
2	× ✓	-	-	×	✓ ×	-	✓ ×	×	-	-	×	✓	✓	-	✓	-	-	✓	✓	✓
3	×	-	-	×	✓ ×	-	✓ ×	×	-	-	×	✓	×	-	✓	-	-	✓	✓	✓
4	×	-	-	×	✓ ×	-	✓ ×	✓	-	-	×	?	×	-	✓	-	×	✓	✓	✓

The assessment indicates that there is little differentiation between the four development options. Similar adverse effects have been forecast for the 'biodiversity', 'soils', 'use of brownfield sites' and 'landscape' as all of the sites are greenfield, within the Greenbelt, and would therefore result in loss of landscape character, loss of valuable habitats and soil sealing. Option 2, however is located within an area of biodiversity deficiency, so this option could provide opportunities for new habitat creation. Also, the option 4 site is located on a site of approx 60% previously developed land, which provides opportunities for this option to make environmental improvements.

In relation to 'greenhouse gas emissions' and 'air quality', adverse effects have been identified for all four options as there is an existing issue with traffic congestion in the village, which may increase with more people locating to the area. However, potential positive effects which could help to mitigate these adverse effects have also been identified for all of the options. Options 1 and 2 are located close to the village, which could encourage cycling and walking rather than use of the car, although the presence of a busy road between option 1 and the village centre may discourage pedestrians and cyclists. Options 3 and 4 are located further from the village which could discourage cycling and walking, however the areas between the sites and the village centre are relatively flat, which makes walking and cycling feasible. Option 4 is also separated from the village by a relatively busy road which again may discourage pedestrians and cyclists.

In terms of the social SA objectives all four of the options provide opportunities for the creation of open space, with option 3 likely to provide the largest amount. However, uncertainties have been forecast for health as a result of options 1 and 4 as there is a busy

road separating the site from the village centre which may pose an accident risk and could discourage the elderly, disabled people and children from moving around freely in the area. Options 1 and 4 are located near to The Mount prison which could result in anxiety related to the fear of crime. Options 3 and 4 are further from the village centre so community facilities would be harder to reach from these sites. All of the options should help to provide affordable housing.

In terms of the economic aspects, all of the options should help to make local facilities and services more viable. The options should also therefore help to revitalise local centres and maintain community vibrancy and vitality.

<u>High Street Parking Options</u>

- Option 1: Two small car parks
- Option 2: Formal parking bays

Options	SA Objectives (Abridged)																			
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	?	-	-	?	✓	-	✓	?	-	-	✓ ?	✓	✓	✓	-	✓	?	?	?	✓
2	-	-	-	-	✓	-	✓	-	-	-	✓	✓	✓	✓	-	?	?	?	?	✓

Option 1 is forecast as having uncertain effects on a number of the environmental SA objectives. If the proposed new car parks are created on greenfield sites there is potential for adverse effects on 'biodiversity', 'soils', 'use of brownfield sites' and 'landscape & townscape'. Positive effects are forecast for 'landscape & townscape' as both options should reduce on-street parking levels and traffic congestion. Positive effects have also been forecast for 'greenhouse gas emissions' and 'air quality' for both of the options. If the two options have the desired effect of reducing congestion in the High Street, this could lead to lower levels of emissions due to traffic flowing more freely. This should also make it more attractive for cyclists and pedestrians to use the High Street which could have a further positive effect on reducing emissions. The level of the effect is dependent on whether car users will switch to cycling or walking as a means of access to the High Street.

The two parking options are forecast as likely to have predominantly similar effects on the social SA objectives. Both options would provide improved access to services and facilities on the High Street thereby having positive effects on 'sustainable locations' and 'equality & social exclusion'. By seeking to improve the public realm and pedestrian environment in the High Street they would support the promotion of Bovingdon as a local centre therefore having a positive effect on 'revitalising the town centre'. Also improving the environment in the High Street for cyclists and walkers could have a benefit to 'health' and help to promote healthier lifestyles.

Both options could provide improved access to services and facilities and encourage more people to shop locally. However, if shoppers find it inconvenient to use the car parks and walk to the High Street (as a result of option 1) or if it is more difficult for people to park as there are fewer parking spaces (as a result if option 2) they may choose to shop elsewhere, where parking may be more convenient. This could result in reduced levels of trade for local retailers and service providers. Their effect has therefore been forecast as uncertain.

Different effects have been forecast for the SA objective 'community identity & participation'. Although both options should help to improve the public realm in the High Street, making it a more attractive place to work or to access services & facilities, option 2 could result in an increase in on-street parking on roads off the High Street. This could adversely affect the quality of life of the residents of those streets.

Spatial Strategy Theme Assessment

Themes	SA Objectives (Abridged)																			
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	✓	-	-	-	-	-	-	*	-	✓	✓	-	-	-	-	✓	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	✓✓	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	✓	-	✓	✓	✓
4	-	-	-	-	✓	-	✓	-	-	-	-	-	-	✓	-	-	-	-	-	-

Elements within Theme 1 are forecast as being likely to have positive effects on three of the environmental SA objectives. The spatial strategy recognises that there are some sites of significant wildlife and biodiversity value on the outskirts of the village and therefore the strategy aims to maintain and enhance these, as well as maintaining the countryside setting of the village. It is stated that the design of new development will respect and relate to the village's Conservation Area and Listed Buildings and that it is important not to let the growth of the village interfere with the landscape setting and key views. Measures within Theme 1 also aim to protect and enhance views and gateways into and out of the village. This should help to maintain 'community identity & participation' by making Bovingdon a more attractive place in which to live, work and visit. However, elements within Theme 1 would also encourage lower density development away from the town centre and this would have adverse effects on the 'use of brownfield sites' objective which encourages maximising efficient use of land.

Theme 2 states that the Open Land Strategy (part of the Local Plan) will be progressed, and this will therefore have a positive effect on landscape as the strategy protects open land. This is also forecast as being likely to have positive effects on health as it protects open land which can be used for recreation and provide opportunities for healthier lifestyles. **Significant positive** effects have been forecast for the 'housing' objective as the spatial strategy recognises the need to maximise opportunities for the provision of affordable housing within the village.

Measures contained within Theme 3 are forecast as likely to have positive effects on a number of the social and economic SA objectives. The High Street currently contains a mix of shops and services which reduces the need to travel, and the spatial strategy aims to maintain this mix thereby having a positive effect on the 'sustainable locations' SA objective. The strategy recognises that the High Street is important to the vibrancy of the village, and also aims to maintain this to ensure that Bovingdon is an attractive place in which to live and work. The spatial strategy supports local businesses by enabling them to retain the village's designation as a major development site (MDS) within the Green Belt, and promoting the shopping function of the local centre. This will encourage economic diversity as it provides for a range of businesses within the village and will provide employment opportunities for the local residents.

Elements within Theme 4 encourage more cycling through better cycle access to the High Street. This may have a positive effect on greenhouse gas emissions and air quality, as transport is a key source of emissions and should private car users change their mode of

travel and use the cyclepaths instead of their car this could reduce emissions. The spatial strategy aims to maintain the existing range of facilities and services within the settlement. This will protect the existing access to services and facilities for the local population.

2.3.3 Hemel Hempsted

Policy X: Town Centre Spatial Principles Assessment

SA Objectives (Abridged)																			
1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
✓	✓	✓	-	✓	**?**	✓	-	✓	✓	✓	✓	✓	✓	✓	✓	**?**	✓	✓	✓

Overall the town centre spatial principles are forecast as having positive effects against the SA objectives.

- Requiring all developments to contribute towards enhancing the environment in the town centre by creating a riverside walk, providing a network of urban open spaces and maximising the views and vistas of greenspaces could have a positive effect on 'biodiversity'. These measures could also help to improve the health and well-being of local residents.
- Requiring all developments to design sustainable buildings including water conservation measures and the use of SUDS should have a positive effect on 'water quality/quantity' and 'flood risk'.
- Focusing retail development and other town centres uses including leisure, offices, hotels, and arts and entertainment, within the town centre along with measures to improve integrated transport, such as though improved pedestrian interchange, cycle and bus priority could help to reduce the need to travel and reduce reliance on the private cars. This could have a positive effect on reducing growth in greenhouse gas emissions and improving local air quality. Measures to improve walking and cycling could also have positive effects on health through encouraging active travel.

- Requiring all developments to design sustainable buildings and layouts including energy conservation measures and renewable energy generation should help to reduce the growth of greenhouse gas emissions from the new developments and improve resource efficiency.
- Ensuring that individual developments contribute to a coherent and distinctive sense of place for the town centre as a whole and enhancing the distinct identity of each character zone should help to protect and enhance the 'Old Town' Conservation Area.
- Providing high quality streets and public realm through a co-ordinated design strategy which maximises the views and vistas of key buildings public art and greenspaces should have a positive effect the 'landscape & townscape' SA objective.
- Focusing retail development and other town centres uses including leisure, offices, hotels, and arts and entertainment, within the town centre should improve the provision of community facilities, support the local economy, provide jobs and help to revitalise the town centre. Also by focusing this development in a town centre location which is most accessible by all forms of transport should improve access to facilities and services, particularly for those without access to a car.
- Incorporating residential development within the town centre will provide housing for local residents, some of which would likely be affordable.
- All of the spatial principles should help to improve the quality of the town centre thereby making it a more attractive place in which to live, work and to visit and supporting the local economy.

There remains uncertainty with regard to the 'climate change proof' SA objective as although the principles require all developments to have sustainable buildings and layouts this may not result in developments which are able to respond to changing environmental conditions. There also remains uncertainty with regard to the 'crime and fear of crime' SA objective as providing high quality streets and a high quality public realm may help to 'design out' crime.

<u>Policy Y: Town Centre Character Zones Assessment</u>

- Zone 1: Waterhouse Square
- Zone 2: Old Town
- Zone 3: Hospital Zone
- Zone 4: Original Marlowes Zone
- Zone 5: Marlowes Shopping Zone
- Zone 6: Plough Zone

Character Zone	SA Objectives (Abridged)																			
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	✓	✓	**?**	-	✓	-	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓
2	-	**?**	**?**	-	✓	-	✓	-	-	✓	✓	✓	✓	-	-	✓	-	**?**	✓	✓
3	✓	-	-	-	**?**	-	**?**	✓	-	-	✓	**?**	**?**	**?**	✓	✓	-	✓	✓	✓
4	-	-	-	-	✓	-	✓	✓	-	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	✓
5	-	**?**	**?**	-	✓	-	✓	✓	-	-	✓	✓	✓	-	-	✓	-	✓	✓	✓
6	-	**?**	**?**	-	✓	-	✓	-	-	-	✓	✓	-	-	-	✓	-	✓	✓	✓

Opening up the River Gade, in Waterhouse Square, to re-establish and enhance its biodiversity value should help to progress the SA objective on biodiversity. The provision of a network of new urban open spaces could also have a positive effect on this SA objective should these open spaces contain some biodiversity value, such as trees or other planting. The provision of a new green open space in the Hospital Zone should have a positive effect on 'biodiversity'. This zone and the Plough Zone are adjacent to a wildlife site and this should be considered when developing within these areas.

The River Gade runs through Waterhouse Square, the Old Town, the Original Marlowes Zone and the Plough Zone. Therefore any developments close to the river within these zones may have an adverse effect on water quality. Part of these zones are also within floodzones 2 and 3 and although a flood alleviation scheme manages water flows in the town centre any potential effects are dependent on the ability of the scheme to cope with future major rainfall events.

Improving pedestrian and cycle links and the pedestrian streetscapes within the zones could encourage use of more sustainable modes of transport thereby reducing greenhouse gas emissions and other airborne emissions from transport. These improvements could also allow for increased daily physical activity thereby having a positive effect on health. Other positive effects on health and wellbeing have been identified as a result of providing a network of new urban open spaces and opening up of the River Gade in Waterhouse Square

The effects of the potential relocation of the hospital from the Hospital Zone to Maylands on several of the SA objectives are uncertain. The relocation could make it more difficult to access healthcare facilities for a larger proportion of residents and may result in increased number of car trips, thereby leading to increased emissions from transport. However a new GP surgery may be provided on the old hospital site providing access to local GP services.

Proposed redevelopment and regeneration of sites within Waterhouse Square, the Hospital Zone, the Original Marlowes Zone and the Marlowes Shopping Zone will progress the SA objectives 'use of brownfield sites', 'landscape & townscape' and 'community identity & participation'. Enhancing the pedestrian streetscapes within the Marlowes Shopping and Plough Zones should help to improve townscape within these areas. All of these zones should become more attractive places in which to live, work and visit.

Positive effects have been forecast on 'historic & cultural assets' as a result of measures outlined for three zones:

- In Waterhouse Square enhancing the quality of the formal vista of St Mary's Church in the Old Town should help to progress this objective.
- Enhancing the environmental quality of the Old Town and ensuring the distinctive character and sense of place of the zone is maintained and enhanced should have a positive effect on this SA objective.
- Ensuring the distinctive character of the surviving Listed Buildings in the Original Marlowes Zone is maintained and their surroundings are enhanced should have a positive effect on this SA objective.

Providing a network of urban open spaces, new civic offices, a performing arts venue, an integrated bus terminal, a library and enhancement to West Herts College in Waterhouse Square should help to improve access to community facilities. Protecting existing businesses and providing new employment opportunities within the zones should help to support the local economy and provide local jobs. For example, retaining and expanding shopping within the Marlowes Shopping Zone will provide local jobs in retail.

Providing new open spaces, including a new public square, opening up the River Gade, enhancing the environmental quality of the Old Town, encouraging mixed used developments (including housing) and improving integration between the zones should help to revitalise the town centre.

Spatial Strategy Themes Assessment

Themes	SA Objectives (Abridged)																			
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	✓	-	-	-	✓	-	-	-	✓	✓	✓	✓	-	✓	-	✓	-	✓	-	-
2	✖	✖	?	✖	✖	-	✖	✖	✖	?	✖	✓	?	✓	✓✓	✓	-	✓	✓	✓
3	?	?	?	✖	?	-	✖	✖	?	?	?	✓	✓	✓	✓	✓	✓	✓✓	✓	✓✓
4	?	?	?	?	?	-	?	?	-	?	?	✓	✓	✓	-	✓	✓	?	✓	✓

Elements within Theme 1 are forecast as likely to have positive effects on many of the SA objectives. For example, providing enhancing and creating new open spaces should have positive effects on 'biodiversity', 'landscape & townscape', 'health', 'equality and social exclusion', 'community identity & participation' and 'sustainable prosperity and growth'. The development of a Green Energy Centre at Maylands which should produce heat and power for the business area and potential new residential areas and requiring new development to reduce carbon emissions in line with the Code for Sustainable Homes reduce the growth of carbon emissions from new developments thereby having positive effects on both the 'greenhouse gas emissions' and 'resource efficiency' SA objectives.

Elements within Theme 2 are forecast as likely to have adverse effects on several of the environmental SA objectives.

- The level of housing required in the town along with other new facilities such as the town stadium will require some development on greenfield land. Development of greenfield land could have adverse impacts on habitats and species due to landtake, habitat fragmentation and urban pollution issues. Development on greenfield land will also result in soil sealing.
- As the Borough is already within an area identified as 'over-abstracted' providing 2,900 new homes in Hemel Hempstead will put direct pressure on these already under pressure water resources.

- Housing development will result in an increase in greenhouse gas emissions and other emissions to air from the new housing and associated activities such as transport. Relocating the town stadium to the edge of the town at Maylands is likely to result in increased emissions. Housing growth will put demands on natural resources and result in increased waste generation.

Positive effects have been forecast for a number of the measures under this Theme. The large scale development of new community facilities for children young people and the elderly (including day care provision) within the town centre and at Maylands could improve access to health care facilities. Also, developing a new local hospital with an Urgent Care Centre and GP led services in the town centre or at Maylands could improve healthcare. However, consideration will need to be given to access issues should the hospital be located in the east of the town. Other positive effects on the local community have also been identified as the strategy also discusses the provision of a new performing arts centre, a multicultural centre, new civic buildings, a riverside walk and community facilities which will provide opportunities for cultural or faith meeting places. All of which should benefit the local residents.

Significant positive effects have been forecast for the 'housing' objective as the strategy aims to build 2,900 new dwellings within the town. The strategy aims to provide the majority of these new homes within the town centre which should have a positive effect on revitalising Hemel Hempstead by increasing the levels of people living within the centre of the urban area. Providing these new homes along with improving access to community and leisure activities will support the economy by providing necessary infrastructure and producing a high quality urban environment in which people will want to live and work.

Elements within Theme 3 are also forecast as likely to have some adverse effects. Whilst some new employment development will take place on previously developed land, which there are areas of open land that will be lost, for example, in the Maylands Gateway. The loss of this open land will have a negative impact the 'use of brownfield sites' SA objective. Activities relating to the new employment sites and the provision of new jobs within the town, i.e. transport activities will result in some increases in greenhouse gas emissions and other airborne emissions. The effects on 'greenhouse gas emissions' are however considered to be uncertain as they could be mitigated by the creation of the Green Energy Centre and the proposed sustainable transport network.

Many of the measures outlined within Theme 3 are forecast as likely to have positive effects on the social and economic objectives. **Significant positive** effects have been forecast for

the 'sustainable prosperity & growth' SA objective as the strategy aims to create new businesses and employment opportunities in the town. Regeneration of the town centre and the development of a rate business park at Maylands is likely to have a **significant positive** effect on the SA objective 'revitalise town centres' as it will not only help to revitalise the town centre but it will also revitalise a major local centre.

Many uncertain effects have been forecast on the environmental objectives as a result of Theme 4. Traffic modelling suggests that the proposed developments in the town will produce additional traffic thereby requiring a number of infrastructure upgrades. Depending on their location these upgrades could have adverse effects on 'biodiversity', 'soils', 'water quality', 'flood risk', 'historic & cultural assets' and 'landscape & townscape'. Developing a new integrated bus station in the town centre, enhancing the railway station, providing a park and ride at Maylands and improving the bus services could reduce the need to travel by private vehicle thereby helping to reduce the growth of green house gas emissions and other emissions to air likely as a result of development within the town. However, the proposed transport upgrades may also lead to induced traffic thereby leading to increased emissions. The potential effects of these upgrades will need to be carefully considered as the strategy develops.

Positive effects have been forecast on the majority of social and economic SA objectives as improving public transport services should improve access to community facilities for those people without access to a private vehicle. It could also more people to use more active form of travel, which normally requires some level of walking or cycling.

2.3.4 Kings Langley

Development Options Assessment

- Option 1: Rectory Farm
- Option 2: Wayside and Broadfield Farms

Options	SA Objectives (Abridged)																			
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	×	?	×	×	✓	-	✓	×	-	-	×	✓	✓	✓	✓	✓	-	✓	✓	✓
2	×	-	-	×	✓	-	✓	×	-	×	×	✓ ×	✓	✓	✓	-	-	✓	✓	✓

Both of the options are identified as having similar adverse effects on several of the environmental SA objectives. Option 1 is located in the Greenbelt, adjacent to a wildlife site and is a partly greenfield site. The development would therefore result in the loss of habitats and soil sealing. Option 2 is also in the Greenbelt, is greenfield and would result in the loss of habitats and soil sealing. The potential removal of unattractive buildings in option 1 would however help to improve the townscape.

The proximity of option 1 to the canal makes the effect of this site on 'water quality/quantity' uncertain due the potential for adverse effects from run-off. A small part of the site is located in flood zones 2 and 3 and there would therefore be a flood risk for new development. Option 2 is located within an "18th-19th century enclosure" (Historic Landscape Characterisation) and contains one Listed Building. There could therefore be adverse effects of developing this site on 'historic & cultural assets'.

Both options are located close to the village, with option 2 being located closer to the railway station than option 1. This could encourage cycling and walking rather than private car use, which could improve local air quality and reduce growing greenhouse gas emissions. Both options would also provide opportunities for open space and encourage walking and cycling thereby having positive effects on health. Option 2 would, however, be affected by noise from both the M25 and the A41.

In terms of the economic aspects, all options should help to provide good quality, affordable housing and help to make local facilities and services more viable through increasing the number of residents. The options should both help to revitalise the local centres by maintaining community vibrancy and vitality.

Spatial Strategy Theme Assessment

Themes	SA Objectives (Abridged)																			
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	✓	✓	-	-	✓	?	-	✖	?	✓	✓	✓	-	-	-	✓	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓✓	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	✓	-	✖	✓	✓
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-

Measures contained within Theme 1 are forecast as likely to have positive effects on a number of the environmental and social SA objectives. Kings Langley has a number of sites of significant wildlife and biodiversity value on the outskirts of the village, which the Spatial Strategy aims to protect and enhance. This should have a positive effect on the 'biodiversity' SA objective. The Spatial Strategy recognises that the canal is an important part of Kings Langley and that future development must relate well to the canal corridor. Therefore, this could have a positive impact on 'water quality/quantity'. Theme 1 indicates that new developments will be built to high, sustainable standards, which should encourage more energy efficient designs which would help to reduce greenhouse gas emissions.

Positive effects have been forecast for 'historic & cultural assets', 'landscape & townscape' and 'health'. The Spatial Strategy states that the design of new development will respect and relate to the Conservation Area and Listed Buildings and that growth in the village will not interfere with the landscape setting of the village and its key views. It also recognises that the village contains a relatively high provision of informal open space and that this will be protected and possibly enhanced.

Uncertain effects have been forecast for the 'climate change proof' SA objective as although Theme 1 indicates that new developments will be built to high, sustainable standards, it is not however clear whether the sustainable measures will encourage design measures that will allow buildings to withstand the likely impacts of climate change. Uncertain effects have also been forecast for 'resource efficiency'. The Spatial Strategy recognises that the head

office of a global leader in renewable energy is located on the edge of the village, and that this gives the village an opportunity to draw on this expertise. This may provide opportunities for the village to use renewable energy sources as part of their developments. Elements within Theme 1 encourage lower density development moving away from the town centre and this would have adverse effects on the 'use of brownfield sites' objective which encourages maximising efficient use of land.

Significant positive effects have been forecast for the 'housing' objective as elements within Theme 2 of the spatial strategy recognise the need to maximise opportunities for the provision of affordable housing within the village.

Positive effects have been forecast for a number of the social and economic SA objectives as a result of elements within Theme 3. The High Street has a mix of shops and services which reduces the need to travel elsewhere for these services. The Spatial Strategy aims to maintain the range of facilities and services and this will protect access to services and facilities thereby having a positive effect on the 'equality & social exclusion' SA objective. The Spatial Strategy recognises that the village centre is vibrant and will maintain this to ensure that it remains an attractive place in which to live and work. This contributes to progressing the 'community identity & participation' SA objective.

The Spatial Strategy expects local businesses to contribute to local services, employ local people and benefit the rural environment. This could have a positive effect on 'fairer access to services' as it encourages local provision of and access to jobs and services. However, potential adverse effects have been identified for the 'sustainable prosperity & growth' objective. A number of local businesses are located on potential sites for housing development and should this housing development proceed these businesses could be lost. If this occurs, there will be a loss of small scale employment sites in the Dacorum part of Kings Langley, placing more reliance on retention of employment sites in Three Rivers District.

One element within Theme 4 is forecast as likely to have a positive effect on 'fairer access to services' as it aims to provide better signage for local transport and pedestrian links, in the village and along the canal.

2.3.5 Markyate

Development Options Assessment

- Option 1: Hicks Road (consolidated employment uses and 40 - 60 dwellings)
- Option 2: Hicks Road (100 dwellings and shops) plus the relocation of employment uses to a site on the southern edge of the village

Options	SA Objectives (Abridged)																			
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	✓	✓	×	?	✓ ×	-	✓ ×	✓	-	-	✓	✓ ×	✓	✓ ×	✓	✓	-	?	✓	✓
2	✓ ×	?	× ×	? ×	×	-	✓ ×	✓ ×	-	- ?	✓	✓ ?	✓ ×	✓ ×	✓	✓	-	✓	✓	✓

Option 1

Option 1 is forecast as having positive effects on 'biodiversity' and 'water quality/quantity' as a result of de-culverting the River Ver. However, a large part of the site is in flood zones 2 and 3 and there would therefore be flood risk for new developments. The site is located in the centre of the village. This could encourage cycling and walking rather than use of the car, which would thereby help to reduce the growth in greenhouse gas emissions and other emissions to air. However, poor public transport connections could result in higher car use exacerbating existing congestion within the village. Therefore a mixed assessment has been forecast for the 'greenhouse gas emissions' and 'air quality' SA objectives.

Re-use of this brownfield site is forecast as likely to have positive effects on 'landscape & townscape' and 'community identity & participation' as redevelopment of the vacant and redundant buildings in the existing industrial estate would help to improve the appearance of this part of the village. As the option is located in the village centre, it would provide good access to facilities thereby having positive effects on a number of the social and economic objectives. This central location would, for example, provide opportunities for walking and cycling which could encourage healthier lifestyles.

This option would mean that there would be a mix of housing and industrial uses, which could cause traffic congestion and conflict as lorries travel through the village centre to access the businesses. Also, the new dwellings would be affected by noise from commercial operations as well as from the nearby A5.

Option 2

As option 2 also requires development at Hicks Road a number of the effects identified for option 1 are similar to those which have been forecast for option 2, such as those forecast for 'biodiversity' due to the de-culverting and 'landscape & townscape' due to the redevelopment of vacant buildings. However, due to the differences in the proposed uses at the Hicks Road for option 1 and 2 some differences have been identified. For example, due to the relocation of the employment away from Hicks Road option 2 will provide for greater levels of housing, employment and other community facilities than option 1.

Option 2 also requires the development of a new employment site on the southern edge of the village. This greenfield site is located in the Greenbelt and within a wildlife corridor. Its development is therefore likely to result in the loss of habitats, impacts on landscape character and soil sealing. The site is also on the edge of flood zones 2 and 3 and there would therefore be flood risk for new developments.

Relocating employment uses out of the centre of the village is likely to increase the dependency on private transport to access employment. This could result in an increase in the level of greenhouse gas emissions and other emissions to air. Negative effects have therefore been forecast for 'greenhouse gas emissions' and 'air quality' although removing lorries and vans associated with the Hicks Road Industrial Estate from the village centre is likely to result in some local air quality improvements. For similar reasons the option could also mean that noise levels within the village are reduced.

Spatial Strategy Theme Assessment

Themes	SA Objectives (Abridged)																		
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	-	-	-	-	✓	?	-	✖	-	✓	✓	-	-	-	-	✓	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	✓	-	-	✓✓	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	✓	✓
4	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	✓	-

Elements within Theme 1 are forecast as likely to have positive effects on a number of the environmental and social SA objectives. The Spatial Strategy indicates that high quality new developments are proposed, which could encourage more energy efficient designs, therefore reducing greenhouse gas emissions. The strategy also states that the design of new development will respect and relate to the Conservation Area and Listed Buildings in the village, so this would have a positive effect on 'historic & cultural assets'. Small scale growth is envisaged in the village, however it is recognised that it is important to prevent growth from interfering with the landscape setting and key views, including Markyate Park and Cheverell's tree belt. Conserving and enhancing the views of the Ver Valley, will make Markyate a more attractive place to live, work and visit, thereby having a positive effect on 'community identity & participation'.

Uncertain effects have been forecast on the SA objective 'climate change proof'. The spatial strategy indicates that new developments will be built to high, sustainable standards. However, it is not clear whether the sustainable measures will encourage design measures that will allow buildings to withstand the likely impacts of climate change. Elements within Theme 1 encourage lower density development away from the town centre and this would have adverse effects on the 'use of brownfield sites' objective which encourages maximising efficient use of land.

Significant positive effects have been forecast for the 'housing' objective as elements within Theme 2 of the Spatial Strategy recognise the need to maximise opportunities for the

provision of affordable housing within the village. The village has a limited provision of informal open space, and as a result new developments are required to provide areas of open space. This could give opportunities for healthier lifestyles by providing access for recreational use, thereby having a positive on the 'health' SA objective.

Elements within Theme 3 are forecast as likely to have positive effects on a number of the social and economic SA objectives. Markyate is to be revitalised and the Spatial Strategy aims to encourage a range of new services and facilities. This will help ensure that the village is an attractive place in which to live and work, and contribute to providing a sense of community and identity in the village. The village has a designated employment site, and the Spatial Strategy will ensure that appropriate conditions exist for businesses to invest and for local jobs to be provided. There is also potential for future employment sites to be identified which would further support job opportunities within the village.

Several measures contained within Theme 4 are likely to have a positive effect on a number of the SA objectives. Providing a range of facilities and services within the settlement and improving public transport connections could, for example, reduce the need to travel to access services elsewhere in the Borough.

2.3.6 Tring

Development Options Assessment

- Option 1: Land to the West
- Option 2: Land to the East

Options	SA Objectives (Abridged)																		
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	×	-	-	×	?	-	×	×	-	-	×	✓	×	×	✓	-	-	✓	✓	✓
2	×	-	-	×	✓ / ?	-	✓	×	-	×	×	✓	✓	✓ / ×	✓✓	✓	-	✓	✓	✓

As both of the options would lead to development on greenfield land within the Greenbelt and close to the Chilterns AONB adverse effects have been forecast for the 'biodiversity', 'soils', 'use of brownfield sites' and 'landscape & townscape' SA objectives.

Option 1 is located near to a local centre and is adjacent to the town's main employment area. However it is located 2km from the town centre. This could increase the use of the car to access town centre facilities and services, thereby increasing the growth of greenhouse gas emissions and other emission to air. There is also uncertainty around the level of out-commuting that may result from building the large number of houses on this site. If this is by car on the A41 there is the potential for increased levels of emissions. Option 2 is closer to the town centre (1km) than option 1. This could encourage cycling and walking rather than use of the car, which would help to reduce the growth in emissions. This is however dependent on these sustainable travel options being taken up. However, similar to option 1 there are concerns over the potential level of out-commuting for this option.

Option 2 is located adjacent to a historic park and garden, and contains three Listed buildings. The site is classified as "pre 18th century enclosure" (approx 50% and the area closest to the town centre), "18-19th century enclosure" (approx 45% of the site), and the remainder is "built up modern" (HLC). Therefore adverse effects have been forecast for 'historic & cultural assets'.

Option 1 would provide for 380 dwellings, while option 2 could provide for 600 dwellings. Option 2 could therefore have a **significant positive** effect on the 'housing' objectives as it could provide a large number of affordable homes. Both options are close to the A41, which means noise disturbance could affect the health and well-being of the new residents. Option 1 would allow for open space, however it would not be large enough to fulfil all of the town's leisure space aspirations. Option 2 however is large enough to provide the wider town with significant areas of open space, and improved facilities. Due to the significant area of open space proposed this option could progress the 'community identity & participation' SA objective.

Development of option 1 could involve the provision of some employment space, thereby helping to support the local economy. Also, the new housing on the site should help to support the local services in the town, maintaining their viability and boosting the local economy. Option 2 however will provide significant additional housing leading to a larger number of residents therefore making facilities and shops more viable. This would help to support the local economy. The large number of houses proposed under this option will also

result in higher levels of developer contributions which should improve facilities and services.

Spatial Strategy Theme Assessment

Themes	SA Objectives (Abridged)																		
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	✓ ?	-	-	-	✓	?	-	-	-	✓	✓	✓	-	-	-	✓	-	-	-	-
2	-	-	-	-	-	-	-	×	-	✓	-	✓	-	-	✓	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	✓	-	✓	✓	✓
4	-	-	-	-	✓	-	✓	-	-	-	-	✓	✓	✓	-	-	-	-	-	-

Measures contained within Theme 1 are forecast as likely to have positive effects on a number of the environmental and social objectives. The Spatial Strategy aims to protect key biodiversity and historic features in the town, along with enhancing the existing landscape setting, gateways and views of the Chiltern escarpment. The Strategy states that new developments must reduce carbon emissions, in line with Code for Sustainable Homes, which should have a positive effect on reducing growth in greenhouse gas emissions. The development options, if taken forward, could provide areas of open space thereby providing opportunities for healthier lifestyles. By protecting and enhancing the environment in the town this should make it a more attractive place in which to live, work and visit, thereby having a positive effect on 'community identity & participation'.

It should be noted however that Tring contains a County Wildlife Site which may be affected by housing development depending on the sites taken forward. Therefore an uncertainty remains surrounding potential affects on the 'biodiversity' SA objective. There also remains uncertainty with regard to the 'climate change proof' SA objective. Although the Spatial Strategy indicates that new developments will be built to high, sustainable standards it is not clear whether the sustainable measures will encourage design measures that will allow buildings to withstand the likely impacts of climate change.

Elements within Theme 2 are forecast as likely to have positive effects on a number of the environmental and social objectives. Tring has a historic backdrop of architecturally rich buildings, such as the Natural History Museum, and the Spatial Strategy states that these will be protected from redevelopment and incompatible change of use. This should help to protect and possibly enhance the historic environment and also promote local distinctiveness. The Spatial Strategy intends to encourage use of leisure facilities, and will continue to support the amalgamation of Miswell Lane playing fields into one open space. It will also consider provision for further sports facilities. This should have a positive effect on 'health' as it would provide access to facilities which could encourage healthier lifestyles. Measures within Theme 2 however encourage lower density development away from the town centre and this would have adverse effects on the 'use of brownfield sites' objective which encourages maximising efficient use of land.

Elements within Theme 3 are forecast as likely to have positive effects on the economic objectives. Tring has opportunities to provide more employment land by extending existing industrial estates, and possibly changing the use of a residential area to either employment land or a form of mixed use. The Spatial Strategy expects local businesses to contribute to local services, employ local people and benefit the rural environment. These measures could have a positive effect on the economic objectives as they encourage local provision of and access to jobs and services. Encouraging a mix of services, employment and housing could help to promote the role and the attractiveness of the local centre.

Measures within Theme 4 are forecast as likely to have positive effects on a number of the SA objectives. The Strategy highlights the need for improved cycle routes, which could encourage an increase in the number of cyclists in the town, thereby reducing the use of private cars. This would help to reduce greenhouse gas emissions and other emissions to air, although it is dependent on a modal shift taking place. Increasing the number of cycling routes could also encourage healthier lifestyles. The Spatial Strategy aims to provide a range of facilities and services within the settlement and improve public transport connections. This could reduce the need for using a car to access services, thereby having a positive effect on the SA objectives 'sustainable locations' and 'equality & social exclusion'.

2.3.7 The Countryside

Level of Housing Assessment

- **Option 1** which would provide 389 dwellings (2006 – 2031) in the rural areas of the Borough this is not sufficient to allow the current level of population to be

maintained. This is because a decrease in average household size, with more people living alone, means that more houses are required to provide the needs of the same sized population.

- **Option 2** would provide 567 dwellings (2006 – 2031) which would enable the current level of population to be maintained.

Option	SA Objectives (Abridged)																			
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	✓	-	-	✓	?	-	-	✓	-	?	?	-	?	✗	✗	✗	-	✗	✗	-
2	✗	-	-	✗	?	-	-	✗	-	?	✗	-	?	✓	✓	✓	-	✓	✓	-

As there will be less new development under Option 1 the effects on the natural environment (biodiversity, landscape etc.) will be less than they will be for Option 2 which would require a greater use of greenfield sites.

From a social perspective, Option 2 should result in a greater retention of village residents, particularly the young, which will have benefits for community identity and help to reduce the need to travel for those who currently live and work in the villages, but who under Option 1 may be forced to move into local towns. The larger number of houses proposed under Option 2 also provides a greater opportunity for local services and facilities to be retained than if the population were to decrease under Option 1. This would help to maintain the vitality of the smaller settlements and would be a benefit for local residents, particularly those without cars.

However, if the new houses in the villages (those that are not local affordable housing) are occupied by people who work outside the immediate locality, there would be an increase in traffic in the area, to the detriment of the rural environment and also in terms of greenhouse gas emissions and other airborne emissions. These issues are likely to be greater under Option 2.

Spatial Strategy Theme Assessment

Themes	SA Objectives (Abridged)																		
	1. Biodiversity	2. Water quality/quantity	3. Flood risk	4. Soils	5. GHG Emissions	6. Climate Change Proof	7. Air Quality	8. Use of brownfield sites	9. Resource Efficiency	10. Historic & Cultural Assets	11. Landscape& Townscape	12. Health	13. Sustainable Locations	14. Equality/ Social Inclusion	15. Good Quality Housing	16. Community Identity and Participation	17. Crime and Fear of Crime	18. Sustainable Prosperity and Growth	19. Fairer Access to Services	20. Revitalise Town Centres
1	✓	-	-	-	-	-	-	-	-	✓	✓	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	✓	✓	-	✓	✓	-	**?**	-	-
3	-	-	-	-	✓	-	-	-	-	-	-	-	-	-	-	-	-	✓	✓	✓
4	-	-	-	-	✓	-	✓	-	-	-	-	✓	-	✓	-	-	✓	-	✓	-

Elements within Theme 1 are forecast as likely to have positive effects on three of the environmental SA objectives. The Spatial Strategy recognises that there are some sites of significant wildlife and biodiversity value, such as Chilterns escarpment and Tring Park amongst others, in various settlements. The Spatial Strategy aims to maintain and enhance these, and protect views as well as the countryside setting of the settlements. The Spatial Strategy states that new development must relate sensitively to the existing Conservation Area and Listed Buildings in the various settlements, which protects the historic and cultural assets of the area. It also states that small scale growth is envisaged to meet local needs, which should enhance the existing landscape setting, gateways and views of the countryside. This would have a positive effect by protecting the landscape character.

Positive effects have been forecast for a number of the social SA objectives relating to elements within Theme 2. Provision will be made for further sports facilities and accessible open spaces where shortages have been identified. This could give opportunities for healthier lifestyles by providing access for recreational use. The Spatial Strategy recognises that there is a need to retain village shops, pubs and post offices, meeting spaces and open space. This could have positive effects on the 'sustainable locations' and 'community identity & participation' SA objectives. Uncertain effects have been forecast for 'sustainable prosperity & growth' as the Spatial Strategy indicates that employment space will be provided to meet local needs only. This could have a potential adverse effect on economic growth levels as it may restrict opportunities for further growth in future.

Elements within Theme 3 are forecast as likely to have positive effects on the economic SA objectives. The Spatial Strategy encourages new avenues of businesses, such as contributing to growing renewable energy sources. The Spatial Strategy also expects local businesses to contribute to local services, employ local people and benefit the rural environment. It also encourages a mix of services, employment and housing. This could help promote the role and the attractiveness of the local centres.

Positive effects have been forecast for elements within Theme 4 on the several of the SA objectives. The Spatial Strategy highlights the need for improved cycle routes and footpaths, which could encourage an increase in cycling and walking as an alternative to the use of private cars. This would help to reduce greenhouse gas emissions and other emissions to air if it results in the desired modal shift. It could also give opportunities for healthier lifestyles by providing access to walking and cycling routes for recreational use. The Spatial Strategy recognises that safe links between sections of public footpaths and bridleways should be a priority. This could have a positive effect on 'crime and fear of crime' as it provides a safer environment, possibly through better lighting provision and better design.

The Spatial Strategy aims to retain a range of facilities and services within the settlement, which protects existing access to services and facilities thereby having a positive effect on 'equality & social exclusion'. The Spatial Strategy encourages strengthening of links to public transport and enhanced availability of bus services and demand responsive transport. Combined with improved cyclepaths/footpaths this should help to increase access to services and facilities for the rural population.

3 Recommendations

The Core Strategy represents a significant opportunity for Dacorum Borough Council to lay the groundwork for sustainability, and as the primary framework for the overall vision for future development in the Borough the strategy should be solidly grounded in the principles of sustainability. To help improve its sustainability performance there are a number of recommendations and mitigation measures which have been identified during the assessment process that could be incorporated into the evolving Core Strategy or the lower tier development plan documents. These recommendations are summarised below under key themes.

The Natural Environment

- The policy approach towards treating established species in brownfield sites is unclear and should be addressed.
- Consider the protection and enhancement of geodiversity.
- When developing on greenfield land measures should be taken to avoid adverse impacts on biodiversity, such as maintaining and enhancing green corridors and providing green open spaces.
- The biodiversity of brownfield sites should be assessed prior to redevelopment.
- Consider measures to control light pollution (particularly in rural areas).
- Steer development away from high quality agricultural land.
- Use the Hertfordshire Historic Landscape Characterisation to help determine the most appropriate areas and sites for development.

Resource use

- Consider policy wording linked to providing developments and infrastructure which is 'climate proof' or resilient to the effects of climate change such as through robust and weather resistant building structures.
- Encourage the use of water minimisation methods, such as grey water recycling, and the use of SUDS.
- Consider the use of porous surfaces to reduce run-off.
- Steer development away from floodplains.
- Require new commercial development to meet high BREEAM standards.
- Encourage developments to use district heating systems and combined heat and power wherever appropriate.
- Consider requiring all new developments to generate renewable energy, e.g. through the use of photo voltaic cells, solar panels or mini-wind turbines.
- Encourage minimising levels of household waste and increasing levels of recycling and composting.
- Consider adding policy wording linked to developments which consider sustainable construction techniques and using renewable, secondary or sustainably sourced local materials in buildings and infrastructure.

- Consider policy wording that supports initiatives aimed at behavioural change to increase the likelihood of reducing average distances travelled.

Social factors

- Propose that all new homes will meet the Governments Lifetime Homes Standards.
- Consider minimising noise in residential areas.
- Consider the need for key worker housing.
- Consider specifically protecting and enhancing green and open spaces within urban areas.
- Consider how design can result in crime reduction.

Achieving a sustainable economy

- Include measures to ensure that buildings are E-enabled, (sufficient access to IT services); this in turn will help support the knowledge based economy.
- Identification of measures to ensure the necessary variety of employment sites and opportunities for the existing local population.
- The opportunity to provide live-work units and measures to encourage home working should be explored.

4 Next Steps

Following consultation on the Emerging Core Strategy further work will then be undertaken by Dacorum Borough Council towards preparing the full draft version of the Core Strategy (known as the Pre-Submission document) which will be subject to further public consultation in Spring 2010. The findings of the SA/SEA included in this Working Note, along with other technical work and evidence gathering, will influence how the Core Strategy is developed.

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.

Appendix A: SA Framework

Objective	Criteria	Indicators (Bold indicates existing)
Biodiversity		
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	**Herts QoL WH6 Condition of SSSIs (contextual indicator) and HBRC number, area and condition of SSSIs** **HBRC Change in areas designated for their intrinsic value** **HBRC Change in Priority Habitats** **Herts QoL WH3 Wildlife Sites and HBRC number and area of Wildlife Sites** **HBRC no. of Wildlife Sites lost or degraded by development or gained/secured by agreements** **Herts QoL WH1 Water voles** **Herts QoL WH2 Birds (contextual indicator)** **Herts QoL WH4 Pipistrelle bats** **Herts QoL WH5 Butterflies** **HBRC distribution/change of key species in Herts** **HBRC distribution/change of protected species in Herts** **COI 8 Changes in areas and populations of biodiversity importance**
	To restore characteristic habitats and species, to achieve BAP targets	
	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)	
	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

Objective	Criteria	Indicators (Bold indicates existing)
	To encourage people to come into contact with, understand, and enjoy nature	Number of visitors to wildlife sites
Water		
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) Average household water consumption per capita Commercial water consumption Proportion of housing (existing and new development) with installed water efficient devices/water metres **Herts QoL WR3 River quality objectives** **EA Biological and chemical river quality (contextual indicator)** Number and severity of pollution incidents to surface water and groundwater
	To ensure water consumption does not exceed levels which can be supported by natural processes and storage systems	
	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 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	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	Number of properties at risk from flooding Proportion of runoff from new developments which is directed into Sustainable Urban Drainage Systems (SUDs)[5]
	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 promote properly maintained sustainable urban drainage systems to reduce flood risk and run off in areas outside Source Protection Zones 1 (SPZ)	
Soil		
4. Minimise development of land with high quality soils and	To safeguard high quality soils, such as agricultural land grades 1, 2 and 3a) from development	Amount of high quality agricultural land degraded/lost to development

[5] Sustainable Urban 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)
minimise the degradation/loss of soils due to new developments	To limit contamination/degradation/loss of soils due to development	Area/percentage of contaminated land remediated Number of development sites having a policy to safeguard soils Area of proposed new developments on greenfield sites
Climatic Factors		
5. Reduce the impacts of climate change, with a particular focus on reducing the consumption of fossil fuels and levels of CO_2	To minimise greenhouse gas emissions (particularly CO_2) for instance through more energy efficient design and reducing the need to travel To promote increased carbon sequestration e.g. through increases in 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)	**NAIE Emissions of greenhouse gases (particularly CO_2) per capita grouped per type of source** **BV 63 Energy efficiency - average SAP rating of authority dwellings** **BV 80a (i) Actual/'Typical' energy consumption LA buildings - electricity** **BV 80a (ii) Actual/'Typical' energy consumption LA buildings - fossil fuels** **Herts QoL EN1 Energy efficiency in homes - overall reduction in CO_2 emissions %** **Herts QoL EN2 Energy efficiency in public buildings**
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)
Air Quality		
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 To integrate land use and transport planning by for instance:	**NAIE Levels of key air pollutants (e.g. Benzene, 1,3-Butadiene, CO_2, Lead, NO_2, PM10, SO_2) within the local authority area, and within the East of England** **Herts QoL QoL27 Air Pollution**

Objective	Criteria	Indicators (Bold indicates existing)
	▪ Promoting Green Transport Plans, including car pools, car sharing as part of new developments ▪ Ensuring services and facilities are accessible by sustainable modes of transport	**Herts QoL TR1 Volume of motor traffic** **Herts QoL TR2 Modal spilt** Number of days when air pollution reported as moderate or higher within the local authority area Number of designated AQMAs
	To ensure that development proposals do not make existing air quality problems worse	
	To address existing or potential air quality problems	
Material Assets		
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)	**COI 1(a) & (c) Amount of land developed for employment by type and percentage which is on previously developed land** **COI 1(b) Amount of land developed for employment by type, which is in development and/or regeneration areas defined in the LDF** **COI 2(b) Percentage of new and converted dwellings on previously developed land** **COI 2(c) Percentage of new dwellings completed at: less then 30, between 30 and 50 and above 50 dwellings per hectare** **Herts QoL LU3 Residential development on previously developed land** **BV106 % of new homes built on previously developed land**
	To avoid use of Greenfield sites for development	
	To maximise 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	
9. To use natural resources, both finite and renewable, as efficiently as possible, and re-use finite resources or recycled alternatives wherever possible	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 **BV82a Household waste - percentage recycled** **BV82b Household waste - percentage**
	To require new developments to incorporate renewable, secondary, or sustainably sourced local materials in buildings and infrastructure	
	To safeguard reserves of exploitable minerals from	

Objective	Criteria	Indicators (Bold indicates existing)
	sterilisation by other developments	**composted**
	To promote renewable energy sources as part of new or refurbished developments	**BV82c Household waste - percentage of heat, power and other energy recovered**
	To increase recycling and composting rates and encourage easily accessible recycling systems as part of new developments	**BV82d Household waste - percentage landfilled**
	To promote awareness regarding waste/recycling and renewable energy issues through education programmes in schools and the community	**BV84 Kg of household waste collected per head** **Herts QoL WS1 Household waste per capita** **Herts QoL WS3 Percentage of waste recycled** Proportion of developments which incorporates design measures to facilitate sustainable household waste management
Cultural Heritage		
10. To identify, maintain and enhance the historic environment and cultural assets	To safeguard and enhance the historic environment and restore historic character where appropriate, based on sound historical evidence	**Number of Listed Buildings at Risk** **Number** and condition **of Scheduled Ancient Monuments (SAMs)**
	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	**Number** and condition **of Registered Parks and Gardens** **Number of Conservation Areas** **% of Conservation Areas with character appraisals**
	To promote public education, enjoyment and access of the built heritage and archaeology	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

Objective	Criteria	Indicators (Bold indicates existing)
		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
Landscape		
11. To conserve and enhance landscape and townscape character and encourage local distinctiveness	To protect and enhance landscape and townscape character	**CQC Changes inconsistent with** (local) **landscape character** Area of designated landscapes affected by/lost to development **CPRE Light pollution and tranquillity mapping**
	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	
Population and Human Health		
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 **COI 4(c) Percentage of eligible open spaces managed to green flag award standards** Percentage of population with access to public open space **Herts QoL NO1 Noise complaints received per 1000 population** **Herts QoL NO2 Source of noise complaints**
	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	
13. To deliver more sustainable patterns of location of	To reduce the need to travel through closer integration of housing, jobs and services	Percentage of health facilities accessible by sustainable modes of travel

Objective	Criteria	Indicators (Bold indicates existing)
development	To promote better and more sustainable access to health facilities	**Herts QoL TR2 Modal spilt** Accessibility modelling
Social Factors		
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 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	**Index of Multiple Deprivation** **BV156 % of local authority buildings suitable for and accessible by disabled people** **BV170a Number of visits to/usage's of museums per 1,000 population** **BV 117 Visits to libraries Number per capita** **Herts QoL SE3 Transport: access to public services** **COI 3(b) Percentage of new residential development within 30 minutes of a GP, hospital, primary & secondary school, employment and major health centre** **Herts QoL ED1 GCSE performance** **Herts QoL ED2 Adult education level 2*** **Herts QoL QoL9 Young people with Level 2 qualifications** **BV38 % of pupils achieving 5 or more GCSEs at grades A* - C or equivalent** % pensioners in households with below average income % children in households with below have half average income
15. Ensure that everyone has access to good quality housing that meets their needs	Promote a range housing types and tenure, including high quality affordable and key worker housing	**COI 2(d) Affordable housing completions** **BV184a LA homes which were non-**

Objective	Criteria	Indicators (Bold indicates existing)
		decent at start of year **BV184b Change in proportion on non-decent homes (negative means deterioration in stock)** **Herts QoL HS1 Affordable housing (house price/earnings affordability ratio)** **Herts QoL HS2 Statutorily unfit homes** **Herts QoL HS3 Homelessness**
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 Town centre health checks CABE design review of schemes with significant impacts (if conducted)
	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	
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	**BV126a Burglaries No. per 1,000 households** **BV127a Robberies per 1000 population and percentage detected** **BV127b violent offences committed in a public place per 1,000 population** **BV127c violent offences committed in connection with licensed premises per 1,000 population** **BV127d violent offences committed under the influence per 1,000 population** **BV128a Vehicle crimes No. per 1,000 population** **BV174 Number of recorded racial**
	To plan new developments to help reducing crime and fear of crime through thoughtful design of the physical environment, and by promoting well-used streets and public spaces	
	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	

Objective	Criteria	Indicators (Bold indicates existing)
		incidents per 100,000 population Fear of crime statistics
Economic Factors		
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	**Herts QoL EC1 Percentage rise in GVA** **Herts QoL UN1 Long term unemployment** **Herts QoL QoL1 Proportion of people of working age in employment** **COI 1(f) Amount of employment land lost to residential development** Business start up failures
	To promote and support economic diversity, small and medium sized enterprises and community-based enterprises	
	To support the economy with high quality infrastructure and a high quality environment	
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	To encourage local provision of and access to jobs and services	**Herts QoL QoL5 The percentage increase/decrease in the number of local jobs** In/out commuting balance Rate of growth of businesses (urban and rural)
	To improve the competitiveness of the rural economy	
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	**COI 4(b) Percentage of completed retail, office and leisure development in town 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	