

Carmarthenshire Local Development Plan

SUSTAINABILITY APPRAISAL ***SA - REPORT***

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Cyngor Sir Gâr
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County Council

Carmarthenshire Local Development Plan

Sustainability Appraisal

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* This report has been updated to incorporate the review of the Matters Arising Changes.

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1 Introduction

1.1 Purpose of this Report

This is a Sustainability Appraisal (SA) Report provided for Carmarthenshire County Council and the Welsh Government as supporting evidence for the submission to the Welsh Government of the Publication Deposit Local Development Plan (LDP). It summarises the 'likely significant effects' predicted of the LDP as a result of the SA process conducted between 2008 and 2014. It is not a statutory document. As an update to the 2011 SA Report, it incorporates the statutory requirements of SA and SEA, however previous iterations of SA reporting should be referred to in order to consider the full statutory process as integrated with LDP development.

Jacobs was commissioned by Carmarthenshire County Council in 2008 to conduct an SA of their Local Development Plan (LDP) as required by the Planning and Compulsory Purchase Act 2004. SA incorporates the requirement to conduct Strategic Environmental Assessment (SEA) under The Environmental Assessment of Plans and Programmes Regulations 2004, as discussed in Section 1.2 below.

The LDP sets out the policies and proposals for future development and land use within Carmarthenshire. The adopted LDP will supersede the current Unitary Development Plan (UDP) and will include detailed policies and proposals to guide new development, for example the location of new housing and employment provision.

This report presents the final SA assessment of the LDP, documenting previous recommendations of the SA to improve its policies in order to improve and monitor the performance of the LDP, whether and how they have been addressed within the adopted LDP.

1.2 What is Sustainability Appraisal?

The 2004 Act requires planning bodies, in preparing plans, to contribute to the achievement of sustainable development. Sustainability Appraisal (SA) addresses this requirement and is an iterative process that identifies and reports on the likely significant effects of a plan. SA is used to assess LDPs and other plans and policies against a set of sustainability objectives in order to identify the relative economic, social and environmental effects of the LDP policies. The process also evaluates whether policies can be more sustainable and identifies mitigation measures to reduce any potential risks associated with the policies, this may be through amending policy wording or identifying potential new policies for the LDP.

Sustainability Appraisal can be defined as:

a systematic and iterative process undertaken during the preparation (and review) of a plan which identifies and reports on the extent to which implementation of the plan will achieve the environmental, economic and social objectives by which sustainable development can be defined and identifies opportunities for improving plan performance in relation to these

(Welsh Assembly Government, 2002).

The European Directive 2001/42/EC (SEA Directive) came into effect in the UK in 2004 in the form of The Environmental Assessment of Plans and Programmes Regulations 2004 (The SEA Regulations). SA also incorporates the requirements of the SEA Regulations.

Detailed SA Guidance has been prepared which incorporates the requirements of the SEA Directive and SEA Regulations namely guidance from the Welsh Assembly Government's (now Welsh Government) Sustainability Appraisals of Unitary Development Plans: A Good Practice Guide (2002) and comparable guidance in England through the Planning Advisory Service (PAS) (last updated 2012).

1.3 The Stages of Assessment and LDP Development

1.3.1 SA Scoping Report

The SA Scoping Report was the first stage of the SA process. It determined the key sustainability objectives for the LDP and set the scope of the SA. The Scoping Report consultation ran for a period of 5 weeks in 2008.

1.3.2 Initial SA Report

The feedback received after consultation on the SA Scoping Report was then used to inform the production of the Initial SA Report. This report presented the results of the compatibility assessment of the LDP Strategic Objectives and Strategic Spatial Options against the SA Objectives. In addition, the LDP Strategic Policies as set out in the Pre-Deposit Preferred Strategy, were also assessed against the SA/SEA framework to identify the likely effects of the policies. A consultation period ran for this report between November 2009 and January 2010.

Feedback from this consultation period has fed into the preparation of the preferred LDP options. Recommendations from the SA process have resulted in amendments to the LDP throughout its preparation including the Preferred Strategy, SA Objectives, Strategic Policies and Specific Policies.

1.3.3 Statutory SA Report

The Council prepared its Deposit LDP in 2011. An SA, incorporating the requirements of SEA, was conducted, resulting in the publication of a statutory SA Report which documented the assessment of the preferred policies and recorded the recommendations highlighted to the Council as part of the iterative process of LDP preparation.

1.3.4 Focused Changes

As a result of consultation on the Deposit LDP and Statutory SA Report, a number of 'Focused Changes' to the LDP were proposed, including proposed changes to policy. The Focused Changes were reviewed against the SA objectives, resulting in the production of an Addendum to the 2011 SA Report. The summary of the likely significant effects of the LDP remained unchanged following the review of the Focused Changes and no likely significant effects of the Focused Changes were identified.

The Focused Changes were consulted upon between June and October 2013 and the SA Addendum was also made available at this time.

The SA Report was subsequently updated, incorporating the findings of the 2013 Addendum to the SA, to take account of the minor modifications brought about by the Focused Changes in order to accompany the Publication Deposit LDP.

1.3.5 Matters Arising Changes

The Publication Deposit LDP was submitted to the Welsh Government for examination in September 2013. The LDP is currently undergoing Examination and the Council has consulted on a number of proposed changes that have emerged as a result of Matters Arising during the Hearing Sessions of the Examination, as set out in the Schedule of Matters Arising Changes and the Addendum to the Schedule of Matters Arising Changes. In support of the consultation on these Matters Arising Changes which ended in July 2014, a Schedule of Implications for Sustainability Appraisal and Habitats Regulations Assessment was also prepared. No likely significant environmental effects from the Matters Arising Changes were identified following a review against the SA objectives.

This SA Report has been updated to incorporate the Matters Arising changes but the original assessment reported in the original SA Report still stands. There have been no significant changes to the SA. This report will now be available to provide environmental information to Carmarthenshire County Council during the process of adoption of the LDP.

1.3.6 Next Steps

After adoption of the LDP, the SEA Regulations require that a post-adoption statement is prepared and published detailing: how sustainability considerations have been integrated into the LDP; how the SA Report has been taken into account; how consultation responses have been taken into account; reasons for the adopted LDP in light of other reasonable options; and measures to be taken for monitoring significant effects of the LDP.

1.4 Structure of this Report

This report is a non-statutory summary document which provides the final SA assessment of the LDP. It is not a statutory document, as there is no requirement in the relevant legislation to produce a final SA Report alongside Publication. It summarises how the SA's recommendations for policies have been incorporated into the LDP in order to improve the plan and monitor its performance.

Chapter 2 sets out information about the LDP, its structure, purpose and the relationship between the LDP and SA. Chapter 3 sets out the SA methodology, overall approach and limitations and uncertainties. Chapter 4 provides a summary of the review of relevant policies, plans and programmes for key environmental objectives, key issues, targets and other sustainability messages. Chapter 5 summarises the early stages of assessment, which are the compatibility appraisal between LDP and SA objectives and the assessment of Strategy Options and the initial assessment of the Strategic Policies.

Chapters 6 to 18 present 'topic papers' of the baseline and detailed assessment of the LDP policies. The relevant policies and evidence base for each topic is presented, followed by an assessment of the risks and opportunities that the LDP

policies present. Potential regional, national and global effects are identified followed by the residual risks and opportunities. Each topic paper then sets out SA recommendations which include recommendations for mitigation.

Chapter 19 then summarises the assessment and recommendations, including proposals for statutory SEA monitoring.

The 2013 Addendum to the SA has been incorporated into this document, however other content such as baseline and legislative and planning policy context have not been reviewed since this report was originally produced in 2011.

2 About the LDP and Study Area Overview

2.1 Purpose of the LDP

The Planning and Compulsory Purchase Act 2004 and Town and Country Planning (Local Development Plan) (Wales) Regulations 2005 set out the requirement for the preparation of Local Development Plans (LDP). The aim of the LDP is to make the development plan system in Wales more relevant, inclusive and engaging to local communities and to encourage a collaborative approach to plan preparation. The LDP process is also intended to result in a faster plan-making system.

The LDP sets out the policies and proposals for future development and land use within Carmarthenshire. Once adopted, the LDP will supersede the current Unitary Development Plan (UDP) and will include detailed policies and proposals to guide new development, for example the location of new housing and employment provision.

Decisions on planning permissions will be primarily based on the content of the LDP, which will provide a measure of certainty about what kind of development will and will not be permitted through Carmarthenshire over the plan period.

The LDP has regard to the Welsh Strategic Plan, Planning Policy Wales, guidance in the form of Technical Advice Notes and Welsh Office Circulars, and national and regional issues. It also acknowledges emerging issues, options and objectives at a local level.

2.2 Structure of the LDP

The initial sections of the LDP outline the strategy, including the vision and strategic objectives for Carmarthenshire over the plan period. The LDP then sets out the strategic policies which have been formulated with regard to the vision and strategic objectives. The strategic policies are supplemented by specific policies which provide more detailed policy guidance.

The LDP consists of:

- A Summary LDP Report;
- Carmarthenshire Local Development Plan; and
- Proposals Maps.

The Full Deposit LDP Report consists of the following sections:

- Introduction;
- Policy Context;
- Key Issues and Drivers;
- Vision and Strategic Objectives;
- Strategy and Strategic Policies;
- Specific Policies; and

- Implementation and Monitoring.

The Proposals Maps are broken up into many different settlement areas, but grouped under the following themes:

- Growth Areas (GA);
- Service Centres (T2);
- Local Service Centres (T3);
- Sustainable Communities (SC); and
- Additional County-Wide Maps.

2.3 Relationship between the SA Report and the LDP Document

As previously identified, SA is an iterative process. Figure 2.1 details the relationship and integration between the SA and LDP preparation, and also the stages in which the SA inputs into LDP development. As Figure 2.1 indicates, SA is a part of LDP preparation (rather than a post- decision-making check), and information and recommendations from the SA have been used to improve the LDP throughout the plan-making process. This SA Report documents how the entire SA has fed into LDP preparation, focusing on the final stages which have assessed the current policies.

The SA has used a risk-based approach to assessment, which is considered 'best practice' and involves associating the policies with each of the SA topics. Appendix A provides a table which 'maps' the screening of policies for their potential relevance under each SA topic. This 'map' provides a very brief justification as to why each policy was considered relevant to each topic. If none of these justifications applied, the policy was not considered relevant to that topic.

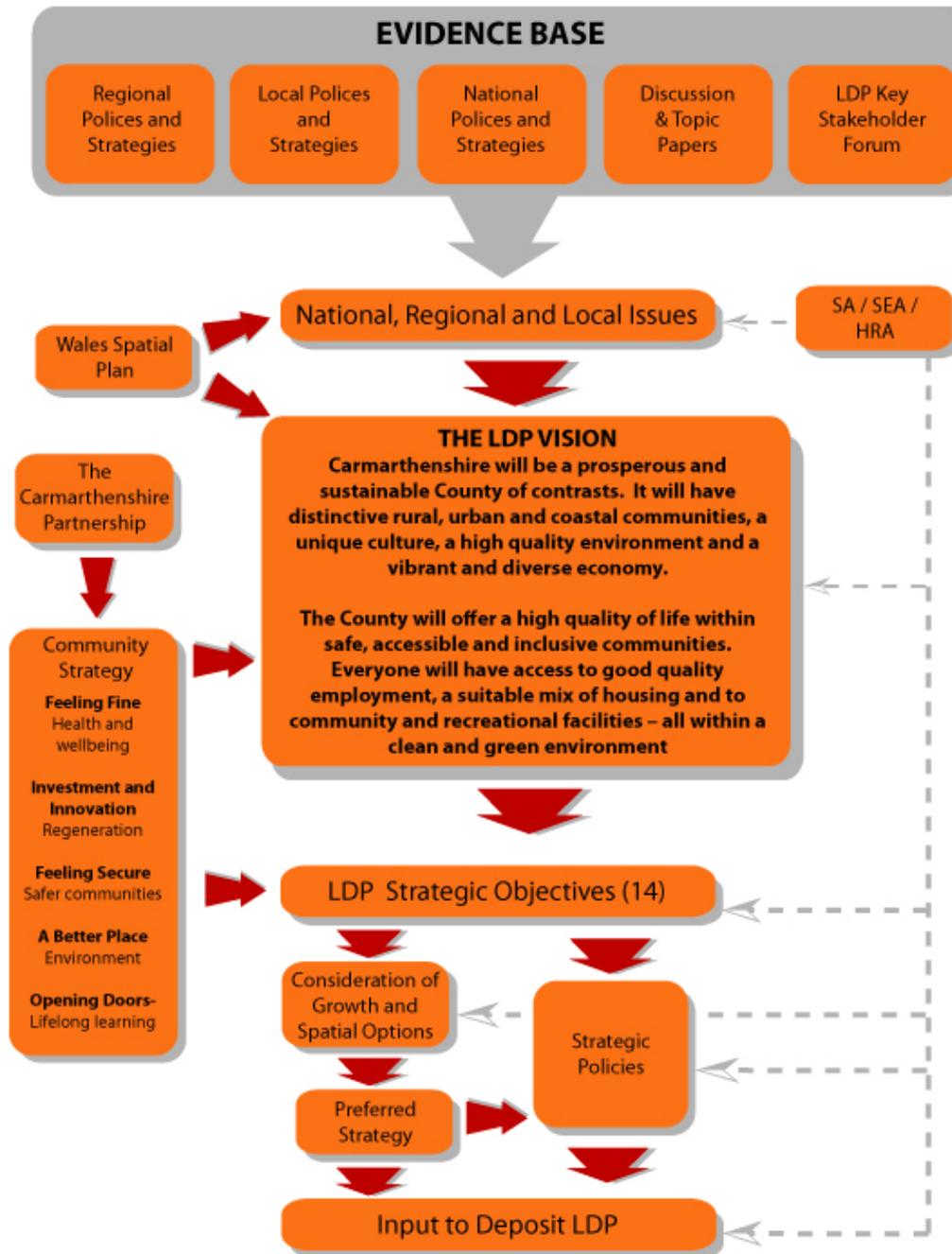


Figure 2.1: SA and LDP Relationship (Carmarthenshire County Council, 2010)

2.4 About the Study Area for this SA

This SA considers sustainability from a local level to a global level. Therefore when considering such topic areas as biodiversity, use of natural resources and greenhouse gas emissions, the study area can be considered to be the biosphere (i.e. the entire planet). However, there are local-level measures which ‘stand in’ for this baseline, and therefore details of national and international relationship are typically not drawn out in the baseline sections of Chapters 6 to 18. In general, the ‘likely significant effects’ of the LDP will be limited to the county of Carmarthenshire

and the surrounding counties which people might regularly visit for business, leisure or other purposes.

Carmarthenshire is the third largest county in Wales covering some 2,365 square kilometres, which represents 11.5% of the total land mass of Wales. Carmarthenshire is a county of contrasts. The agricultural economy and landscape of rural Carmarthenshire is juxtaposed with the urban and industrial south-eastern area. The former coal, steel and other heavy industries have left their environmental legacy and now the county is diversifying into a modern economy including light engineering, new technological and service industries together with other business enterprises.

As a primarily rural county the population density is low, at 71 persons per sq. kilometre, compared with 140 persons per sq. kilometre for Wales as a whole. This sparse population density is more apparent in rural Carmarthenshire than it is in the south and east of the County where 65% of the population reside within approximately 20% of the land area. The main urban centres of the county include Llanelli, Carmarthen, Ammanford and Burry Port, and due to its central geographic location, Carmarthen typically serves the needs of the county's rural hinterland. There are a number of rural villages and settlements that are self-sufficient in terms of facilities and services, yet other smaller settlements lack services and facilities, meaning that the needs of residents in these areas are typically met by clusters of villages.

Carmarthenshire has a rich natural and cultural environment, including sites designated at the international level to protect important biodiversity features, as well as striking landscapes and distinctive historic towns and villages.

Carmarthenshire's neighbouring counties are Pembrokeshire to the west, Ceredigion to the north, Powys to the east, Neath Port Talbot to the southeast, and Swansea to the south. In particular, Swansea receives a significant amount of commuter traffic from Carmarthenshire. An east-west passenger and freight rail line passes through Carmarthenshire between Pembrokeshire and Swansea, going further on to Cardiff and then into England. A second passenger and freight line runs between Llanelli and Shrewsbury in England, stopping at Llandeilo (amongst other places) along the way.

Further characteristics of the study area can be found in the baseline sections of Chapters 6 to 18.

3 Sustainability Appraisal Methodology

3.1 Guidance on SA

Sustainability Appraisal is an iterative process that identifies and reports on the likely significant effects of a plan. It achieves this by testing the performance of the plan against a series of environmental, social and economic objectives which together define sustainable development.

The European Directive 2001/42/EC (SEA Directive) came into effect in Wales in 2004 in the form of The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (The SEA Regulations). SA also incorporates the requirements of the SEA Regulations, whose objective is:

to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes, with a view to promoting sustainable development.

(EC, 2001, Article 1).

When preparing LDPs, planning authorities must conduct an environmental assessment in accordance to the SEA Directive and Regulations

This report has been prepared whilst taking account of various international and national guidance on SA and SEA, including the Welsh Assembly Government's Interim Good Practice Guidance, 'Strategic Environmental Assessment (SEA) of Unitary Development Plans'.

In addition to this Government guidance, the Countryside Council for Wales (CCW) (now part of Natural Resources Wales) have produced a series of guidance notes covering a range of SEA topics including air, biodiversity, climate change, cultural heritage, landscape, material assets, soil and water. CCW also, in conjunction with the Environment Agency (now part of Natural Resources Wales in Wales), Natural England and other partners, produced guidance on SEA and climate change. These have been employed within the relevant topic-area assessments.

3.2 Overall Approach

Jacobs has applied a new approach for this sustainability assessment. As an alternative to the traditional 'objectives-led' approach, it focuses on the reality of all policies of the LDP acting in combination, rather than assessing the LDP policy-by-policy, which leads to an over simplification, as policies are not normally applied in isolation. Policies are linked to one another and both respond to, and complement, each other.

This method is recommended by certain guidance documents on SA, eliminating unnecessary effort, and producing efficient and effective outcomes. Reviews of SA practice also state that SA should take a 'risk-based' approach, which means it must recognise that any impacts predicted are not guaranteed and could be eliminated or adequately controlled at the project level. Therefore, SA is identifying the risk that a significant effect or impact might occur, and the control mechanisms in place to avoid, reduce, or offset the potential impacts of, those risks. On the more positive

side, SA is identifying the opportunities for beneficial impacts, and the proposals which may enhance those benefits.

As the LDP has been developed over a long time period (since March 2008), the baseline data collection and Policies, Plans and Programmes (PPP) review exercises have required updates to be kept 'live'. Updates to policy or environmental trends in Carmarthenshire have been captured via the iterations of the SA/SEA reports up to 2011, and the framework of sustainability objectives has been periodically reviewed during the progress of the LDP to ensure that the framework remains relevant.

3.3 Scoping of Issues for this SA

The Scoping Report for Carmarthenshire's LDP involved the collection of baseline information and review of relevant PPPs which enabled the development and identification of key sustainability issues and challenges for Carmarthenshire (identified within Chapter 5 of the Scoping Report). All of the SA topics were scoped in for the purposes of this SA, as all were considered to be of significance in terms of looking to assess the potential sustainability impacts of the LDP.

3.4 Method of Assessment

Previous assessments undertaken on the LDP components are detailed within the Initial SA Report of November 2009. The Initial SA Report evaluated the Preferred Strategy's strategic objectives, options and policies by measuring it against the Sustainability Framework.

A compatibility assessment was undertaken using a simple colour-coded matrix to represent where there was compatibility, conflict, no compatibility or an unclear relationship between the LDP Objectives and the SA Objectives (as detailed in Chapter 1 of the Initial SA Report).

Following on from this, the LDP options were assessed using a combined mapping and matrix approach with colour coding to identify minor or major beneficial or adverse effects, neutral / no effects and uncertainty over effects. Details and results of this assessment can be found within Chapter 2 of the Initial SA Report.

Section 4.1.1 in the Initial SA Report details the methodology used for the assessment of the initial strategic policies contained in the Preferred Strategy. This assessment also took on a matrix-based approach using the same colour-coding system as for the assessment of LDP options.

This final SA Report includes the assessment of the strategic and specific policies of the deposit LDP. The SA Framework has been modified slightly but still follows a similar structure including objectives organised by sustainability topic. The topics have been used as chapters in this report, and each of the SA Objectives have been listed and considered within each topic. Each of the policies assessed have been 'screened' for their relevance within each topic, and this has been presented in a tabular format. Policies have been screened by:

- the nature of the physical development proposals within them and how this can influence society (including the economy) or the environment;
- the potential for physical development to result from implementing the policies;

- the mitigating nature of the policies in terms of leading to requirements for such 'risk controls' as better site selection, better design and layout, better integration with the surrounding environment and infrastructure, project-level assessment or developer contributions; and
- the enhancing nature of policies in terms of how they direct development to achieve greater benefits than would otherwise be achieved.

Therefore, the first table in each chapter summarises which policies are relevant to the topic, and why.

This is then followed by the assessment of risks of significant negative effects, and opportunities for significant beneficial effects. This section addresses the complex range of potential impacts required by the SEA Regulations, including direct, indirect, primary, secondary (and tertiary), short-term, long-term, permanent, temporary and cumulative. It begins with a discussion, and is summarised by a table of the significant risks and opportunities.

The table of significant risks and opportunities includes the other policies of the LDP which have already been developed to avoid or manage these risks, or to enhance the opportunities. This is perhaps the most important aspect of reporting, as it demonstrates the key inter-linkages amongst policies within an SA topic, and is a clear demonstration of how issues have been addressed. It can also be used (particularly for the full SA Report) to demonstrate whether or not the issues (including the residual risks) need to be addressed further.

At the end of the assessment section, the key residual risks and opportunities are listed. These are those which will still exist regardless of LDP policies. Some of the risks can be managed further (as per the SA's recommendations), and others will remain risks due simply to the nature of proposals or of high-level planning. Such risks can only be further managed after the LDP is adopted and often by others, such as planning officers and developers. Finally, some of the opportunities can be enhanced, again as per the SA's recommendations, which are summarised at the end of each chapter.

3.5 Limitations and Uncertainties

Every effort has been made to provide an accurate baseline review. It has been effective at providing an understanding of current issues, and there is generally enough information available to enable an informed and detailed appraisal. However, some problems were encountered and there are some limitations with the data collected.

- Consistency between data sources;
- Availability of historic data;
- Availability of up-to-date information;
- Carmarthenshire is interlinked socially, economically and physically to adjacent areas and while trans-boundary issues are important and need to be considered in the appraisal process, it was not always possible to represent such complex issues in the baseline data collation; and
- As the baseline situation in Carmarthenshire is ever-changing, data can quickly go out-of-date, including information contained in this Report. The

iterative process of this SA has attempted to keep the baseline data 'live' during the course of the LDP development.

Also, SA / SEA is based on a number of standard assumptions, which begins with the assumption that the legally enforced standards for protection of the environment are absolute, and for all intents and purposes, fully successful. Assumptions also include a standard set of typical development controls required by planning policy, and which are assumed to be universally applied to planning applications of all types. Appendix D includes typical construction hazards, and the common measures which are assumed to be in place as mitigation for construction impacts. It also includes an assessment of the residual probability of impacts. Any probability which is 'low' has generally not been considered to pose a risk of a significant effect.

SA / SEA must also make assumptions about how the LDP's policies are implemented. Whilst this SA assumes that all policy will be implemented to its practicable fullest (both as stated and equally upon each planning application), it recognises likely areas where (from experience) there tend to be 'trade-offs' of accepting negative impacts for the sake of the benefits of development. This is reflected in each assessment, and in the residual risks and opportunities identified.

4 Planning Policy Context Review

4.1 Introduction

A review of relevant plans and policies at international/European, national, regional and local level was undertaken in 2008 when this Sustainability Appraisal work was commenced in order to take account of the relationship between the LDP and other relevant policies, plans, programmes (PPP) and sustainability objectives. The purpose of this review was to inform the development the SA baseline, geographical / spatial scope, temporal scope, methodology and a potential monitoring framework (including indicators and targets) for the LDP.

The PPP review represents a 'point in time' in the SA process, and it has not been updated to 2014 as this would not have any role at this late stage in influencing the SA. (Note: As part of LDP development, the Council's planners will have separately considered the most current and relevant planning policy.) As such, the full review is not repeated here. The full PPP review can be found in the 2011 SA Report and the 2008 SA Scoping Report.

The following sections provide a very brief summary of the PPP review as presented in the 2011 SA Report (which has not been updated).

4.2 International Summary

The international (European Union) level legislative instruments and strategies reviewed represent the highest tier of the sustainable development agenda that is then required to be transposed into Member State legislation. National-level legislation subsequently conditions the content of plans, policies and programmes at the national, sub-regional and local level that effectively inform the local on-the-ground delivery of the sustainability agenda.

The European Directives and strategies reviewed concern environmental issues that are of considerable importance at the global scale, yet require localised action to be effective, including:

- Climate change and renewable energy;
- Establishing sustainable communities;
- Delivering sustainable transport systems;
- Delivering sustainable waste management;
- Using and managing natural resources efficiently;
- Establishing patterns of sustainable production and consumption;
- Promoting social inclusion and fighting poverty;
- Conserving biodiversity;
- Conserving and improving the water environment; and
- Improving ambient air quality.

4.3 National Summary (UK and Wales)

The sustainability themes covered by the national PPP documents reflect environmental issues important at the international scale, cascaded down to the regional level as well as issues of specific relevance to Wales, particularly with respect to social and economic issues.

The social aspects covered by the national level documents include the need to deliver safe, inclusive and healthy communities in which social exclusion is minimised and access to facilities is maximised. A strong theme of some of the national level documents is to strengthen cultural identities and to support cultural distinctiveness and the continuation of the Welsh language. Responding to local community needs through development is also a theme echoed through a number of the documents. Minimising the need to travel, supported by integrated and healthier forms of transportation is also reiterated by the national policy and strategy documents.

The environmental issues covered in the national documents are commonly based upon the need to conserve biodiversity and protected sites and habitats. A strong theme underpinning many of the policies/strategies is to provide the capacity for habitats, species and the natural environment to respond to a changing climate by allowing time and space for adaptation. The need to protect the quality and availability of water resources was also noted during the PPP review. High-quality urban design is also cited as a key component for delivering sustainable communities.

The economic themes of the national documents typically centre upon the need to encourage a more diversified and high value Welsh economy that maximises the country's extensive natural assets. Tourism is a key theme of a number of the national level documents as is the need to move towards capturing renewable technologies markets.

4.4 Regional / Local Summary

The sub-Wales- and Carmarthenshire-level policy documents and strategies also reflect a number of the sustainability themes highlighted in the international and national documents; for example increasing access to services via integrated transport facilities and meeting community needs at the local level.

Local documents such as the Social Inclusion and Community Strategies seek to tackle issues pertinent to Carmarthenshire such as exclusion, the need to decentralise services by increasing levels of access, delivering safe and healthy communities, promoting education and employment and regenerating and developing the labour market. The need to develop a high value-added and diverse economy also mirrors the policies and strategies set out in some of the national level documents. The need to minimise energy expenditure, use energy efficiently and invest in less damaging sources of energy is a key theme of Carmarthenshire's Climate Change Strategy.

The following broad themes are reiterated across the policies and strategies for Carmarthenshire:

- Environmental Improvement;
- Health and Wellbeing;

- Lifelong Learning;
- Investment, Innovation and Regeneration; and
- Delivering Safer Communities

5 Options and Policy Development

5.1 Scoping Stage and Consultation

The SA Scoping Report was the first stage of the SA/SEA process and set the context for the SA of the Carmarthenshire LDP. The Scoping Report developed the key sustainability objectives for the County, which have been used as a means to test the LDP.

The consultation period for the Scoping stage ran from 3 September 2008 to the 8 October 2008, and the draft SA Report was then reviewed in light of the consultation responses received. The information received from consultation is contained in detail within Appendix C of this report alongside Carmarthenshire County Council's responses to them. A summary of this information is provided below.

The SA/SEA Scoping Report was also a point of discussion in the first LDP Key Stakeholder Forum. This was held in Kidwelly on the 28 October 2008 and was attended by delegates from a wide range of organisations (voluntary, public and private sectors) as identified within the LDP Delivery Agreement.

The main issues that arose from consultation are detailed below including how these issues were addressed. Appendix C includes this information in greater detail.

- Several consultees commented that there was a need to expand and update the PPP review documents. The PPP review was later updated to include national and local PPP in addition to other updates identified.
- Several amendments to the SA/SEA Objectives were recommended. The Objectives which were amended as a result of consultation were Objectives 2-2, 4-1, 4-3, 4-4, 4-5 and 13-3. As illustrated in this Report, these Objectives have been further refined and numbering slightly altered (Chapter 1, Table 1-1 of the Initial SA Report of the Preferred Strategy for details of how the Objectives were initially amended (blue italic text)).
- Baseline updates and amendments were proposed by several consultees. This included the addition of information relating to designated sites and LBAPs within biodiversity, expansion of cultural heritage feature information, climate change data including renewable energy and CO₂ emissions, sustainability issues, education and skills and the economy. In addition, it was recommended that baseline maps be included. These issues were taken on board and have been addressed within this Report where applicable.
- Suggestions were made during consultation for the expansion of proposed indicators. These related to small changes and additions to indicators relating to biodiversity, climate change, flooding and the landscape. As a result of the recommendations, changes were made to the indicators where appropriate.

5.2 LDP Objectives Compatibility Assessment

The SA played a prominent role in the development of the LDP Objectives. The initial LDP Strategic Objectives were assessed in May 2009 for their compatibility with the SA / SEA Objectives with recommendations for improvements made where it was deemed appropriate. This early testing and iterative approach was undertaken to ensure that the LDP Objectives were unlikely to conflict with the SA Objectives. The full compatibility assessment on the initial LDP Objectives can be found within Chapter 1 of the Initial SA Report.

As a result of this assessment, small changes were made to the wording of the LDP Objectives to improve their sustainability performance ahead of being finalised. These updated Objectives are listed beneath Table 5-1.

Table 4-1 below presents the 2011 assessment of the compatibility of the updated LDP objectives against the SA / SEA objectives. As identified in the table, several incompatibilities remained, however it was recognised that within the LDP, these incompatibilities could largely be addressed as the plan-making process proceeded towards completion. The plan-making process for the LDP and its resulting policy framework also sought to strengthen any positive trends and alignments.

Some of the particular areas of compatibility included the LDP objectives under the 'Feeling Secure' theme; whereby creating safe and vibrant spaces and sustainable communities can contribute positively to the management of habitats and increase the quality of outdoor recreation. The SA Objectives that were found to be most strongly compatible with the LDP objectives were those relating to Economy and Social Fabric. For example, the LDP strategic objectives would support the SA Economy objectives by encouraging investment through high-quality design, preserving land for future development, creating viable communities and by creating jobs in sustainable technologies and land management.

Table 5-1: Compatibility Assessment between LDP Objectives and SA/SEA Objectives

SA Topic	Carmarthenshire LDP Strategic Objectives													
	A Better Place					Opening Doors		Feeling Fine		Investment & Innovation			Feeling Secure	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 – Sustainable Development	(Refer to the outcomes of the assessment of the SA/SEA Objectives below)													
2 - Biodiversity	-	Yellow	Red	Green	Green	Yellow	-	Yellow	Yellow	Red	Red	Yellow	Green	Green
3 - Air Quality	-	Green	Yellow	Green	Green	-	-	Yellow	Yellow	Green	Green	Yellow	-	Green
4 - Climatic Factors	Yellow	Green	Yellow	Green	Green	-	-	Yellow	Yellow	Green	Yellow	Yellow	Green	Green
5 - Water	-	Yellow	Yellow	Green	Green	-	-	White	Yellow	Yellow	Green	Yellow	-	-
6 - Material Assets	Yellow	Green	Green	White	Green	-	-	-	Green	Green	Green	Yellow	-	Green
7 – Soil	-	Green	Yellow	Green	Green	-	-	Yellow	Yellow	Yellow	Yellow	Yellow	-	-
8 - Cultural Heritage	Green	Yellow	Yellow	Green	-	-	Green	Green	Yellow	Yellow	Yellow	Yellow	Green	-
9 – Landscape	Green	Yellow	Yellow	Green	-	-	Green	White	Yellow	Yellow	Yellow	Yellow	Green	-

Carmarthenshire LDP Strategic Objectives														
	A Better Place					Opening Doors		Feeling Fine		Investment & Innovation			Feeling Secure	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
10 - Population	-	-		-										
11 - Health and Well-Being						-	-				-			
12 - Education and Skills	-			-	-		-	-			-		-	-
13 – Economy														
14 - Social Fabric					-							-		

KEY

-  Objectives are compatible
-  Uncertainty over compatibility
-  Objectives are not compatible
- No relationship between objectives

Strategic Objectives

SO1: To protect and enhance the diverse character, distinctiveness, safety and vibrancy of the County’s communities by ensuring sympathetic and high quality standards of design.

SO2: To ensure that the principles of spatial sustainability are upheld by: (a) enabling development in locations which minimise the need to travel and contribute towards sustainable communities and economies, and (b) wherever possible encouraging new development on previously developed land which has been suitably remediated.

SO3: To make provision for an appropriate mix of quality homes; access to which will be based around the principles of sustainable development and equality of opportunities.

SO4: To ensure that the natural, built and historic environment is safeguarded and enhanced and that habitats and species are protected.

SO5: To make a significant contribution towards tackling the cause and effect of climate change by promoting the efficient use and safeguarding of resources.

SO6: To assist in widening and promoting education and skills training opportunities for all.

SO7: To assist in protecting and enhancing the County’s unique cultural identity, assets and social fabric.

SO8: To assist with widening and promoting opportunities to access community, leisure and recreational facilities as well as the countryside.

SO9: To ensure that the principles of equal opportunities and social inclusion are upheld by promoting access to a high quality and diverse mix of public services, health services, shops, leisure facilities and work opportunities.

SO10: To contribute to the delivery of an integrated and sustainable transport system that is accessible to all.

SO11: To encourage investment & innovation (both rural and urban) by: (a) making adequate provision of land to meet identified need; (b) making provision for the business and employment developmental needs of indigenous / new employers, particularly in terms of hard and soft infrastructure requirements (including telecommunications / ICT); (c) making provision for the infrastructural requirements associated with the delivery of new homes particularly in terms of hard and soft infrastructural requirements (including foul and surface water); and (d) adhering to the principles of sustainable development and social inclusion in terms of the location of new development.

SO12: To promote and develop sustainable & high quality all year round tourism related initiatives.

SO13: To assist with the development and management of safe and vibrant places & spaces across the County.

SO14: To assist with the delivery and management of mixed & sustainable communities by: (a) promoting safe, vibrant and socially interactive places and (b) promoting the utilisation of local services and produce whenever possible.

The LDP Topic Paper 1: Issues, Vision and Objectives, stated that delivering development that is sustainable often requires a balance to be struck between the losses and gains across social, economic and environmental components. In this case, the need to achieve social and economic development tends to suggest that there may be incompatibilities with environmental conservation. The SA identified that several policies can contribute significantly to moderating the potential incompatibilities that exist between the LDP Objectives and the SA Objectives. These included:

- SP2: Climate Change;
- SP13: Protection and Enhancement of the Historic and Built Environment;
- SP14: Protection and Enhancement of the Natural Environment; and
- SP17: Infrastructure.

5.3 Initial SA Report

An Initial SA Report was published alongside the Preferred Strategy and can be found on the Council's website. The Initial SA Report evaluated the Preferred Strategy's sustainability (including its strategic objectives, options and policies) by measuring it against the Sustainability Framework. This formed a key part of evidence for the LDP in respect of sustainable development and climate change, and shows the iterative function of the SA process within LDP plan-making.

5.4 Assessment of Strategic LDP Alternatives

In developing the LDP Preferred Strategy, the Authority is required to generate a range of strategic spatial options. The options identified were evaluated within the Initial SA Report to determine how the plan best reflect the diversity and character of the county and its development needs and constraints, as well as supporting the

aims of other strategies, plans and policies operating internationally, nationally and at the county and local level. These strategic spatial options were assessed against the sustainability objectives as part of the SA/SEA Assessment process. The assessment of these options can be found in detail in Chapter 3 of the Initial SA Report.

The strategic spatial options were assessed against the sustainability objectives as part of the Stage B SA/SEA assessment process. The assessment is presented in Chapter 3, Table 2.1 of the Initial SA Report. The Options were assessed against the 'Do Nothing Scenario' (Option 4) as a comparator, which can be interpreted as the situation in which the adopted UDP comes to an end and there is no plan in place that directs or guides development.

The assessment indicated that Option 1 was the preferred option when tested against the sustainability framework, although Option 2 also performed well. Option 1 aims to achieve viable, self-supporting settlements and viable rural communities and seeks to consolidate the existing pattern of facilities and their retention in accessible locations. This option was also identified as the preferred strategic spatial option from the Key Stakeholder Forum (KSF) process. Consequently, it was considered that this strategic option will define and drive the content of the LDP.

5.5 Initial Assessment of Strategic Policies

The LDP strategic policies as set out within the Pre-Deposit Preferred Strategy were also assessed against the SA/SEA framework to identify the likely effects of the implementing them. An 'in-combination' approach to the assessment was undertaken, whereby the effects of other strategic policies were also considered in establishing the residual effects of each policy. The intention of this exercise was to identify areas where there may be gaps and where predicted effects might not be currently managed through policy interventions. This provided an early opportunity to identify additional elements or changes in wording that could be included in the detailed LDP policies as they were drafted. The assessment of the strategic policies can be found in Chapter 4 of the Initial SA Report.

The Preferred Strategy contains strategic policies that are intended to facilitate physical development. This therefore infers changes in the environment and results in tensions with SA/SEA objectives that intend to protect or enhance the natural environment (SA2 Biodiversity, SA3 Air Quality, SA4 Climatic Factors, SA5 Water, SA7 Soil, SA8 Cultural Heritage and SA9 Landscape).

Strategic policies SP9: Transportation and SP10: Sustainable Mineral Development involve the safeguarding of land for transportation routes and minerals extraction. The effect of these policies is dependent upon these safeguarded areas being developed.

The Preferred Strategy is intended to reflect community development needs, and therefore the assessment of the Strategic Policies typically showed a strong positive alignment with the SA/SEA Objectives, centred on social and economic intentions (SA10: Population, SA11: Health and Well-Being, SA12: Education and Skills, SA13: Economy, SA14: Social Fabric).

No major adverse effects were predicted, and the LDP policies and supporting legislation and external policies typically were found to act in combination to produce moderate adverse effects. However, it was considered that there could be some areas where policy wording could be expanded to reduce uncertainty, cover the

scope of the SA/SEA objectives more fully or enhance positive effects as part of the drafting of the LDP policies.

The following strategic policies are those that were found to contribute significantly to moderating the potential adverse effects of other strategic policies:

- SP2 Climate Change,
- SP13 Protection and Enhancement of the Historic and Built Environment,
- SP14 Protection and Enhancement of the Natural Environment, and
- SP17 Infrastructure.

5.6 Consultation on the Initial SA Report

Consultation on the Initial SA Report ran from 4 November 2009 to 4 January 2010. This SA Report has sought to address some of the issues raised from consultation within the Initial SA Report. Details of the consultation responses and how they have been addressed are set out within Appendix E.

5.7 Options for Growth

The LDP has considered different options for accommodating growth in Carmarthenshire. As stated in the Population and Housing Topic Paper for the LDP, since 1991, Carmarthenshire’s population growth has been driven by net migration with a consistent negative contribution from natural change. This pattern is reproduced in each community area. Using evidence from the last six years of demographic components of change, five alternative ‘net-migration’ scenarios have been produced to illustrate the potential long-term impact upon Carmarthenshire’s population growth profile.

Scenario	Variable	2008	2026	Increase	% increase
1	Population	180,657	203,540	22,883	12.67%
	No. Households	80,389	101,143	20,754	25.82%
2	Population	180,657	201,210	20,553	11.38%
	No. Households	80,389	99,919	19,530	24.29%
3	Population	180,657	197,100	16,443	9.10%
	No. Households	80,389	98,198	17,809	22.15%
4	Population	180,657	195,880	15,223	8.43%
	No. Households	80,389	97,670	17,281	21.50%
5	Population	180,657	190,430	9,773	5.41%
	No. Households	80,389	95,258	14,869	18.50%

NOTE: Actual implications for LDP are slightly lower, as the LDP is working from 2011 and planning up to 2021, however these figures provide an adequate indication of growth levels for the purposes of comparison by the SA.

These scenarios have been qualitatively assessed against a tailored version of the SA Framework. This assessment methodology has focused on those aspects of

each topic which are potentially constrained (e.g. infrastructure constraints) by the number of houses and economic development in the county. It has not accounted for the likely significant effects, which is not possible at this level, and which has generally be dealt with by the compatibility appraisal of LDP Objectives, which indicates the incompatibilities and potential incompatibilities of growth. Similarly, it has not accounted for carbon or ecological footprinting (or similar studies), which can provide a global 'footprint' of the population relative to the land resource, habitats or carbon impact of the population. These are detailed studies much separate to SA / SEA.

The results are presented in Table 5-1 on the following page.

There is no simple conclusion as a result of this SA assessment, as the infrastructure necessary to support the population, and the standard set for service levels (etc.), are often managed by other plans and strategies which have already accounted for projected population increases. In these cases, the scenarios can only be compared against what these plans and strategies have used as population projections to inform their decision-making and infrastructure provision / management. It is not always clear how they compare, due to variation in the timescale or geographical extent of the figures.

In other areas, the SA inherently leads to opposing conclusions, as without due consideration, new development can bring supporting infrastructure and services over capacity. Alternatively, through sufficient consideration (such as policy which requires developer contributions informed by investigation), new development can provide key infrastructure which not only meets the needs of new residents, but simultaneously improves the situation for existing residents.

Scenarios 1 and 2 raise much uncertainty regarding the ability of Carmarthenshire and the wider region to adapt to and support their respective levels of implied population and housing growth. Simultaneously, they can lead to more 'major' developments which thus lead to larger and more focused developer contributions and associated benefits. In sustainable locations, they can also provide a larger public transport customer base to secure investment. Scenario 5 provides overall the least risk, as it tends to be closer to previous population projections, but it also provides the least opportunity.

Scenarios 3 and 4 are generally the 'in between' scenarios. They are potentially above the population forecasts used in other infrastructure plans and strategies, but not severely so and there are no issues which are seen to be beyond the powers of spatial planning to manage. However, the potential number of 'major' developments providing significant benefits to infrastructure provision would likely be less than for Scenarios 1 and 2.

As stated above, this assessment has not attempted to identify the likely significant effects of scenarios, as all pose the potential for various impacts which will inevitably depend upon the number, density and location of housing and other development (as assessed by the remainder of the SA).

The preferred option selected was Scenario 3, as it offers a trend-based projection that reflects the latest migration data, and it is therefore potentially the most accurate reflection of current population trends. Therefore, the LDP does not seek to make any notable interventions in the population, but rather is based around accommodating need within the county.

Table 5-2: Assessment of Potential Infrastructure Constraints for LDP Options for Growth

Key Sustainability Infrastructure	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Green Infrastructure / Greenspace Assessment	<u>Current Position, Greenspace:</u> County passes the 2 ha per 1000 population criterion, however most settlements fail the criterion as the majority of greenspaces are not located near settlements. Major settlements fare better overall than minor settlements, but lack in greenspace of 0.5 ha in size within 400 m of housing.				
	<u>Current Position, Recreation & Amenity:</u> Most settlements pass the Outdoor Sports Facilities target, although 3 settlements have no sports provision. Provision for Children and Young People per 1000 population is significantly below the target for the majority of settlements. Provision of Amenity Greenspace, Parks and Gardens is generally poor.				
	Challenging, but potentially better for securing more, larger developments which can include larger areas of new green infrastructure, recreation, amenity, and access improvements.			New development provides the opportunity to incorporate greenspace, recreation, amenity and access to these areas to the current standards, which can also help to redress historic problems.	
Water Resources	<u>Current Position:</u> Welsh Water's draft Water Resources Management Plan (WRMP) sets out a 25-year vision for managing the supply of water, and was published for consultation in 2009. It is based on a population projection within the majority of the WRMP area of an 8% rise between 2003 and 2027, and a rise in households of 20% (more detailed breakdown not available at time of writing). It recognises that growth will be concentrated in South Wales. Since the WRMP was written, it has received 'sustainability reductions' under the Habitats Directive from the Environment Agency Wales, and is awaiting updates. None of these reductions occur directly within Carmarthenshire.				
	Carmarthenshire is not within a resource deficit zone.		Greater uncertainty regarding consistency with Welsh Water's resource planning.		Likely within the WRMP's projections. Slight uncertainty - consult Welsh Water.
Wastewater Treatment	<u>Current Position:</u> Development in parts of river catchments around Carmarthen and Ammanford have been restricted due to limited capacity at waste water treatment works or where constraints exist on the sewerage network. The Llanelli area in particular is known to have an inadequate sewerage and sewage disposal system. This has resulted in the discharging of sewage into the Loughor Estuary and the Towy River resulting in significant water quality issues and limiting future development due to the lack of capacity.				
	All options have the potential to place too much pressure on waste water treatment works, particularly at Llanelli. This requires consideration of the distribution and location of development during the further assessment of the LDP.				
Waste Management	<u>Current Position:</u> The South West Wales Regional Waste Plan (1st Review) is based on a forecasted 'all-Wales' population increase of 0.4% per annum. It notes that there is inherent uncertainty in future waste projections, but that the projections were considered sufficiently robust to enable a range of options to be assessed and to allow conclusions to be drawn.				
	The Regional Waste Plan aims to achieve a recycling and composting rate for MSW of 50% in 2013, reduce the amount of biodegradable municipal waste landfilled to 35% of that produced in 1995 by 2013, and ensure that targets for the management of the other principal controlled waste streams are also met. It provides indicative new capacity required and an indicative number of new facilities required by				

Key Sustainability Infrastructure	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
	local authority. In Carmarthenshire, this includes that 462 ha of potential land is available to accommodate a potential need for 69 ha of new waste management facilities.				
	Significant adjustment from the Regional Waste Plan needed to accommodate growth.		New facilities are needed to manage waste, and potentially some minor adjustment to account for higher population projections under Scenarios 3 and 4. However, there will be some inherent 'monitor and respond' work in managing waste regardless, given numerous uncertainties.		
Roads and highways	<p><u>Current Position:</u> The South West Wales Integrated Transport Consortium (SWWITCH) has identified several areas of the road network in Carmarthenshire which have potential road capacity issues. These areas include the town centres of Carmarthen and Llanelli and the A4138 and A48 up to the junction with the M4 motorway. SWWITCH identifies that the growing volume of traffic is causing pressure on the road network, including resources to carry out proactive maintenance which is being addressed through partnership with WG and the Welsh Local Government Association (WLGA).</p> <p>Part of the M4 motorway near Llanelli is likely to be at risk of flooding.</p>				
	Level of growth is significantly past historic trends, and may cause authorities to struggle to manage capacity increases where needed alongside proactive maintenance, particularly during the current recession.		Level of growth is slightly above historic trends - continue to work with SWWITCH, WG, WLGA and others to secure infrastructure investment.		Level of growth less than historic trends, but infrastructure improvements still needed.
Public Transport	<p><u>Current Position:</u> The line from Swansea to Llanelli is utilised to full capacity, as is the line from Carmarthen travelling south to Pembroke Dock (outside of Carmarthenshire). There is medium capacity on the line from Llanelli on to Carmarthen and beyond outside of the County to Milford Haven. The rail line from Llanelli to Llandrindod Wells is currently at low capacity. There is 20% forecast growth on the rail line in South West Wales for 2018/19. The rail line from Llanelli to Swansea is likely to be at risk of flooding in stretches.</p> <p>Bus services tend to be more flexible with regard to capacity, however services do not always meet up with customer expectations and needs. Survey data for Wales on bus service satisfaction shows that in the SWWITCH area, 88% of people were satisfied with their overall bus journey in 2010, which is the same as the Wales average. Fewer people, however, were satisfied with bus punctuality or value for money.</p>				
	Risk of sending rail routes to, and over, capacity or placing unpredicted strain on bus services (if not planned for). All growth options present this risk to varying degrees, and additional investment is needed. (See opportunities below.)				
	Potential for this level of growth to attract the most significant investment into bus services and the railways, e.g. by making schemes more viable.		Potential for this level of growth to attract significant investment into bus services and the railways, e.g. by making schemes more viable.		Growth in passenger numbers and ticket sales can assist in securing improvements.
Healthcare and Schools / Education	<p><u>Current Position, Healthcare:</u> Statistics for Wales show similar hospital performance in the region as for the nation. Whilst overall the number of beds has decreased over 10 years, patient throughput and average time spent in hospital has decreased, which indicates that the nature of treatment (e.g. technology) is changing and likely improving overall. In the Hywel Dda Health Board region (which includes</p>				

Key Sustainability Infrastructure	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
	Carmarthenshire), there are slightly more GPs per registered patient than the national average, and also more GPs per 10,000 people. It has the highest ratio of Welsh-speaking GPs per 10,000 people. However, as a rural county, access to healthcare remains an issue.				
	<u>Current Position, Schools:</u> The document 'Tri-level Reform in the Dinefwr area of Carmarthenshire' of 2008 identifies that two schools were significantly over-capacity (Tre-Gib and Maes Yr Yrfa), whilst others had spare capacity. However, student numbers were likely to decline at most schools, other than Maes Yr Yrfa. Proposals to address these and other issues include a phasing in of the transformation and re-organisation of Dinefwr schools.				
	Under all scenarios, there needs to be consideration to the proximity (or travel time, in the case of hospitals) and capacity of schools, local GPs, pharmacies, dentists, hospitals and other facilities. This needs to be dealt with on a site-by-site basis. (See also opportunities below.)				
	Potential for this level of growth to attract the most significant investment into schools and healthcare, e.g. by making schemes more viable.		Potential for this level of growth to attract significant investment into schools and healthcare, e.g. by making schemes more viable.		Number of major developments and readily secured developer contributions may be scarce.

5.8 Further LDP Development

All of the LDP policies have been screened against each SA Topic and the SA Framework, and assessed. Recommendations have been made and already incorporated into the LDP. This process has facilitated a number of improvements. Policy recommendations and enhancements that have been accepted by the Council have been documented within Chapter 6 to 18.

TOPIC PAPERS

6 Biodiversity

Topic Definition and Approach

Biodiversity can be defined as the total variety of living organisms on earth, including all species of plants, animals and their associated habitats. It supports the vital benefits we get from the natural environment and contributes to our economy, our health and well-being, and it enriches our lives (Defra, 2008). Biodiversity is in decline across the world because of human activity, with 10-30% of animals threatened with extinction.

The table below sets out the SA Objectives and decision-making criteria for biodiversity which have been utilised to develop the baseline and guide the assessment process.

Table 6-1: SA Framework for Biodiversity

SA Objectives	Decision-Making Criteria
2 - Biodiversity	
2-1 To avoid damage or fragmentation of designated sites, habitats and priority species and encourage their enhancement	<p>Are there any designated or non-statutory nature conservation sites that may be affected by the LDP?</p> <p>Is there any evidence of priority species that may be affected?</p> <p>Will there be any opportunities for enhancing or recovering wildlife resources?</p>
2-2 To protect, enhance and create appropriate wildlife habitats and wider biodiversity in urban and rural areas	<p>Are there any BAP/Section 42 habitats/species that may be affected by the LDP?</p> <p>Will there be any opportunities to create new habitats?</p>

For the purposes of this SA, this topic and SA Objectives have looked at designated and non-statutory nature conservation sites, priority species and the potential to enhance or create new habitats and wildlife resources. Focusing on these issues then enables the identification of any constraints in relation to biodiversity for proposals and policies within the LDP.

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 6-2 below describes the strategic policies of relevance to biodiversity.

Table 6-2: LDP Policies and Relevance to Biodiversity

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>SP8 Retail</p> <p>SP9 Transportation</p> <p>SP10 Sustainable Mineral Development</p> <p>SP11 Renewable Energy & Energy Efficiency</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-Wind Renewable Energy Installations</p> <p>SP12 Waste Management</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p> <p>SP17 Infrastructure</p> <p>GP6 Extensions</p> <p>H3 Renovation of Derelict or Abandoned Dwellings</p> <p>H5 Adaptation and Re-Use of Rural Buildings for Residential Use</p> <p>H6 Residential Care Facilities</p> <p>H7 Gypsy and Traveller Sites</p> <p>H9 Residential Caravans</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversification</p> <p>EMP5 Mixed Use Sites</p> <p>RT6 Town Centres (Service Centres) – Convenience Stores</p> <p>RT7 District Centres (Local Service Centres)</p>	<p><u>Risk of loss of habitat and other conflicts with wildlife:</u> these policies aim to help facilitate new development (including ancillary development), which has the potential to have impacts upon habitats and species in its vicinity, and sometimes at a distance. Key issues include habitat loss, recreational pressure, light and noise disturbance, and water management (both water abstraction and wastewater). Additionally, if inappropriately sited, wind turbines can negatively affect bird populations.</p> <p>Additional transport, whether by road or more sustainable modes, can lead to negative biodiversity impacts, including habitat loss through landtake, habitat severance and fragmentation, habitat damage through pollution and wildlife kills through collisions.</p> <p>Although Policy SP8 promotes retail first in main town centres, new retail development in more rural areas could have impacts on biodiversity in the vicinity of the development.</p> <p>Policy H8, H5 and EMP3 include for renovation of derelict or abandoned dwellings / buildings which may result in loss of bat habitats.</p> <p>Policies TSM1, TSM2, TSM3, TSM4 and TSM5 only permit tourism development (including static caravan, chalet and tent sites) where it can enhance the environment of the site, however they still could disturb wildlife in the area.</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>RT8 Local Shops and Facilities</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>TSM3 Small Scale Tourism Development in the Open Countryside</p> <p>TSM4 Visitor Accommodation</p> <p>TSM5 Major Tourism Proposals in the Open Countryside</p> <p>MPP1 Mineral Proposals</p>	
<p>SP10 Sustainable Mineral Development</p> <p>SP11 Renewable Energy & Energy Efficiency</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-Wind Renewable Energy Installations</p> <p>SP12 Waste Management</p> <p>MPP5 Aggregate Alternatives</p>	<p>Reducing the potential for habitat loss by reducing the need for new development: these policies work to discourage unnecessary minerals or landfill development. SP10 and MPP5 advocate the re-use and recycling of minerals. SP11, RE1, RE2 and RE3 reduce reliance on fossil fuels, whose extraction, transport, storage and combustion require large amounts of land. SP12 facilitates driving waste up the waste hierarchy to avoid landfill. This can reduce the land which would have otherwise been needed for minerals, energy and waste management development, and may have otherwise had a negative impact on nature conservation.</p>
<p>SP2 Climate Change</p> <p>SP10 Sustainable Mineral Development</p> <p>SP11 Renewable Energy & Energy Efficiency</p> <p>H7 Gypsy and Traveller Sites</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>SP15 Tourism and the Visitor Economy</p> <p>GP1 Sustainability and High Quality Design</p> <p>TR6 Redundant Rail Corridors</p> <p>EQ3 Regional and Local Designations</p>	<p>Protection of biodiversity: these policies seek to protect and enhance the area's biodiversity value and, where appropriate, integrate nature conservation into new development.</p> <p>Policies SP10, SP11, SP15, GP1, MPP1, TSM5 and EQ4 include that development proposals demonstrate that biodiversity impacts have been addressed satisfactorily, retain important features, and/or will not adversely impact the environmental qualities and characteristics of the county. Policy TR6 safeguards former rail lines from development which can protect biodiversity in these locations.</p> <p>EP1 and EP2 look to avoid adverse impacts on water and air quality, light and noise emissions which can benefit biodiversity.</p> <p>Policy H7 includes for avoidance of noise impacts on neighbouring land uses, which (if a significant issue) can include biodiversity interest.</p> <p>Policy EQ7 specifically requires proposals to promote and contribute to the delivery of the conservation objectives of the Caeau Mynydd Mawr SAC. Proposals within the Caeau Mynydd Mawr SAC SPG</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>EQ4 Biodiversity</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p> <p>EQ7 Development within the Caeau Mynydd Mawr SPG Area</p> <p>EP1 Water Quality and Resources</p> <p>EP2 Pollution</p> <p>REC1 Protection of Open Space</p> <p>TSM3 Small Scale Tourism Development in the Open Countryside</p> <p>MPP1 Mineral Proposals</p> <p>MPP4 Coal Extraction Operations</p>	<p>Area will be required to contribute towards increasing the quality and amount of suitable habitat for marsh fritillary butterfly available within the SPG Area.</p>
<p>SP1 Sustainable Places and Spaces</p> <p>SP2 Climate Change</p> <p>TR3 Highways in Developments – Design Considerations</p> <p>EP3 Sustainable Drainage</p>	<p>Reduction of existing impacts on biodiversity: new, more sustainable transport environments and networks can encourage modal shift away from road transport, reducing climate change emissions and the resulting impacts of climate change, and also potentially impacts from air pollution, road run-off or wildlife kills through collisions. Gaining a net benefit will depend upon how proposals improve the situation for existing residents, which requires good integration of new development with the existing, and also looking outside of site boundaries to correct existing problems.</p> <p>Use of Sustainable Drainage Systems in new development and in the design of new highways can help reduce impacts on biodiversity.</p>
<p>SP14 Protection and Enhancement of the Natural Environment</p> <p>GP1 Sustainability and High Quality Design</p> <p>EQ7 Development within the Caeau Mynydd Mawr SPG Area</p> <p>REC3 Proposed New Open Space</p> <p>MPP6 Restoration and Aftercare of Mineral Sites</p> <p>WPP2 Waste Management Facilities Outside Development Limits</p>	<p>Enhancement through creation or expansion of habitats: these policies encourage development to enhance the county's natural environment.</p> <p>Policy MPP6 and WPP2 includes for a high standard of site restoration and aftercare, which may include habitat creation and management.</p> <p>GP1 permits development which presents opportunities to enhance biodiversity and ecological connectivity.</p> <p>Policy EQ7 requires proposals within the Caeau Mynydd Mawr SAC SPG Area to contribute towards increasing the quality and amount of suitable habitat for marsh fritillary butterfly available within the SPG Area.</p> <p>REC3 proposes new open space provision south of Picton Terrace, Carmarthen; to the rear of Ammanford Comprehensive School which could create new habitats; to the rear of Station Road, St Clears; and at Dylan, Trallwm, Llanelli.</p>

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on the topic, or no association at all.

SA Baseline for Biodiversity

6.1.1 Designated Sites

Carmarthenshire has large areas of land that are designated for their international importance for nature conservation (refer to Table 2-3). These include:

- Special Areas of Conservation (SACs) designated under the EC Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC);
- Special Protection Areas (SPAs) designated under the EC Directive on the Conservation of Wild Birds (79/409/EEC); and
- Ramsar site designated following the 1971 Ramsar convention on wetlands.

A high percentage of the features for which particular sites such as SPAs and SACs are designated are in an unfavourable condition throughout Wales. Data provided by CCW (now part of Natural Resources Wales (NRW)) indicates that 72% of SACs and 14% of SPAs are in an unfavourable condition for Wales as a whole.

Three SACs are situated wholly in Carmarthenshire; River Tywi, Caeau Mynydd Mawr and Cernydd Carmel. The international nature conservation sites are:

- SACs: River Tywi, River Teifi, Cleddau Rivers, Caeau Mynydd Mawr, Cernydd Carmel, Cwm Doethie – Mynedd Mallaen, Carmarthen Bay and Estuaries, and Carmarthen Bay Dunes;
- SPAs: Burry Inlet, Elenydd Mallaen and Carmarthen Bay; and
- Ramsar sites: Burry Inlet.

The condition assessments for these sites highlight the species and habitats for which they are designated and their condition / status. The detail for each site is presented in the Habitats Regulations Assessment (HRA) screening report of 2009.

Key issues for all of the internationally designated sites in the county include:

- Species in favourable (maintained) condition: Otter, Floating water-plantain, Glasswort, other annuals colonising mud and sand, Narrow-mouthed whorl snail, Shelduck, Wigeon, Teal, Pintail, Shoveler, Oystercatcher, Grey Plover, Knot, Dunlin, Curlew, Redshank, Waterfowl assemblage, Red kite, Merlin;
- Species in unfavourable condition: Sea lamprey, River lamprey, Brook lamprey, Atlantic Salmon, Allis shad, Twaite shad, Bullhead, Marsh fritillary butterfly;

- Habitats in favourable condition:
 - Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels;
 - Western acidic oak woodland;
 - Intertidal mudflats and sandflats;
 - Shallow inlets and bays;
 - Shifting dunes;
 - Shifting dunes with marram;

- Habitats in unfavourable condition:
 - Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels;
 - Rivers with floating vegetation often dominated by water-crowfoot;
 - Active raised bogs;
 - Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno – Padion, *Alnion incanae*, *Salicion albae*);
 - Purple moor-grass meadows;
 - Wet heathland with cross-leaved heath;
 - Dry heaths;
 - Mixed woodland on base-rich soils associated with rocky slopes;
 - Turloughs;
 - Subtidal sandbanks;
 - Estuaries;
 - Atlantic salt meadows;
 - Dunes with creeping willow;
 - Humid dune slacks; and
 - Dune grassland.

Where European sites share common species or habitats as reasons for their designation, they are consistent in terms of favourable versus unfavourable condition.

In addition, the Bury Inlet Ramsar site is at risk from erosion, vegetation succession and dredging.

The condition of the Carmarthen Bay and Estuaries SAC and Burry Inlet SPA are being reassessed and are likely to be classified as being in unfavourable status. Nutrient enrichment is known to be a serious problem in the Loughor River/Burry Inlet/Carmarthen Bay associated with the discharge of storm sewerage drainage. This has significantly increased the rate of cockle mortality with subsequent effects on species such as oystercatcher that feed on them.

There are also 80 Sites of Special Scientific Interest (SSSI) situated wholly in Carmarthenshire, with a further suite of 9 SSSIs falling within Carmarthenshire and the Brecon Beacons National Park. These are designated under the Wildlife and Countryside Act, 1981 (as amended) and are identified as being of national importance for flora, fauna, geology or geomorphology.

A survey undertaken by CCW (2006) indicated that many habitats in SSSIs in Wales are damaged; with a high proportion of SSSIs in unfavourable condition. A study of 47% of Welsh SSSIs, showed that less than a third (32%) were in favourable condition and two thirds (68%) were in unfavourable condition..

Carmarthenshire has five National Nature Reserves: Carmel, Allt Rhyd y Groes, Dinefwr, Waun Las (National Botanic Garden of Wales farm) and Cors Goch.

In addition to the internationally and nationally important sites in Carmarthenshire, Local Nature Reserves (LNRs) denote areas that are of local importance for conservation. Such sites represent an important component of the mosaic of natural habitats across the county. They are Pembrey Burrows and Saltings (near Burry Port), Ashpits Ponds & Pwll Lagoon (near Llanelli), North Dock Dunes (Llanelli), Glan yr Afon (Kidwelly) and Carreg Cennen Woodlands (near Llandeilo).

There are no Sites of Importance for Nature Conservation (SINC) or Regionally Important Geological Sites (RIGS) in Carmarthenshire. This does not reflect the fact that there are no habitats worthy of designation in Carmarthenshire; rather that although the Council has adopted the principle of SINC and the criteria for their designation, there has been a lack of resources dedicated to the designation process to-date.

6.1.2 The Carmarthenshire Local Biodiversity Action Plan (LBAP)

The following species are the subject of action plans within the current Carmarthenshire LBAP (Wales Biodiversity Partnership 2007):

- Black Bog Ant
- Skylark
- Common Scoter
- Tree Sparrow
- Nightjar
- Pennyroyal
- Black poplar
- Marsh Fritillary
- Allis Shad
- Twait Shad
- Otter
- Hornet Robberfly
- Red Kite
- Barn Owl
- Lapwing
- Water Vole
- Brown Hare
- Dormouse
- Pipistrelle and other bats
- Greater Horseshoe Bat
- Lesser Horseshoe Bat
- Red Squirrel
- Freshwater Pearl Mussel
- Deptford Pink
- Dune Gentian
- Rock Sea Lavender
- Fen Orchid
- Small-flowered catchfly
- Medicinal Leech
- Harbour porpoise
- Brown Hairstreak

The following habitats are the subject of action plans within the Carmarthenshire LBAP:

- Ffridd Habitat
- Roadside Verges
- Ancient and/or species-rich hedgerows
- Aquifer-fed naturally fluctuating waterbodies
- Blanket Bog
- Coastal and Floodplain Grazing Marsh
- Coastal Saltmarsh
- Coastal Sand Dunes
- Fens
- Lowland Heathland
- Lowland Meadows
- Lowland Raised Bog
- Lowland wood-pasture and parkland
- Mudflats
- Purple Moor Grass and Rush Pastures
- Reedbeds
- Upland Heathland
- Upland Mixed Ashwoods
- Upland Oakwood
- Wet Woodland
- Coastal vegetated shingle
- Post-industrial and brownfield sites
- Rivers and streams
- Maritime cliff and slope

The number of BAP priority species in Wales has increased from 174 in 2002 to 181 in 2005. Of these species, 34% were considered to be stable or increasing compared to 22% in 2002. The percentage of declining species has remained stable at 18% from 2002 – 2005 (National Assembly for Wales 2007b).

In terms of priority habitats, 36% of priority habitats in Wales were stable or increasing in comparison to 30% in 2002 (National Assembly for Wales 2007b).

In Wales as a whole, the geographical distribution of 17% of bird species increased between 1968-1972 and 1988-1991, whilst the distribution of 43% of species decreased (National Assembly for Wales 2007b).

Of particular relevance to Carmarthenshire as a predominantly rural county, is that more than 50% of species of farmland birds decreased in range over the same 20-year period. This trend is consistent with the recorded decline of farmland birds in the UK as a whole (National Assembly for Wales 2007b).

6.1.3 The Wider Biodiversity Resource

Carmarthenshire has a rich and varied natural biodiversity resource reflected in the number and type of designated sites. Natural habitats that are not formally protected form an essential component of Carmarthenshire's patchwork of natural habitats and are also important to conserve. Biodiversity as a whole provides significant goods and services and contributes to air and water quality, flood protection and provides the landscape setting for settlements and attracts tourism. The maintenance of a strong and diverse biological network of wildlife corridors will be vital in allowing space for species to adjust to the effects of climate change.

Assessment: Risks and Opportunities

6.1.4 Effects within Carmarthenshire

Risks of Negative Effects

A Habitats Regulations Assessment (HRA) has been undertaken for the LDP, and where it identified the potential for impacts on internationally designated sites within Carmarthenshire, it has led to mitigation being incorporated into the LDP to avoid such impacts. Key issues dealt with by the HRA include air quality, water quality, water supply and hydrology, non-native and invasive species, disturbance, landtake and fragmentation. The HRA Report documents the potential impacts and mitigation / enhancement measures which have been incorporated into the LDP.

The LDP includes policies for the protection of habitats, wildlife and biodiversity. Despite these, it is possible that new development such as for housing, commercial uses, retail, roads, mineral extraction, renewable energy, waste management, tourism and ancillary development (as laid out in SP3, SP4, SP5, SP7, SP8, SP9, SP10, SP11, SP12, SP15, SP16 and SP17 and in the related specific policies), particularly within the specified Growth Areas, could produce risks to Carmarthenshire's biodiversity. Landtake and habitat fragmentation (through land use change) caused by human activity is a major contributor and threat to the loss of biodiversity. They reduce the total habitat area available for wildlife and often result in smaller isolated populations separated by unsuitable habitat.

Policy RE1 identifies two Strategic Search Areas for wind farms, one of which is the Brechfa Forest. This is an extensive area of continuous forest in northern Carmarthenshire. Part of this SSA includes a single block of common land which contains some priority habitats as identified in Carmarthenshire's Local Biodiversity Action Plan (LBAP). Some of these habitats are sensitive to wind farm development including upland heathland (although somewhat overgrazed in this location) and blanket bog. After TAN8 was published with its proposed capacities for wind farm development in the SSAs, Garrad Hassan conducted an independent review of potential capacity in the SSAs. As noted in a 2006 study by Arup, 'The Garrad Hassan study does however raise some concerns regarding the ability to achieve the full capacity indicated due to the constraints posed by the presence of large areas of coniferous forestry (which is acknowledged).' Other issues raised by such previous studies include the need to use reduced energy yield assumptions where nationally important numbers of key species occur within 1 km grid squares (Arup, 2006).

The HRA Screening Report identifies that within the Carmarthenshire region, disturbance is most likely to be associated with tourism, recreation and amenity land uses all of which are proposed within the LDP.

Transport Policy SP9 provides for the introduction of new link roads and other network improvements. In the long term, when considered in conjunction with rising traffic levels through new development, increasing traffic levels are likely. This would increase local air, light and noise pollution, which could result in indirect risks to the surrounding biodiversity. In addition, increasing traffic levels can cause a rise in road kill..

Policies SP10 and SP12 on minerals and waste management development have the potential for indirect long term impacts in relation to increased dust

and other airborne particles, noise and light pollution, which can negatively affect the surrounding biodiversity. Other industrial land uses which can result from Policy SP7 could have similar effects.

The exploration and extraction of unconventional gas is promoted within Policy MPP1. Although this provides an alternative technology to coal, there is the potential for significant contamination of groundwater. There are potential risks to local water supplies, aquatic ecology and the quality of local waterbodies. The policy however only permits development where there are no unacceptable adverse impacts upon the environment.

Policy SP11 supports renewable energy development in areas where the environmental and cumulative impacts can be addressed satisfactorily. It is likely that this policy will provide some risks to biodiversity, but the extent is dependent on what type of energy development is proposed. Several internationally designated sites are identified in the HRA Screening Report as being sensitive to certain renewable energy technologies such as small hydro-electric schemes and wind farms. The sensitivity of the surrounding ecology would need consideration from planning officers and developers when assessing feasibility of projects.

Should they be realised, these impacts would occur in the short to medium term, and could be exacerbated by further impacts in the long term. This is due to the cumulative impact of progressive new development, as well as the impact that climate change will have on the same habitats and species.

Several secondary long-term risks resulting from new development could occur through population growth, leading to increased recreational pressure, which can affect habitats and greenspaces, which is particularly significant if it occurs within designated sites. In addition, new housing and employment development will result in rising waste levels, which would need to be managed accordingly so as not to increase waste sent to landfill. This risk is offset to a degree by policy SP12 and WPP1, which promote the waste hierarchy, diverting waste away from landfill.

New developments will increase the demand for water and can affect land drainage. In addition, water effluent from mining activities can pollute water bodies, thereby presenting a risk to aquatic ecology. Combined with future predicted climate change, water resources could be less certain in Carmarthenshire in the long term.

The HRA Screening Report identified that all of the European sites in Carmarthenshire are dependent on water and, therefore, its good quality, whether it is an aquatic habitat such as rivers containing qualifying species such as white-clawed crayfish, Atlantic salmon and bullhead, or terrestrial habitats such as *Molinia* grasslands or old oak woodland. The drainage of land in the vicinity of European sites could impact on the hydrological availability for habitats such as bogs, heaths, woodland and species.

Opportunities for Beneficial Effects

Strategic policies SP2 and SP14 and specific policies EQ3, EQ4, EQ5, EQ7 and EP1 aim to counteract all of the above risks by prioritising the protection of biodiversity and the wider environment.

Through investment attracted into development and into Carmarthenshire generally, Strategic policies SP2 and SP14 and specific policies EQ3, EQ4,

EQ5, EQ7 and EP1 have the potential to contribute to improved habitat quality and management. This will depend upon a number of considerations, including the specific sites developed, the extent and nature of developer contributions and their integration into a wider green infrastructure network. Several aspects of Carmarthenshire's biodiversity are considered unfavourable, declining and many designated sites are sensitive to differing forms of development and their ancillary effects. These policies will help to counteract the risks that development poses to biodiversity.

Policy EQ7 specifically seeks to increase the quality and amount of suitable habitat for marsh fritillary butterfly available within the Caeau Mynydd Mawr SAC SPG Area. Where applicable, Planning Obligations will be sought from relevant developments within the SPG Area to mitigate for the loss of potential supporting habitat and connectivity for the marsh fritillary butterfly that may result through the development.

Several policies specify the use of Sustainable Design Systems within new development and highways. These policies include TR3 and EP3 which look to improve the quality and reduce the quantity of surface water runoff thereby helping to protect the quality of nearby waterbodies and minimise, and potentially improve, the quality of aquatic ecology.

The mixed use development at site GA2/MU3 Machynys Bund, as specified within policy EMP4 provides vital ecological space which will help create new habitats within this location and help retain existing and potentially attract new species to the area.

Policy RE1 Large Scale Wind Power and Policy RE2 Local, Community and Small Wind Farms both include for the protection of biodiversity, ensuring that proposals do not cause demonstrable harm to species of nature conservation and ecological value. In addition to this, Policy RE3 states in its supporting text that proposals for biomass facilities will be required to demonstrate that the source of fuel used will not have an unacceptable ecological impact, domestically or elsewhere.

Transport Policy SP9 includes for the introduction of the new link roads and other network improvements. This can reduce congestion in the short to medium term, thereby providing the opportunity to improve air quality and noise emissions on existing roads.

Policies EP2 and H7 look to ensure that development minimises the impacts of pollution and requires that they do not conflict with National Air Quality Strategy objectives, minimises light and noise pollution and addresses risks arising from contaminated land. This should help to mitigate against potential transportation, minerals and waste development impacts and lead to better air quality across Carmarthenshire. Indirectly, these benefits can help encourage and prevent deterioration of biodiversity in the county.

Policy SP10, by requiring all proposals for mineral extractions to accord with all other relevant policies of the LDP, looks to ensure mineral proposals do not compromise environmental considerations, and also that minerals re-use and recycling is encouraged so as to reduce the need for new minerals extraction. Ensuring of this, alongside protective policies SP2 and SP14, the direct impacts to biodiversity can be reduced. Promoting a high standard of restoration and aftercare at these sites can restore these areas to be of good ecological value.

Policy SP12 supports development which drives waste up the waste hierarchy and away from landfill. Developments which achieve this are likely to require less landtake by comparison to landfill, and therefore reduce the potential for land use conflicts with nature conservation (both direct and indirect impacts). However, this benefit is partnered with negative landtake and pollution impacts described previously, and thus a net benefit requires that sensitive habitats and species are protected, alongside generally equivalent consideration of other impacts between landfill and alternative waste management methods.

Summary

Table 6-3: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP8 Retail SP9 Transportation SP10 Sustainable Mineral Development SP11 Renewable Energy & Energy Efficiency GP6 Extensions RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-Wind Renewable Energy Installations SP12 Waste Management SP15 Tourism and the Visitor Economy SP16 Community Facilities SP17 Infrastructure EMP1 Employment – Safeguarding of	All relate to the use of land for development which can fragment habitats and disturb species.	SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment SP16 Community Facilities EQ3 Regional and Local Designations EQ4 Biodiversity EQ5 Corridors, Networks and Features of Distinctiveness EP1 Water Quality and Resources	Policies SP2, SP14, EQ3, EQ4 and EQ5 aim to avoid, reduce or compensate for potential negative impacts to biodiversity. EP1 ensures there will be no adverse impact on the water environment and promotes efficient use of water resources. Protection of designated sites or key habitats (see HRA). Policy H7 includes for avoidance of noise impacts on neighbouring land uses, which (if a significant issue) can include biodiversity interest.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Employment Sites EMP2 New Employment Proposals EMP3 Employment – Extensions, Intensification and Continuation EMP4 Farm Diversification EMP5 Mixed Use Sites RT7 District Centres (Local Service Centres) RT9 Regional Centres (Retail Parks) MPP1 Mineral Proposals			
H5 Adaptation and Re-Use of Rural Buildings for Residential Use H8 Renovation of Derelict or Abandoned Dwellings EMP4 Farm Diversification GP6 Extensions	Could result in loss of bat habitats	SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment EQ4 Biodiversity	Policies SP2 and SP14 aim to avoid, reduce, minimise or compensate for the potential negative impacts of these other policies. Policy EQ4 looks to ensure that development will not have an adverse impact on priority species or their habitats including impacts on their integrity.
SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing	Population growth can lead to recreational pressures on habitats, particularly those which are designated.	REC2 Open Space Provision and New Developments H7 Gypsy and Traveller Sites	REC2 and SP16 alleviate these potential effects to an extent as they protect existing recreational areas and promote provision of new to a high standard in line with CCW's Greenspace Standard.
SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP8 Retail SP10 Sustainable Mineral Development	New development increases water abstraction and land drainage which can affect aquatic ecology. Several international designations are particularly sensitive to these impacts.	SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment	Policies SP2 and SP14 aim to avoid, reduce, minimise or compensate for the potential negative impacts of these other policies. For the strategic policies, it is not possible to eliminate the risk.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>SP9 Transportation SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP8 Retail</p>	<p>New roads and developments which can increase traffic levels therefore could increase road kill – particularly toads and otters – and lead to rising air pollution.</p>	<p>SP1 Sustainable Places and Spaces SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment</p>	<p>Policies SP2 and SP14 aim to avoid, reduce, minimise or compensate for the potential negative impacts of these other policies. For the strategic policies, it is not possible to eliminate the risk.</p> <p>Transport planning / assessment and road improvements as needed to maintain good traffic flows.</p> <p>It is possible to achieve modal shift to more sustainable modes through these policies.</p>
<p>SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations H5 Adaptation and Re-Use of Rural Buildings for Residential Use H8 Renovation of Derelict or Abandoned Dwellings RT5 Town Centres (Service Centres) RT6 Town Centres (Service Centres) – Convenience Stores RT7 District Centres (Local Service Centres) RT8 Local Shops and Facilities</p>	<p>Increased production of waste, and therefore landfill.</p>	<p>SP12 Waste Management</p>	<p>Policy SP12 aims to mitigate the potential increase in waste volumes by moving waste up the waste hierarchy, and away from landfill, which requires much land and can conflict with nature conservation.</p>
<p>SP10 Sustainable Mineral Development</p>	<p>Water effluent from mining activities can pollute waterbodies thereby presenting a risk to aquatic ecology.</p>	<p>SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment EQ3 Regional and Local Designations EQ4 Biodiversity EQ5 Corridors,</p>	<p>Policies SP2, SP14, EQ3, EQ4 and EQ5 aim to avoid, reduce or compensate for potential negative impacts to biodiversity.</p> <p>EP1 ensures there will be no adverse impact on the water environment and promotes efficient use of water resources.</p> <p>Standard controls (statutorily controlled discharges to water) will</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
		<p>Networks and Features of Distinctiveness</p> <p>EP1 Water Quality and Resources</p>	<p>apply within this policy on environmental protection.</p>
MPP1 Mineral Proposals	<p>Potential adverse effects on groundwater, waterbodies and aquatic ecology.</p>	<p>SP2 Climate Change</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EQ4 Biodiversity</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p> <p>EP1 Water Quality and Resources</p>	<p>Policies SP2, SP14, EQ3, EQ4 and EQ5 aim to avoid, reduce or compensate for potential negative impacts to biodiversity.</p> <p>EP1 helps ensure there will be no adverse impact on the water environment.</p>
<p>SP11 Renewable Energy & Energy Efficiency</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-Wind Renewable Energy Installations</p>	<p>Several designated sites (as identified in the HRA) are sensitive to small hydro-electric schemes and wind farms.</p>	<p>SP2 Climate Change</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EQ3 Regional and Local Designations</p> <p>EQ4 Biodiversity</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p>	<p>Policies SP2, SP14, EQ3, EQ4 and EQ5 aim to avoid, reduce or compensate for potential negative impacts to biodiversity.</p>
<p>SP1 Sustainable Places and Spaces</p> <p>SP2 Climate Change</p>	<p>Achieving modal shift for the existing population, and reducing the negative impacts of road transport.</p>	<p>N/A</p>	<p>These policies include for reflecting sustainable transport principles. If they are implemented in a way which benefits not only the new developments, but existing residents and others, there could be net</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
			benefits. Within this, new residents could make public transport options more economically viable.
SP10 Sustainable Mineral Development MPP5 Aggregate Alternatives	Increasing re-use and recycling of minerals, avoiding the need for unnecessary minerals extraction.	SP2 Climate Change	Using natural resources efficiently can reduce the amount of minerals extraction done in the future, which can often be an 'unseen' beneficial effect of less land taken, and thus fewer risks of negative impacts.
SP12 Waste Management WPP1 Nantycaws Waste Management Facility WPP2 Waste Management Facilities Outside Development Limits	Moving waste up the waste hierarchy, away from landfill, which is land-intensive.	N/A	Policy SP12 may do more than simply offset the negative impacts of the LDP, and lead to a net reduction in the amount of waste sent to landfill, having a positive effect on the land taken by waste and thus potentially on the land left to nature or for nature conservation purposes.
SP11 Renewable Energy & Energy Efficiency RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-Wind Renewable Energy Installations	Moving away from fossil fuels, which can be land-intensive to extract, transport, store and use.	SP17 Infrastructure	These policies can help to avoid regional, national and global impacts on nature conservation by switching to a more local, sustainable source of power. NOTE: depends on the mix of technologies, and there are trade-offs with mainly local impacts
TR3 Highways in Developments – Design Considerations EP3 Sustainable Drainage	Efficient management of surface water runoff with potential to enhance biodiversity opportunities.	SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment EP1 Water Quality and Resources	The policies support TR3 and EP3 through further committing to enhancing biodiversity in the county.
All the development policies above, plus: SP2 Climate Change	Potential net enhancements to nature conservation	N/A	Through investment attracted into development and into Carmarthenshire

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP14 Protection and Enhancement of the Natural Environment GP1 Sustainability and High Quality Design TR6 Redundant Rail Corridors EMP5 Mixed Use Sites EQ3 Regional and Local Designations EQ4 Biodiversity EQ5 Corridors, Networks and Features of Distinctiveness EQ7 Development within the Caeau Mynydd Mawr SPG Area EP1 Water Quality and Resources REC1 Protection of Open Space REC3 Proposed New Open Space MPP6 Restoration and Aftercare of Mineral Sites WPP2 Waste Management Facilities Outside Development Limits	through habitat creation.		generally, these policies have the potential to contribute to improved habitat quality and management. This will depend upon a number of considerations, including the specific sites developed, the extent and nature of developer contributions and their integration into a wider green infrastructure network. Policy EMP4, site ref GA2/MU3 Machynys Bund, provides vital ecological space within development. Policy EQ7 requires proposals within the Caeau Mynydd Mawr SAC SPG Area to contribute towards increasing the quality and amount of suitable habitat for marsh fritillary butterfly available within the SPG Area.

6.1.5 Regional, National and Global Effects

There is potential for several cross-boundary effects resulting from the policies listed in Table 2-3. Policy SP11 and all other renewable energy policies support an alternative to fossil fuels, the combustion of which is known to lead to greenhouse gas emissions and climate change. The link between climate change and biodiversity has been long established. Rapid climate change affects ecosystems' and species' ability to adapt, and so biodiversity loss increases. This is exacerbated in areas where other human impacts are greatest, including coastal areas worldwide, tropical rain forests and where species are hunted or harvested. Reducing fossil fuel consumption to reduce climate change effects can help to save certain species and habitats from extinction. However conversely, certain biomass developments can require fuels which have negative implications for certain species and habitats at regional, national and international levels.

In terms of the land use and other ecological impacts of energy production, energy generally can be a regional, national, or international process. The extraction, transport, storage, combustion and transmission of energy typically crosses these boundaries. For most renewable energy developments, reducing reliance on fossil fuels can reduce pressure on these wider connections, which in turn can reduce conflicts with nature conservation in other areas. These 'unknown' impacts could be from landtake for extraction or storage facilities or from transport impacts (for example). However in contrast, certain renewable energy developments such as certain biomass fuel production have impacts which cross regional, national, and international boundaries including implications from the significant land area required for bio-fuel crops. For most renewable technologies such as wind turbines, there would be an avoidance or reduction in the risk of ecological impacts in other regions or nations. (This of course is in balance with the risk of local impacts identified previously.)

Policies SP12, WPP1 and WPP2 support development which drives waste up the waste hierarchy and away from landfill, having benefits to biodiversity as described in Section 2.4.1. This could be a regional benefit, depending upon the pressures on land and transport within Carmarthenshire, and the need to consider landfill in other counties (which SP12 is aimed at preventing).

The proposed housing allocations can lead to population growth thereby potentially increasing traffic into and out of the county as people travel for work, leisure and other purposes. This effect may not be significant alone, but combined with wider regional and national increases in population, significant impacts may be observed. This can result in increased air and noise pollution to areas such as Swansea to the south, Pembrokeshire (west), Powys (northeast) and Ceredigion (to the north) which border the county. The rise in pollutants, in addition to recreational and visitor pressures to areas outside of the county, has the potential to lead to secondary impacts on biodiversity in these areas. This is counteracted to an extent however by protective policy EP2 which aims to ensure that new developments do not conflict with National Air Quality Strategy objectives and minimise light and noise emissions.

Contrary to Policy SP11, population growth and new roads brought about by the LDP combined with other influences which increase traffic levels into the future can increase CO₂e emissions. This speeds up climate change, and so can globally affect rates of biodiversity loss.

The Water Resources Strategy for Wales specifies that the future for water in Wales is uncertain. Increases in population and changes in lifestyle, together with climate change, mean that we need to plan for the next 40 years and beyond (Environment Agency, 2009). Initial predictions are that the amount of water naturally finding its way to rivers will decline drastically, and coupled with increased demand for water, will in turn pose a risk to the aquatic ecosystems in Wales. Policy EP1 supports proposals which make efficient use of water resources.

6.1.6 Habitats Regulations Assessment

The HRA included detailed assessments of the Growth Areas; GA1 Carmarthen, GA2 Llanelli (including T2/1 Burry Port) and GA3 Ammanford/Cross Hands. These are reported in Appendices B to D of the HRA.

The detailed assessment of GA1 Carmarthen Growth Area concluded that there was no likely significant effect on the European site network.

The detailed assessment of GA2 and T2/1 concluded that any potential significant effects on water quality can and is expected to be appropriately mitigated by LDP policies. Therefore, at a strategic level, the potential for impacts can be said to be fully mitigated. Besides LDP policies, key mitigation includes Environment Agency Wales' and Dwr Cymru Welsh Water's commitments to improve the Waste Water Treatment Works' level of service. Therefore, the site allocation was not considered to have a likely significant effect on the Carmarthen Bay and Estuaries European Marine Site.

The detailed assessment of GA3 Ammanford /Cross Hands recommended that a mitigation strategy was required to ameliorate the loss of habitat used by the Caeau Mynydd Mawr SAC marsh fritillary butterfly meta-population. This has been incorporated in to the deposit draft LDP through policy EQ7 (as also detailed within Table 6-4) and includes a commitment to prepare Supplementary Planning Guidance (SPG) for the Cross Hands area. With these measures in place, it is considered that there will be no significant effects on the European site network (primarily the Caeau Mynydd Mawr SAC) as a result of the LDP proposals in Growth Area 3.

The remainder of the site allocation was assessed as having no likely significant effect on the European site network and the result of that assessment is set out in the HRA report.

The in-combination assessment included the emerging LDP proposals of neighbouring authorities, the National and Regional Transport Plans and the Shoreline Management Plan. It was considered that there were no likely significant effects on the European site network.

Under the Conservation of Habitats and Species Regulations, 2010, (as amended), it is considered the Carmarthenshire LDP alone and in-combination will have no likely significant effects on the European site network.

This strategic level HRA does not obviate the need for further HRA at lower planning levels, and it is recommended that this strategic level work informs and supports project-specific HRA where it is required.

SA Recommendations

6.1.7 Mitigation to Reduce Risk or Enhance Opportunities

The assessment of the Preferred Strategy has informed the updating of strategic policies and drafting of the draft specific LDP policies that fall under the strategic policies. The recommendations resulting from the HRA have also been incorporated where appropriate and, as detailed in Table 6-4, the LDP is committed to producing a SPG to incorporate and build upon the HRA recommendations. The assessment of potential biodiversity impacts has facilitated the following improvements:

Table 6-4: Council's Response to proposed Mitigation / Recommendations

Issue Previously Identified	Policy	Improvement
<p>Strategic Policy SP9 requires a stronger sustainable transport element more in line with Policies SP1 and SP2.</p> <p>Prior to introducing road development proposals, SP9 should elaborate on what reflecting sustainable transport principles should mean to developers. This may include maximising rail, bus, cycling and walking opportunities, prior to reliance on the road network for access to surrounding employment, retail, leisure and community facilities.</p>	<p>Policy SP9: Transportation</p>	<p>Additions have been made to the policy. The policy has been strengthened to include for the provision of an efficient, effective, safe and sustainable integrated transport system to be delivered through a variety of sustainable measures.</p> <p>The supporting text in Policy SP9 also states that the implications of the development on biodiversity interests requires due consideration and that regard will be made to impacts on European sites and priority species.</p>
<p>A significant amount of work has been built into the identified SSAs to prevent and minimise impacts, however this should not preclude the need for more detailed investigation which adds to this work and is specific to the proposal.</p> <p>Also RE1: Large Scale Wind Power and RE2: Local, Community and Small Wind Farms could include for the need for a bird migration and flight pattern assessment by a qualified ecologist in order to address the potential impacts of wind turbines on bird populations in an area.</p>	<p>Policy RE1: Large Scale Wind Power</p> <p>RE2: Local, Community and Small Wind Farms</p> <p>RE3: Non-Wind Renewable Energy Installations</p>	<p>Recommendation to do further work on SSAs will be done in the Supplementary Planning Guidance (SPG).</p> <p>Amendments were made to the supporting text within RE1 and RE2 but were subsequently removed to reflect considerations emerging through the examination of the LDP.</p>
<p>A key issue for biomass development is locating and relying upon a sustainable source of fuel, including one with acceptable transport impacts. It is recommended that Policy RE3: Non-wind Renewable Energy installations require that developers of biomass facilities demonstrate that the source of fuel does not have unacceptable ecological impacts, domestically or elsewhere. Within this, the transport impacts of sourcing fuel should be a material consideration in line with the environment policies of the LDP.</p>	<p>Policy RE3: Non-wind Renewable Energy installations</p>	<p>Supporting text updated to include that the source of fuel used will not have an unacceptable ecological impact, domestically or elsewhere. It also states that developers should ensure there is a sufficient source of local fuel.</p>
<p>Policy SP14 is overall suitable as a strategic policy. The detailed policies should seek to achieve requirements to developers which avoid significant negative effects to biodiversity, and which lead to significant net enhancements.</p> <p>Given the unfavourable condition of many sites in the county, it would seem appropriate to require net enhancements from developments of a certain (but not uncommon) size, as can be demonstrated through an ecological assessment. The location and scale of a development, including the nature of the habitats on-site and surrounding habitats, should be a material consideration in deciding the degree of habitat creation or management</p>	<p>Policy SP14: Protection and Enhancement of the Natural Environment</p>	<p>This is addressed in the specific policies identified within the section: 'Environmental Qualities – Natural Environment'.</p> <p>The LDP is committed to the preparation of SPG (as detailed in section 6.4.3) which incorporates HRA recommendations and commits the LDP to the preparation of a SPG to provide guidance on the requirements in terms of mitigation and where appropriate, contributions</p>

Issue Previously Identified	Policy	Improvement
<p>needed.</p>		<p>through planning obligations. The SPG will be prepared taking (and building on) the recommendations set out in the HRA.</p> <p>Policy EQ7 has been added which specifically requires proposals within the Caeau Mynydd Mawr SAC SPG Area to contribute towards increasing the quality and amount of suitable habitat for marsh fritillary butterfly available within the SPG Area. Policy GP1 includes for, where applicable, provision for the appropriate management and eradication of invasive species.</p>
<p>Transport planning / assessment and road improvements should be conducted as needed to maintain good traffic flows. Roads should be designed as far as practicable to manage essential traffic, and avoid generating unnecessary trips or making more sustainable transport modes less attractive or viable.</p> <p>They should incorporate such mechanisms as High-Occupancy Vehicle (HOV) lanes and bus lanes where this is likely to be beneficial and appropriate. Ideally, they should fit within a sustainable transport framework, with inter-modal interchanges / hubs either side of key journey origins and destination (e.g. park-and-ride, bus stations, cycle hires, etc.).</p>	<p>Policy SP9: Transportation</p>	<p>Additions have been made to the policy. The policy has been strengthened to include for the provision of an efficient, effective, safe and sustainable integrated transport system to be delivered through a variety of sustainable measures.</p> <p>Detailed policies which further support a reduction in car journeys include:</p> <p>GP1: Sustainability and High Quality Design</p> <p>TR1: Primary and Core Road Networks</p> <p>TR2: Location of Development – Transport Considerations</p> <p>TR3: Highways in Developments –Design Considerations</p>
<p>At the project level (design and construction), standard controls should be implemented with regards air quality and discharges to water in addition to ecological assessments. Ecological assessment should be undertaken which inform and influence the design, and lead to incorporated habitat enhancement.</p>	<p>None</p>	<p>Included for in:</p> <p>Policy EP1: Water Quality and Resources</p> <p>Policy EP2: Pollution</p> <p>Policy EP3: Sustainable Drainage</p> <p>Policy EQ4: Biodiversity</p> <p>Supporting text within SP14 incorporates HRA recommendations and commits the LDP to the preparation of a SPG to provide guidance on the requirements in terms of mitigation and where</p>

Issue Previously Identified	Policy	Improvement
		appropriate, contributions through planning obligations. The SPG will be prepared taking (and building on) the recommendations set out in the HRA
<p>Certain types of unconventional gas exploration and extraction can have a number of combined effects on habitats and wildlife, and the scale of development can be large.</p> <p>Changes were initially made to a previous version of the policy for unconventional gas and oil exploration and extraction to reiterate the need and approach to environmental protection, however this policy was later deleted and merged into MPP1.</p> <p>The assessment of this focused change concluded that it would remove the existing beneficial environmental protections described under the original policy, particularly those relating to the water environment. Jacobs recommended that the Council retain the text from the original policy that referred to environmental protection within the supporting text to Policy MPP1. It was also advised that the text that related to the water environment should be strengthened by adding in text about what the Council would expect as a minimum for onshore oil and gas exploration (e.g. detailed baseline surveys, a Water Framework Directive Screening Assessment and a Monitoring and Response Plan). Mention is also made to water remediation strategies to deal with the risk of a pollution incident.</p>	<p>Policy MPP1: Mineral Proposals</p>	<p>The recommended changes to Policy MPP1, following the deletion of the original policy on unconventional gas and oil exploration and extraction, have been adopted by the Council and form part of the LDP. As a result of these changes, the key points of the SA's original recommendations have been retained within the LDP and the environmental protection for onshore oil and gas exploration has been strengthened.</p>

6.1.8 Key Residual Risks and Opportunities

The amendments as identified in Table 6-4 address much of the proposed mitigation and recommendations. It is recognised however that key residual risks may remain despite the mitigating policies already developed and standard controls which are likely to be enforced. The key residual risks and also the opportunities are summarised below.

- CO₂e emissions from increases in development (embodied carbon as well as energy usage) and also transport can indirectly impact on biodiversity by speeding up the rate of climate change, leading to biodiversity loss;
- There remains the risk of short- to medium-term negative impact to species and/or habitats during construction of new development (for example, habitat fragmentation and disturbance to species), particularly if there are concurrent large-scale developments;
- In combination with development nationwide, new development poses a long-term risk to habitats and wildlife through a range of direct and indirect impacts which may not be significant in isolation (and therefore may not be eliminated under LDP policy), but may be significant across wider geographical areas and timescales (including cumulative increases in accidental pollution risk);

- Recreational pressure on some habitats may not be entirely offset by local provision of green / open space, such as water recreation which offers a unique interest to existing and new residents;
- Increasing water abstraction and land drainage present a long-term risk to aquatic ecosystems, particularly due to the uncertainties of climate change;
- The introduction of Sustainable Drainage Systems can protect water quality and minimise the impact on aquatic ecology. There may be the potential that aquatic ecology will be enhanced;
- Opportunities to reduce regional, national and global conflicts with nature conservation through more sustainable use of natural resources (energy, waste and minerals); and
- Opportunities for increased habitat and/or biodiversity, improved habitat quality and management through strategic policies SP2 and SP14 and specific policies EQ3, EQ4, EQ5, EQ7 and EP1.

Combining the above, it is considered likely the LDP could lead to slightly adverse effects cumulatively in the short to medium term, and net neutral / negligible effects by the long term. There is also the potential for net benefits, however it is difficult to achieve, particularly since not all developers will fully embrace habitat creation (and there may be trade-offs with other sustainability benefits). Also, any new or replacement habitat can almost never match the quality of any habitat lost (based on case studies).

7 Air Quality

Topic Definition and Approach

A variety of air pollutants have known or suspected harmful effects on human health and the environment. In most areas of Europe, these pollutants are principally the products of combustion from space heating, power generation or from motor vehicle traffic. Pollutants from these sources may not only prove a problem in the immediate vicinity of these sources, but can travel long distances (Defra, 2011a).

The table below sets out the SA Objectives and decision-making criteria for air quality which have been utilised to develop the baseline and guide the assessment process.

Table 7-1: SA Framework for Air Quality

SA Objectives	Decision-Making Criteria
3 - Air Quality	
3-1 To maintain/reduce the levels of the UK National Air Quality pollutants	Will the LDP have a positive or negative impact on the existing air quality baseline?
3-2 To reduce levels of ground level ozone	Will the LDP increase or decrease the emissions of air pollutants from developments?
3-3 To reduce the need to travel, through appropriate siting of new developments and provision of public transport infrastructure	Will the LDP increase or decrease the emissions of air pollutants from transport?

For the purposes of this SA, the focus has been upon the identification of air quality issues within Carmarthenshire to consider any constraints for developments proposed within the LDP.

Which Policies are Relevant to this Topic?

Several of the LDP Strategic Policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 3-2 below describes the strategic policies of relevance to air quality.

Table 7-2: LDP Policies and Relevance to Air Quality

Policies in the LDP	Relevant Association of Policies with SA Objectives
SP5 Housing SP3 Sustainable Distribution – Settlement SP4 Strategic Sites SP7 Employment – Land Allocations SP8 Retail SP9 Transportation SP10 Sustainable Mineral Development	Risk of increased air pollution: these policies promote new developments which have the potential to impact upon air quality. Key issues include increased traffic levels and mineral extraction activities which can lead to a rise in airborne particles and other pollutants. Additionally, renewable energy technologies such as energy from waste plants have the potential to increase air pollution.

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP11 Renewable Energy and Energy Efficiency</p> <p>RE3 Non-Wind Renewable Energy Installations</p> <p>SP12 Waste Management</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p> <p>H1 Housing Allocations</p> <p>H5 Adaptation and Re-Use of Rural Buildings for Residential Use</p> <p>H8 Renovation of Derelict or Abandoned Dwellings</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversification</p> <p>EMP5 Mixed Use Sites</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>MPP1 Mineral Proposals</p> <p>WPP1 Nantycaws Waste Management Facility</p> <p>WPP2 Waste Management Facilities Outside of Development Limits</p>	<p>WPP1 states that the use of Nantycaws for further landfilling activity is an important option with potential for future expansion.</p>
<p>SP10 Sustainable Mineral Development</p> <p>SP11 Renewable Energy and Energy Efficiency</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-Wind Renewable Energy Installations</p> <p>SP17 Infrastructure</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EP2 Pollution</p>	<p><u>Protection of air quality:</u> these policies seek to protect and, where possible, enhance air quality in Carmarthenshire.</p> <p>SP10 (by reference to other relevant policies in the LDP) and SP11 include that development demonstrate that air quality impacts are satisfactorily addressed.</p>
<p>SP1 Sustainable Places and Spaces</p> <p>SP2 Climate Change</p> <p>SP9 Transportation</p> <p>SP11 Renewable Energy and Energy Efficiency</p> <p>RE1 Large Scale Wind Power</p>	<p><u>Reduction of existing impacts on air quality:</u> Policies SP1 and SP2 support development which will be situated in sustainable locations, reducing the need to travel, particularly by private motor car. Indirectly, developers could improve wider sustainable transport connections and lead to improved sustainable transport</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
RE2 Local, Community and Small Wind Farms	opportunities for existing residents.
RE3 Non-Wind Renewable Energy Installations	Under Policy SP9, road improvements can divert traffic away from sensitive receptors, alleviate traffic levels or improve traffic flows on existing roads, reducing air pollution impacts.
SP17 Infrastructure	
SP12 Waste Management	Policy SP12 promotes the implementation of the waste hierarchy, which could be of benefit to air quality by reducing the amount of waste sent to landfill (waste bio-degrades to produce methane and other potentially harmful gases), or by reducing the distances over which waste is transported.
GP1 Sustainability and High Quality Design	
EP2 Pollution	
RT1 Retailing Hierarchy	
RT5 Town Centres (Service Centres)	
RT6 Town Centres (Service Centres) – Convenience Stores	Policies SP11 and SP17 promote renewable energy, which can lead to regional, national or international reductions in the transport and combustion of fossil fuels, and the associated air pollution from this.
RT7 District Centres (Local Service Centres)	
RT8 Local Shops and Facilities	
TR2 Location of Development – Transport Considerations	EP2 promotes development which do not conflict with National Air Quality Strategy objectives.
TR3 Highways in Developments – Design Considerations	RT1, RT5, RT6 and RT7 minimise the need to travel for essential goods and services.
TR4 Cycling and Walking	
MPP5 Aggregate Alternatives	MPP5 promotes use of alternative or recycled materials to conserve primary resources and could also reduce the need to mine other resources thereby helping to reduce air quality.
H6 Residential Care Facilities	
H7 Gypsy and Traveller Sites	

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on ‘the topic’, or no association at all.

SA Baseline for Air Quality

Air quality in Carmarthenshire is typically good, and only one Air Quality Management Area (AQMA) has been designated (as of 2014). This AQMA has been designated in the town of Llandeilo in Carmarthenshire which has experienced increasing levels of NO₂ over the last few years, to the extent that the air quality objective for NO₂ has been breached. The Welsh Assembly Government has required the authority to carry out a Detailed Assessment to ascertain the extent and level of exceedence of the Air Quality Objective.

A detailed assessment commenced in Llandeilo at the start of 2010 and has been carried out by way of ‘diffusion tubes’. Seven of the locations monitored are likely to exceed the annual mean objective level of 40 µg/m³. The percentage exceedence ranges from 4% up to 25%. This provides an idea of the level of improvement in air quality required in some locations along Rhosmaen Street in order to achieve the objective level.

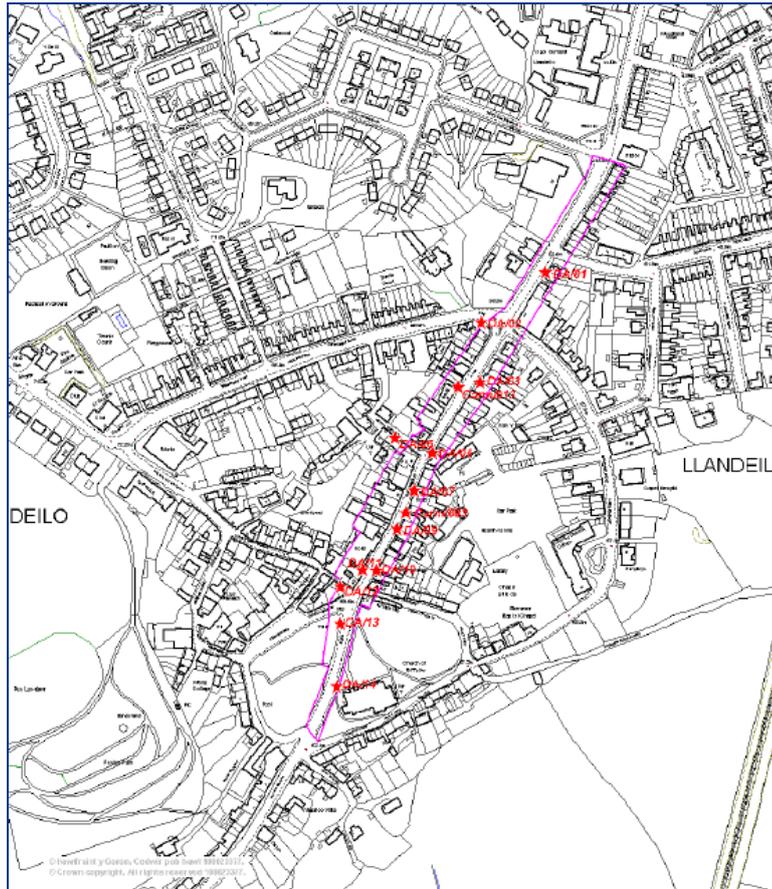


Figure 7-1: Location of Monitoring Stations in Llandeilo

A bypass for the town is identified in the Regional Transport Plan (RTP) as a priority 1 issue, which could alleviate some of this congestion.

Some AQMAs are also present in neighbouring Counties including Swansea City (NO₂), Neath Port Talbot (PM₁₀) and Newtown in Powys (NO₂).

The UK Air Quality Archive indicates that for PM₁₀ (fine particulates) there are no locations in Carmarthenshire that are likely to exceed the annual mean objectives for 2005 and 2010. The maximum 2006 background annual mean for PM₁₀ is 20.0 µg_m⁻³, and the maximum projected 2010 background annual mean in 13.0 µg_m⁻³.

The main pollutant of concern in rural areas in Wales is ozone which is measured at Aston Hill in Denbighshire. The report on Key Environmental Statistics for Wales (National Assembly for Wales 2007a) indicates that ozone levels exceeding moderate or high pollution levels fluctuate greatly and are associated with weather patterns (Welsh Assembly Government 2006). The pattern of elevated levels of ozone in rural areas may also be associated with prevailing winds from more urban areas in which ozone precursors (Nitrous oxides, volatile organic compounds from vehicle exhausts and industrial emissions) are generated.

Assessment: Risks and Opportunities

7.1.1 Effects within Carmarthenshire

Policies SP1, SP2, SP9, SP14 and supporting policies (e.g. RT1-9 and TR1-6) will afford some protection to air quality through minimising the need to travel, supporting alternatives to the private car and considering the possible effects of air quality when proposing development. Policy EP2 looks to ensure that all new development does not conflict with National Air Quality Strategy objectives and minimises public exposure to pollution.

Policies SP3, SP4, SP5, SP7, SP8, SP15 and SP16 proposes new housing, tourism or commercial development within Carmarthenshire and in conjunction with this, population and/or visitor growth is anticipated to occur, particularly in identified Strategic Settlement areas. This is likely to pose some risks of air quality impacts indirectly and cumulatively as a result of increasing traffic levels, despite the protective policies aforementioned to avoid or minimise this impact. The key issue is that policies will be applied on a site-by-site basis, but air quality impacts could increase gradually over a number of years. In particular, any development within the identified Service Centre of Llandeilo will have to take into consideration the AQMA along Rhosmaen Street.

Policy RT4 Principal Centres (Growth Areas): Town Centre Zone supports convenience stores of an appropriate scale in town centres which are accessible by a choice of alternative means of transport. This minimises the need for people to travel for essential goods and services and thereby helping to reduce air pollution. Similarly, RT8 Local Shops and Facilities seek to retain local services and facilities within walking distance.

It is recognised in support of Policy SP9 that in order to sustain rural areas and ensure that communities do not suffer social exclusion, the motor car remains an important means of travel in such areas. The transportation policy, although supporting a sustainable transport system and reducing the need to travel, also promotes several road improvements which provide the opportunity to reduce air quality and associated impacts on people or habitats. In the short to medium term, the measures outlined are likely to relieve congestion on existing routes. In particular, the proposed A483 Llandeilo and Ffairfach improvement could reduce congestion in Llandeilo town centre, which has been declared as an AQMA for breaching national NO₂ objectives. In the longer term, however, new roads and other improvements could encourage a greater number of people to use the car to travel, and therefore traffic levels could increase, leading to a rise in air pollution.

Specific policies TR2 and TR3 look to ensure that development is accessible by, and further provision made for, non-car modes of transport with the development of Green Plans where appropriate. In addition, an integrated network of convenient and safe pedestrian and cycle routes within and from the site are recommended. Proposals which would generate levels of traffic and result in offsite congestion, or where the capacity is insufficient, will not be permitted. These policies will therefore help to protect and potentially improve air quality. In addition to this, Policy TR4 looks to facilitate improvements to the cycle network and links to the cycle, rights of way and bridleway network thereby helping promote modal shift, so indirectly leading to long-term benefits to air quality.

Housing and employment development sites have the potential to increase waste, which in turn is likely to result in a rise in waste sent to landfill, increasing air emissions. Policy SP12 can counteract this to an extent and also helps to ensure that developers consider the location of waste management facilities and their

capacity at an early stage. In addition to this, Policy GP1 only permits development which has regard to the generation, treatment and disposal of waste and looks to minimise waste production thereby helping reduce waste sent to landfill and so the potential for air pollution.

Policies supporting new minerals and waste sites in Carmarthenshire pose further risks of air quality impacts, mainly at specific locations. However, site-specific impacts can be dealt with through regular enforcement and common planning considerations. Proposals for energy from waste facilities are normally subject to air dispersion modelling to ensure air quality objectives are adhered to (see also recommendations).

The use of cleaner coal technology is promoted in Policy MPP1. This could reduce dependence on coal as an energy source. In addition, Policies SP11, RE1, RE2 and RE3 promote renewable energy use through new windfarms and other renewable energy technologies such as solar and biomass which can also reduce reliance on non-renewable sources of energy which are often sources of air pollution.

Policy WPP1 states that the use of Nantycaws for landfilling remains an important option and the potential for future expansion of landfill operations will be explored. This can result in increased air pollution although it can be offset to an extent through protective policy EP2.

However, given increases in development activity and population, there may be more sites and more minerals and waste transport than there were previously. Despite Policies SP14, WPP2 and MPP1 which aim to avoid negative impacts, it is difficult to say whether or not cumulatively (combined with other transport emissions, etc.) the risk of a significant impact remains.

Table 7-3: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP8 Retail SP10 Sustainable Mineral Development SP12 Waste Management SP15 Tourism and the Visitor Economy	All relate to the use of land for development and can lead to increased traffic growth.	SP1 Sustainable Spaces and Places SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment GP1 Sustainability and High Quality Design EP2 Pollution	Policies SP1, SP2 and GP1 aim to guide development to the most sustainable locations reducing the need to travel. SP14 will require the developers to consider potential impacts on air quality. EP2 aims to ensure that development does not conflict with National Air Quality Strategy objectives and minimises pollution exposure. These which will mitigate impacts on air quality to an extent. It is recognised

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>SP16 Community Facilities</p> <p>H5 Adaptation and Re-Use of Rural Buildings for Residential Use</p> <p>H8 Renovation of Derelict or Abandoned Dwellings</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification EMP4 Farm Diversification</p> <p>EMP5 Mixed Use Sites</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>MPP1 Mineral Proposals</p> <p>WPP2 Waste Management Facilities Outside of Development Limits</p>			<p>however that not all impacts can be mitigated for.</p>
<p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>H1 Housing Allocations</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversification</p>	<p>Increased production of waste and therefore landfill</p>	<p>SP12 Waste Management</p> <p>RE3 Non-Wind Renewable Energy Installations</p> <p>EP2 Pollution</p>	<p>Policy SP12 aims to mitigate the potential increases in waste volumes by moving up the waste hierarchy and away from landfill (which can increase air pollution). However, some alternative waste management methods can have specific air quality impacts (see below).</p> <p>Policy RE3 covers a range of renewable energy technologies including Energy from Waste which would reduce waste sent to landfill.</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>EMP5 Mixed Use Sites</p> <p>RT5 Town Centres (Service Centres)</p> <p>RT6 District Centres (Service Centres) – Convenience Stores</p> <p>RT8 Local Shops and Facilities</p> <p>RT9 Regional Centres (Retail Parks)</p>			
<p>SP9 Transportation</p>	<p>New transport routes and improvements can increase traffic levels.</p>	<p>SP2 Climate Change</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EP2 Pollution</p>	<p>In the long term, even with protective policies SP2, SP14 and EP2, this policy has the potential to move traffic towards new receptors and result in overall traffic growth, thereby leading to air quality deterioration.</p>
<p>SP7 Employment – Land Allocations</p> <p>SP10 Sustainable Mineral Development</p> <p>SP12 Waste Management</p> <p>WPP1 Nantycaws Waste Management Facility</p> <p>WPP2 Waste Management Facilities Outside of Development Limits</p>	<p>Industrial and related emissions.</p>	<p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EP2 Pollution</p>	<p>New industry, minerals extraction and certain waste management methods can produce emissions of various pollutants. SP14 reinforces statutory protections and standard controls which should prevent impacts.</p> <p>EP2 promotes development which does not conflict with National Air Quality Strategy objectives.</p>
<p>WPP1 Nantycaws Waste Management Facility</p>	<p>Potential expansion in landfill operations.</p>	<p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EP2 Pollution</p>	<p>The policy states that the use of Nantycaws for landfilling remains an important option and the potential for future expansion of landfill operations will be explored. This can result in increased emissions.</p>
<p>SP1 Sustainable Spaces and Places</p> <p>SP3 Sustainable Distribution – Settlement Framework</p>	<p>Aims to locate development within sustainable locations, reducing the</p>	<p>SP2 Climate Change</p> <p>SP14 Protection and Enhancement of the Natural Environment</p>	<p>Policies SP2, SP14 and EP2 complement this policy and further enhance it to help reduce emissions.</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
RT1 Retailing Hierarchy RT4 Principle Centres (Growth Areas): Town Centre Zone RT5 Town Centres (Service Centres) RT6 Town Centres (Service Centres) – Convenience Stores RT7 District Centres (Local Service Centres) RT8 Local Shops and Facilities TR2 Location of Development – Transport Considerations GP1 Sustainability and High Quality Design H6 Residential Care Facilities H7 Gypsy and Traveller Sites H10 Home Working	need to travel.	EP2 Pollution	
SP12 Waste Management GP1 Sustainability and High Quality Design	Development should consider the generation, treatment and disposal of waste and the location of waste management facilities in formulating proposals.	N/A	Policy SP12 helps to ensure that development is located close to where waste can be managed. GP1 looks to ensure development proposals promote minimisation of waste and that they consider how it will be dealt with.
SP1 Sustainable Spaces and Places SP9 Transportation TR2 Location of Development – Transport Considerations TR3 Highways in Developments –	Aims to deliver an efficient, effective, safe and sustainable integrated transport system.	N/A	These policies (although supporting the creation of new roads in the case of SP9) also supports reducing the need to travel, alternative transport to the private car including public transport and active travel and encouraging development which

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Design Considerations TR4 Cycling and Walking TR6 Redundant Rail Corridors			promotes accessibility by non car modes of transport.
SP2 Climate Change SP12 Waste Management SP14 Protection and Enhancement of the Natural Environment EP2 Pollution	Promotes development which seeks to address and mitigate for air quality issues.	N/A	These policies have the potential to direct development to areas where there are good public transport, walking and cycling links so as to avoid use of private vehicles where possible. They also require developers to consider what impact their development may have on air quality and therefore any mitigating measures which could be implemented to reduce effects. Policy SP12 may do more than simply offset the negative impacts of the LDP, and lead to a net reduction in the amount of waste sent to landfill, having a positive effect on air quality.
MPP1 Mineral Proposals	Reduces dependence on coal technology.		Policy specifies that this provides a cleaner coal technology. It is a relatively new technology however and magnitude of benefits is uncertain.
SP11 Renewable Energy and Energy Efficiency RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-Wind Renewable Energy Installations SP17 Infrastructure	Reduces dependence on non-renewable sources of energy.	N/A	Increasing the use of renewable energy technologies within development as well as stand-alone projects in addition to energy efficiency. All reduce dependence on use of non-renewable energy sources which are often highly polluting.

7.1.2 Regional, National and Global Effects

As discussed in Section 7.4.1, new developments are likely to result in population growth, leading to increased traffic levels despite protective measures in place. Increasing Carmarthenshire’s population could lead to growth in the number of people travelling to areas outside of the County for work, leisure time etc. This in turn, may increase traffic levels in adjacent Counties such as Pembrokeshire, Powys, Swansea and Ceredigion.

As described in Section 1.2, Policy SP12 promotes the implementation of the waste hierarchy, which could be of benefit to air quality by reducing the amount of waste sent to landfill (waste bio-degrades to produce methane and other potentially harmful gases), or by reducing the distances over which waste is transported. Given that waste management can cross boundaries this may benefit the wider region.

Policies SP11, SP17, RE1, RE2 and RE3 promote renewable energy, which can lead to regional, national or international reductions in the transport and combustion of fossil fuels, and the associated air pollution from this.

SA Recommendations

7.1.3 Mitigation to Reduce Risk or Enhance Opportunities

The assessment of the Preferred Strategy has informed the updating of strategic policies and drafting of the draft specific LDP policies that fall under the strategic policies. The assessment of potential air quality impacts has facilitated the following improvements:

Table 7-4: Council Responses to Proposed Mitigation / Recommendations

Issue	Policy	Improvement
<p>It is felt that Strategic Policy SP9 requires a stronger sustainable transport element more in line with Policies SP1 and SP2.</p> <p>Prior to introducing road development proposals, it should elaborate on what reflecting sustainable transport principles should mean to developers. This may include planning to eliminate unnecessary car journeys, and maximising rail, bus, cycling and walking opportunities, prior to reliance on the road network for access to surrounding employment, retail, leisure and community facilities.</p>	<p>Policy SP9: Transportation</p>	<p>Additions have been made to the policy. The policy has been strengthened to include for the provision of an efficient, effective, safe and sustainable integrated transport system to be delivered through a variety of sustainable measures.</p> <p>Detailed policies which further support a reduction in car journeys include:</p> <p>GP1: Sustainability and High Quality Design</p> <p>TR1: Primary and Core Road Networks</p> <p>TR2: Location of Development – Transport Considerations</p> <p>TR3: Highways in Developments –Design Considerations</p>

Issue	Policy	Improvement
<p>Detailed policies which deal with air quality should ensure that there is a requirement for an appropriate level of impact assessment for industrial, minerals or waste management processes, including air dispersion modelling where appropriate.</p> <p>Air dispersion modelling may be needed where the level of pollution expected is near the statutory limits, where there are a number of pollutant sources in the area, or where there are known potentially sensitive receptors in proximity or downwind of the source.</p>	<p>None</p>	<p>This is included in several policies but specifically covered within EP2: Pollution.</p>
<p>A key issue for biomass development is locating and relying upon a sustainable source of fuel, including one with acceptable transport impacts. It is recommended that Policy RE3: Non-wind Renewable Energy installations require that developers of biomass facilities demonstrate that there is a sufficient local source of fuel for which there is no reason to suspect its availability will cease, and any fuel source options which are more local have had good cause to be ruled out.</p> <p>The transport impacts of sourcing fuel should be a material consideration in line with the environment policies of the LDP.</p>	<p>Policy RE3: Non-wind Renewable Energy installations</p>	<p>Supporting text updated to include that the source of fuel used will not have an unacceptable ecological impact, domestically or elsewhere. It also states that developers should ensure there is a sufficient source of local fuel.</p>
<p>Although it is expressed in other LDP policies, waste policies WPP1 and WPP2 currently lack a strong emphasis on driving waste up the waste hierarchy, and thus avoiding the emissions associated with landfill.</p> <p>Policy WPP2 should express support for proposals which drive waste up the waste hierarchy, which would assist in mitigating the additional waste generated from new development.</p>	<p>Policy WPP1: Nantycaws Waste Management Facility</p> <p>Policy WPP2: Waste Management Facilities Outside Development Limits</p>	<p>Text added to WPP1 supporting text to state that the provision of a range of waste management operations emphasises the Authority's commitment on driving waste up the waste hierarchy.</p> <p>The Council recognises that although the push up the waste hierarchy will be supported, it is generally accepted by WAG that landfill will remain an important option for residual waste over the Plan period.</p> <p>WPP2 has been amended to include that proposals should, wherever possible, encourage the driving of waste up the waste hierarchy.</p>
<p>Policies GP3 and GP4 on the provision of infrastructure alongside new development should include for appropriate waste management, including access to local bring sites and composting facilities.</p> <p>For large mixed-tenure developments and apartment buildings, waste segregation areas incorporated into developments</p>	<p>Policy GP3: Planning Obligations</p> <p>Policy GP4: Infrastructure and New Development</p>	<p>Policy GP4 now states that access to, and availability of appropriate waste management should also be considered an important element in infrastructure provision for new development.</p>

Issue	Policy	Improvement
should be encouraged.		

7.1.4 Key Residual Risks and Opportunities

The amendments as identified in Table 7-4 address much of the proposed mitigation and recommendations. It is recognised however that key residual risks may remain despite the mitigating policies already developed and standard controls which are likely to be enforced. The key residual risks and also the opportunities are summarised below.

- New development in Carmarthenshire and neighbouring authorities is anticipated to lead to population growth and rises in traffic levels, thereby cumulatively increasing air pollution in the long term against the baseline;
- Although improvements in technology and to the transport network will, in the short to medium term, have direct benefits to air quality, in the longer term air pollution is likely to increase as traffic levels rise on the network;
- Potential for improvements to air quality through promoting a sustainable and integrated transport system which supports viable alternatives to private car use and appropriate location of development to accessible locations;
- Promotion of walking and cycling through improvement of existing routes and development of new routes can encourage modal shift, potentially reducing the level of vehicles on the road;
- Opportunities to reduce transport of waste through locating development near to where facilities exist (with sufficient capacity) to manage waste;
- New development will likely increase waste, thereby putting additional pressure on various waste management methods with the potential to cause air pollution;
- Minor long-term risks to air quality are possible through SP15 Tourism and Visitor Economy despite measures in place to ensure that the capacity of the local transport network is not breached; and
- Opportunities for air quality improvements are provided within the renewable energy and energy efficiency policy, SP11. This can reduce reliance on non-renewable sources which are often highly polluting. Policy EP1 also includes for development which improves air quality and reduces public exposure to emissions.

Combining the above, it is considered likely the LDP could lead to slightly adverse effects cumulatively in the short, medium and long term. There is potential to achieve a net neutral / negligible cumulative impact through the LDP policies, however this will require very high-quality masterplanning and design, as well as human behaviour which takes up sustainable transport and waste management opportunities.

8 Climatic Factors

Topic Definition and Approach

'Climate change' refers to changes in the Earth's average temperature over the last 100 years or so, and how this is affecting weather patterns over long timescales. Since about 1900, the average near-surface temperature of the planet has increased by 0.75°C (degrees Celsius) and the UK's sea level has risen by about 10 centimetres. Further global rises are expected, as well as more extreme weather events like flooding and drought.

Climate change has economic, social and environmental implications which will be profound. The Intergovernmental Panel on Climate Change (IPCC) is a scientific body set up by the UN to look at climate change. It says that human activity (producing greenhouse gases such as carbon dioxide (CO₂) and methane (CH₄)) is the main cause of the changes seen in climate (Defra, 2011b). Because there are a number of different greenhouse gases, measurements of the total amount of greenhouse gas emitted into the air are often reported in carbon equivalents, expressed as CO₂e.

The table below sets out the SA Objectives and decision-making criteria for climatic factors which have been utilised to develop the baseline and guide the assessment process.

Table 8-1: SA Framework for Climatic Factors

SA Objectives	Decision-Making Criteria
4 - Climatic Factors	
4-1 To reduce the emission of greenhouse gases	Will the LDP have a positive or negative impact on the emissions of carbon dioxide from new development in the County?
4-2 To minimise the vulnerability of Carmarthenshire to the effects of climate change through making space for water, coastal retreat and shifting habitat distribution patterns	Will the LDP contribute to a reduction in carbon dioxide emissions from traditional forms of energy generation?
4-3 To encourage all new developments to be climate resilient	Will the LDP put a larger number of residents at risk of flooding?
4-4 To encourage energy conservation and higher energy efficiency	Are new developments climate resilient?
4-5 To minimise energy consumption and promote renewable energy sources	Does the LDP leave room for habitat adjustment and coastal and fluvial flood water?

For the purposes of this SA, climatic factors have been defined as greenhouse gas emissions, vulnerability to climate change, climate change resilience, energy efficiency and conservation and promotion of renewable energy sources. This is

due to the potential for the LDP and its proposed developments to affect and be affected by these SA topic areas.

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 4-2 below describes the strategic policies of relevance to climatic factors.

Table 8-2: LDP Policies and Relevance to Climatic Factors

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP8 Retail SP9 Transportation SP10 Sustainable Mineral Development SP15 Tourism and the Visitor Economy SP16 Community Facilities H5 Adaptation and Re-Use of Rural Buildings for Residential Use H8 Renovation of Derelict or Abandoned Dwellings EMP1 Employment – Safeguarding of Employment Sites EMP2 New Employment Proposals EMP3 Employment – Extensions and Intensification EMP4 Farm Diversification EMP5 Mixed Use Sites RT9 Regional Centres (Retail Parks) GP1 Sustainability and High Quality Design RT1 Retailing Hierarchy</p>	<p>Risk of increased greenhouse gas emissions: these policies promote new developments which have the potential to impact upon levels of greenhouse gas emissions. Key issues include increased traffic levels and mineral extraction activities which can lead to a rise in CO₂e and other pollutants.</p>
<p>SP1 Sustainable Places and Spaces SP2 Climate Change SP3 Sustainable Distribution – Settlement Framework SP12 Waste Management EP4 Coastal Management EP5 Coastal Development EP1 Water Quality and Resources</p>	<p>Promotes climate change resilience: policies are of relevance as aim to guide development to the most sustainable locations. They support development proposals which seek to address, are resilient to, adapt to and mitigate for the causes and impacts of climate change.</p> <p>SP2 specifically looks at how development can utilise good design principles to promote efficient use of resources with a minimisation of waste and pollution generation and maximise use of energy</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>WPP1 Nantycaws Waste Management Facility</p> <p>WPP2 Waste Management Facilities Outside Development Limits</p>	<p>efficiency and the efficient use of other resources. This is in conjunction with SP12 which is of relevance as it promotes the waste hierarchy thereby shifting waste away from landfill, a major source of methane (CH₄), which is a potent greenhouse gas. SP12 also specifies that development should be located near to where there are facilities to deal with increased waste.</p>
<p>SP1 Sustainable Places and Spaces</p> <p>SP2 Climate Change</p> <p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP11 Renewable Energy and Energy Efficiency</p> <p>H10 Home Working</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-Wind Renewable Energy Installations</p> <p>SP17 Infrastructure</p> <p>GP1 Sustainability and High Quality Design</p> <p>RT1 Retailing Hierarchy</p> <p>RT5 Town Centres (Service Centres)</p> <p>RT6 Town Centres (Service Centres) – Convenience Stores</p> <p>RT7 District Centres (Local Service Centres)</p> <p>RT8 Local Shops and Facilities</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Developments – Design Considerations</p> <p>TR4 Cycling and Walking</p> <p>TR6 Redundant Rail Corridors</p> <p>H6 Residential Care Facilities</p> <p>H7 Gypsy and Traveller Sites</p>	<p><u>Reduction in greenhouse gas emissions:</u> policies direct development to areas which reduce the need to travel and promote less reliance on the private car.</p> <p>SP11 supports renewable energy technologies both within new developments and as stand-alone proposals thereby reducing use of non-renewable energy sources.</p> <p>SP17 promotes renewable energy generation and associated utility connections.</p> <p>RT1, RT5, RT6, RT7 and RT8 minimise the need to travel for essential goods and services.</p>

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on ‘the topic’, or no association at all.

SA Baseline for Climatic Factors

The total annual carbon dioxide emissions for Carmarthenshire has been estimated (2002) at some 1.7 million tonnes, of which industry (32%), transport (29%), domestic (27%) and point sources (e.g. major industrial works) (12%) are the most significant contributors (Carmarthenshire County Council, 2004). Forecast energy demand in the UK for 2010 shows an increasing trend from 1990 levels across tertiary, transportation, industrial and residential sectors, with tertiary and transportation sectors accounting for the greatest proportion of forecast growth (Scrase, 2000). Carmarthenshire is a large county and has a dispersed settlement pattern resulting in a reliance on private transport. Consequently, transport-related carbon dioxide emissions are high.

The Carmarthenshire Climate Change Strategy identifies that the county is vulnerable to the effects of climate change. For example, settlements and commercial interests along the Carmarthenshire coastline will be increasingly susceptible to flooding from the sea. In addition, increased flooding within river valleys is likely to put increased numbers of properties and transportation infrastructure under threat from both out-of-bank flows and surface water run-off.

Research undertaken by Bangor University into the effects of climate change in Wales in 2000 (Welsh Assembly Government, 2007) states that species sensitive to climate change are likely to shift northwards in their geographical distribution to maintain viable populations. It is anticipated that existing species with northerly ranges are most likely to be lost. In addition, sea level rise is likely to alter natural habitats in estuaries and along coastlines, in particular affecting habitats such as saltmarshes and sand dunes.

Climate change may also create a shift in agricultural activity/productivity and vulnerable members of the community may be at increased risk from the increased likelihood of extremes of temperature.

The Welsh Government aims to achieve 'zero carbon' (emissions) new build by 2011. It is also committed to reducing greenhouse gasses in Wales by 3% a year from 2011 in areas that the Government controls.

There are three existing windfarms in Carmarthenshire as set out in Planning Guidance (Wales) Technical Advice Note 8: Planning for Renewable Energy (2005). The Brecha Forest area including part of Mynydd Llanllwni and Pontardawe area (largely falling in neighbouring Counties of Neath Port Talbot and Swansea) have been identified as strategic search areas for major windfarm development in Carmarthenshire as part of delivering the binding targets of the Welsh Government for the generation of renewable energy.

Assessment: Risks and Opportunities

8.1.1 Effects within Carmarthenshire

Several of the policies proposed within the LDP aim to protect Carmarthenshire from the effects of climate change and promote resilience. SP2 in particular, promotes development which seeks to address, are resilient to, adapt to and mitigate for the causes and impacts of climate change. This policy goes some way to ensuring that Carmarthenshire is resilient to the effects of climate change in the long term.

Specific policies EP1 Water Quality and Resources and EP3 Sustainable Drainage aim to promote water efficiency and the development of drainage systems which mimic the natural environment. These policies can further help Carmarthenshire become more resilient to the effects of climate change.

Policies EP4 and EP5 relating to coastal management and development, directs development to the most appropriate locations, away from areas at risk of erosion, flooding and land instability. It is likely that climate change will increase the potential occurrence of these events and therefore it is considered that these are important protective policies to reduce risks to people and the environment.

Policy SP11 and the corresponding policies in relation to wind farms and other non-renewable energy installations provide significant opportunities for this SA topic with regards the promotion of energy efficiency and new renewable technologies, both within new development and as standalone proposals. SP11 promotes the implementation of an energy hierarchy with a priority to reduce energy demand, followed by promotion of energy efficiency, and finally, increasing the supply of renewable energy. Depending upon the amount of renewable energy development achieved relative to energy demand, this can reduce the reliance on non-renewable sources of energy, and therefore help to reduce greenhouse gas emissions in the long term.

However, there remains the risk of a rise in traffic associated with new development, including housing, employment, minerals, waste management, retail and leisure. Policy SP15 is associated with tourism and the visitor economy, and is likely to lead to some increases in traffic even with the promotion of public transport, walking and cycling. There is the potential that risks could be offset to an extent by the opportunities provided in SP2 and SP14 and the specific policy EP2.

Policies SP9, TR2, TR3, TR4 and TR6 provide support for a sustainable and integrated transport system through a variety of measures including reducing the need to travel, supporting viable alternatives to the private car including walking and cycling and promoting development to promote accessibility by non car modes of transport. In addition to this, SP1 promotes active transport infrastructure and safe and convenient sustainable access particularly through walking and cycling. This will help to reduce CO₂e emissions.

Policy SP9 also relates to road improvements which may initially lead to reductions in emissions through reduced congestion on existing routes however by the long term, it will likely attract some further traffic, and lead to an increase in CO₂e emissions.

New development has the potential to result in rising waste, which in turn could be sent to landfill leading to a rise in greenhouse gas emissions. Policy SP12 can mitigate this by promoting the waste hierarchy, and it also helps ensure that developers consider the location of waste management facilities and their capacity at an early stage.

The use of Nantycaws Waste Management Facility for landfill is included within Policy WPP1. This policy also states that options for the potential future expansion of landfill operations will be explored and this could result in a rise in methane emissions.

Table 8-3: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP8 Retail SP10 Sustainable Mineral Development SP12 Waste Management SP15 Tourism and the Visitor Economy SP16 Community Facilities H5 Adaptation and Re-Use of Rural Buildings for Residential Use H8 Renovation of Derelict or Abandoned Dwellings EMP1 Employment – Safeguarding of Employment Sites EMP2 New Employment Proposals EMP3 Employment – Extensions and Intensification EMP4 Farm Diversification EMP5 Mixed Use Sites RT9 Regional Centres (Retail Parks)	All relate to the use of land for development and can lead to increased traffic growth.	SP1 Sustainable Spaces and Places SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment GP1 Sustainability and High Quality Design TR1 Primary and Core Road Networks TR2 Location of Development – Transport Considerations TR3 Highways in Developments – Design Considerations TR4 Cycling and Walking	Policies SP1, SP2 and GP1 aim to guide development to the most sustainable locations reducing the need to travel. SP14 will require the developers to consider potential impacts on air quality. EP2 aims to ensure that development does not conflict with National Air Quality Strategy objectives and minimises pollution exposure. TR1 looks to ensure that proposals do not restrict traffic movement whilst TR2 only permits proposals which have the potential for significant trip generation where it is accessible for non car modes of transport and provision is made for these. TR3 requires that proposals include and integrated network of convenient and safe pedestrian and cycle routes with provision for access for public transport. TR4 states that developments should where appropriate seek to reflect, or where acceptable, link to the cycle, rights of way and bridleway network to ensure of an integrated sustainable approach reducing the need to travel by car. These which will mitigate impacts of climate change to an extent. It is recognised however that

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
GP1 Sustainability and High Quality Design RT1 Retailing Hierarchy			not all impacts can be avoided.
SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations H1 Housing Allocations EMP1 Employment – Safeguarding of Employment Sites EMP2 New Employment Proposals EMP3 Employment – Extensions and Intensification EMP4 Farm Diversification EMP5 Mixed Use Sites RT5 Town Centres (Service Centres) RT6 Town Centres (Service Centres) – Convenience Stores RT7 District Centres (Local Service Centres) RT8 Local Shops and Facilities RT9 Regional Centres (Retail Parks)	Increased production of waste and therefore landfill, which produces methane	SP12 Waste Management RE3 Non-Wind Renewable Energy Installations	Policy SP12 aims to mitigate the potential increases in waste volumes by moving up the waste hierarchy and away from landfill. RE3 Non-Wind Renewable Energy Installations covers a range of renewable energy technologies including Energy from Waste which would reduce waste sent to landfill.
WPP1 Nantycaws Waste Management Facility	Potential expansion in landfill operations.	SP14 Protection and Enhancement of the Natural Environment EP2 Pollution	The policy states that the use of Nantycaws for landfilling remains an important option and the potential for future expansion of landfill operations will be explored. This can result in increased methane emissions.
SP9 Transportation	New transport routes and	SP2 Climate Change	In the long term, even with protective policies SP2,

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
	improvements can increase traffic levels.	SP14 Protection and Enhancement of the Natural Environment EP2 Pollution	SP14 and EP2 there is the potential for traffic growth, thereby leading to air quality deterioration.
SP1 Sustainable Spaces and Places SP9 Transportation RT1 Retailing Hierarchy RT4 Principle Centres (Growth Areas): Town Centre Zone RT5 Town Centres (Service Centres) RT6 Town Centres (Service Centres) – Convenience Stores RT7 District Centres (Local Service Centres) RT8 Local Shops and Facilities TR2 Location of Development – Transport Considerations TR3 Highways in Developments – Design Considerations TR4 Cycling and Walking TR6 Redundant Rail Corridors GP1 Sustainability and High Quality Design H6 Residential Care Facilities H7 Gypsy and Traveller Sites	Promotes a sustainable and active transport system reducing need to travel.	N/A	The policy in the long term will help reduce emissions through reducing the need to travel, supporting viable alternatives to the private car and supporting development which provides good access by non-car modes of transport.
Policy EP4 Coastal Management Policy EP5 Coastal	Aims to avoid increased risk of erosion, flooding or	N/A	The policies look to direct development away from locations at risk of flooding, erosion or land instability.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Development	land instability. All issues which are likely to be exasperated by climate change.		They seek to reduce the risks to people and the environment.
SP1 Sustainable Spaces and Places SP3 Sustainable Distribution – Settlement Framework GP1 Sustainability and High Quality Design RT1 Retailing Hierarchy RT5 Town Centres (Service Centres) RT6 Town Centres (Service Centres) – Convenience Stores RT7 District Centres (Local Service Centres) RT8 Local Shops and Facilities TR2 Location of Development – Transport Considerations TR3 Highways in Developments – Design Considerations TR4 Cycling and Walking H6 Residential Care Facilities H7 Gypsy and Traveller Sites	Aims to locate development within sustainable locations, reducing the need to travel.	SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment EP2 Pollution	Policies SP2, SP14 and EP2 complement this policy and further enhance it to help reduce emissions.
SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment SP12 Waste	Promotes development which seeks to address, is resilient to, can adapt to and mitigate	N/A	The policies aim to protect areas of Carmarthenshire from the potential effects of climate change and rising greenhouse gas emissions. Support is given to proposals which adhere to

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Management EP1 Water Quality and Resources	for the causes and effects of climate change.		the waste hierarchy, promote efficient consumption of resources, minimise the need to travel, avoid or minimise risk of flooding, promote energy hierarchy, protect and enhance biodiversity value and support appropriate climate responsive design solutions. Policy SP12 could do more than simply offset the negative impacts of the LDP, and lead to a net reduction in the amount of waste sent to landfill, reducing greenhouse gas emissions.
SP12 Waste Management GP1 Sustainability and High Quality Design	Development should consider the generation, treatment and disposal of waste and the location of waste management facilities in formulating proposals.	N/A	Policy SP12 helps to ensure that development is located close to where waste can be managed. GP1 looks to ensure development proposals promote minimisation of waste and that they consider how it will be dealt with.
SP11 Renewable Energy and Energy Efficiency RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-Wind Renewable Energy Installations SP17 Infrastructure	Reduces dependence on non-renewable sources of energy.	N/A	Increasing the use of renewable energy technologies within development as well as stand-alone projects in addition to energy efficiency. All reduce dependence on use of non-renewable energy sources which are often highly polluting.

8.1.2 Regional, National and Global Effects

Addressing climate change is an increasingly important global issue. Decisions made at a local level, particularly in relation to energy generation and conservation can influence the impact on climate change. The potential risks of rising

greenhouse gas emissions may be offset to an extent by the protective policies such as renewable energy technologies, energy efficiency and measures to promote climate change resilience.

SA Recommendations

8.1.3 Mitigation to Reduce Risk or Enhance Opportunities

The assessment of the Preferred Strategy has informed the updating of strategic policies and drafting of the draft specific LDP policies that fall under the strategic policies. The assessment of potential air quality impacts has facilitated the following improvements:

Table 8-4: Council’s Response to proposed Mitigation / Recommendations

Issue	Policy	Improvement
<p>It is felt that Strategic Policy SP9 requires a stronger sustainable transport element more in line with Policies SP1 and SP2.</p> <p>Prior to introducing road development proposals, it should elaborate on what reflecting sustainable transport principles should mean to developers. This may include planning to eliminate unnecessary car journeys, and maximising rail, bus, cycling and walking opportunities, prior to reliance on the road network for access to surrounding employment, retail, leisure and community facilities.</p>	<p>Policy SP9: Transportation</p>	<p>Additions have been made to the policy. The policy has been strengthened to include for the provision of an efficient, effective, safe and sustainable integrated transport system to be delivered through a variety of sustainable measures.</p> <p>Detailed policies which further support a reduction in car journeys include:</p> <p>GP1: Sustainability and High Quality Design</p> <p>TR1: Primary and Core Road Networks</p> <p>TR2: Location of Development – Transport Considerations</p> <p>TR3: Highways in Developments –Design Considerations</p>
<p>Policy SP12: Waste Management, could ensure that developers consider the location of waste management facilities and their capacity at an early stage.</p>	<p>SP12: Waste Management</p>	<p>Text within SP12 updated to include that proposals for new development should have regard to the location of waste management facilities (and their capacity) in formulating proposals.</p>
<p>A key issue for biomass development is locating and relying upon a sustainable source of fuel, including one with acceptable transport impacts. It is recommended that Policy RE3: Non-wind Renewable Energy installations require that developers of biomass facilities demonstrate that there is a sufficient local source of fuel for which there is no reason to suspect its availability will cease, and any fuel source options which are more local have had good cause to be ruled out.</p>	<p>Policy RE3: Non-wind Renewable Energy installations</p>	<p>Supporting text updated to include that the source of fuel used will not have an unacceptable ecological impact, domestically or elsewhere. It also states that developers should ensure there is a sufficient source of local fuel.</p>

Issue	Policy	Improvement
The transport impacts of sourcing fuel should be a material consideration in line with the environment policies of the LDP.		
Policy WPP2 should express support for proposals which drive waste up the waste hierarchy, which would assist in mitigating the additional waste generated from new development.	<p>Policy WPP1:Nantycaws Waste Management Facility</p> <p>Policy WPP2: Waste Management Facilities Outside Development Limits</p>	<p>Text added to WPP1 supporting text to state that the provision of a range of waste management operations emphasises the Authority's commitment on driving waste up the waste hierarchy.</p> <p>The Council recognises that although the push up the waste hierarchy will be supported, it is generally accepted by WAG that landfill will remain an important option for residual waste over the Plan period.</p> <p>WPP2 has been amended to include that proposals should, wherever possible, encourage the driving of waste up the waste hierarchy.</p>
Policies GP3 and GP4 on the provision of infrastructure alongside new development should include for appropriate waste management, including access to local bring sites and composting facilities. For large mixed-tenure developments and apartment buildings, waste segregation areas incorporated into developments should be encouraged.	<p>Policy GP3: Planning Obligations</p> <p>Policy GP4: Infrastructure and New Development</p>	Policy GP4 now states that access to, and availability of appropriate waste management should also be considered an important element in infrastructure provision for new development.
The Council should continue to liaise with neighbouring authorities and monitor best practice in considering future ways of reducing emissions.	Policy EP2: Pollution	Policy EP2 supporting text updated to include this information.

8.1.4 Key Residual Risks and Opportunities

The amendments as identified in Table 8-4 address much of the proposed mitigation and recommendations. It is recognised however that key residual risks may remain despite the mitigating policies already developed and standard controls which are likely to be enforced. The key residual risks and also the opportunities are summarised below.

- Increasing traffic associated with new developments and corresponding population growth, in addition to new road proposals, may result in a long-term rise in CO₂e emissions;
- The use of Nantycaws Waste Management Facility for landfill and the potential future expansion of landfill operations could result in a rise in methane emissions;

- Opportunities for delaying the impacts of climate change through Policy SP2, promoting development which is resilient to and mitigates for the impacts of climate change leading to long-term benefits;
- Promotion of climate change resilience through Policies EP1 Water Quality and Resources and EP3 Sustainable Drainage which aim to promote water efficiency and the development of drainage systems which mimic the natural environment.
- Further opportunities to reduce CO₂e emissions through Policy SP9, TR1, TR2, TR3, TR4 and TR6 which aim to reduce the need to travel, supports viable alternatives to the private car including walking and cycling and specifies that new development can promote accessibility through non car modes of transport;
- Potential to reduce transport of waste through encouraging development to be located close to where facilities exist (with sufficient capacity) to manage waste; and
- There is the potential to reduce greenhouse gas emissions through the promotion of renewable energy technologies both within development and as stand-alone projects.

Combining the above, it is considered likely that with regard to emissions, the LDP could lead to slightly adverse effects cumulatively in the short to medium term, and slightly beneficial effects by the long term. The effect realised will depend simply upon how areas of increased emissions are balanced against reduction (e.g. from renewable energy or reductions to landfill). This also requires very high-quality masterplanning and design, as well as human behaviour which takes up sustainable transport and waste management opportunities. Measures at the national level (e.g. major energy and transport infrastructure) will play an important role in emissions performance by the long term.

Any measures which result from LDP policy to increase resilience to climate change will clearly have a beneficial effect. The degree of such an effect depends upon the features benefiting, their level of importance to society and the extent of the measure(s), and is therefore not possible to predict this at this high level plan stage.

9 Water

Topic Definition and Approach

Water is an extremely valuable resource in terms of health, recreation, tourism and industry. The monitoring of pollutants, prevention of flooding and the protection and enhancement of aquatic ecosystems and groundwater are all central aims of the European Water Framework Directive.

The table below sets out the SA Objectives and decision-making criteria for water which have been utilised to develop the baseline and guide the assessment process.

Table 9-1: SA Framework for Water

SA Objectives	Decision-Making Criteria
5 – Water	
5-1 To ensure water quality of rivers, lakes, groundwater and coastal areas is improved and ensure that the hydromorphological* quality of water bodies is maximised	Will there be an increase or decrease in the discharge of pollutants to water?
5-2 To protect and maintain water resources in the public supply chain and ensure enough water is available for the environment at all times of year	Will there be an increase or decrease in water consumption from development?
5-3 To minimise diffuse pollution from urban and rural areas	Will the LDP have a positive or negative effect on water quality and hydromorphology*?
5-4 To increase water efficiency in new and refurbished developments	Will it contribute to an increase in flood risk?
5-5 To make space for water, and minimise flood risk	Will it contribute to a reduction in flood risk?

* hydromorphology (noun) / hydromorphological (adj.): the shape of a water body, and the way in which water erodes, transports and deposits sediment

For the purposes of this SA, we have defined water as that of water quality, water resources, diffuse pollution, water efficiency and flood risk. These sub-sections are those which are considered to be of particular relevance to the LDP,

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 5-2 below describes the strategic policies of relevance to water.

Table 9-2: LDP Policies and Relevance to Water

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>SP8 Retail</p> <p>SP9 Transportation</p> <p>RE3 Non-Wind Renewable Energy Installations</p> <p>SP12 Waste Management</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p> <p>H5 Adaptation and Re-Use of Rural Buildings for Residential Use</p> <p>H7 Gypsy and Traveller Sites</p> <p>H8 Renovation of Derelict or Abandoned Dwellings</p> <p>H9 Residential Caravans</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversification</p> <p>EMP5 Mixed Use Sites</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>GP1 Sustainability and High Quality Design</p> <p>RT1 Retailing Hierarchy</p> <p>WPP1 Nantycaws Waste Management Facility</p> <p>WPP2 Waste Management Facilities Outside Development Limits</p> <p>MPP1 Mineral Proposals</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>TSM3 Small Scale Tourism Development in the Open Countryside</p> <p>TSM4 Visitor Accommodation</p> <p>TSM5 Major Tourism Proposals in the Open Countryside</p>	<p><u>Risk of increased pressures on water bodies / flood risk:</u> these policies help to facilitate new development (including ancillary development), which has the potential to have impacts on water bodies, groundwater and flood risk. Key issues include water management (both water abstraction and wastewater) and development in areas of flood risk.</p>
<p>SP2 Climate Change</p> <p>SP10 Sustainable Mineral Development</p> <p>SP11 Renewable Energy and Energy Efficiency</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EP1 Water Quality and Resources</p>	<p><u>Protection of water bodies:</u> policies support development which avoids or where appropriate minimises the risk of flooding and effects on water quality (including promoting the efficient consumption of water) and the incorporation of measures such</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
EP4 Coastal Management EP5 Coastal Development EP3 Sustainable Drainage EMP5 Mixed Use Sites TR3 Highways in Developments – Design Considerations	as SUDS and flood resilient design.
SP17 Infrastructure GP4 Infrastructure and New Development	<u>Reduction of existing impacts on water bodies /flooding:</u> directs development to locations where adequate and appropriate infrastructure is available or can be readily provided. Infrastructure of relevance includes water supply, sewage and land drainage.
SP14 Protection and Enhancement of the Natural Environment EP1 Water Quality and Resources EP3 Sustainable Drainage TR3 Highways in Developments – Design Considerations	<u>Enhancement of water bodies:</u> encourages development to enhance the county’s natural environment.

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on the topic, or no association at all.

SA Baseline for Water

9.1.1 Surface Water

There are a number of major surface watercourses within Carmarthenshire. The Eastern Cleddau drains the west of the county. Of greater significance are the catchment areas of the Rivers Tywi, Taf and Gwendraeth Fawr and Fach, which flow in a general southerly direction and, combine to form the Three Rivers Estuaries that flow into Carmarthen Bay (Carmarthenshire County Council 2006a).

9.1.2 Tywi, Taf, Gwendraeth Fawr and Fach River Catchments

These catchments cover the majority of the area of Carmarthenshire. The area is rural in nature; with permanent grass and rough grazing being the dominant land uses (Carmarthenshire County Council 2006a). The main centres of population within these catchments are Carmarthen, Llandovery Whitland, Llandeilo and St Clears. These settlements have historically developed around the rivers as a resource and transportation route. As a consequence, some development exists in floodplain areas. The area has a history of flooding and a network of flood defences have been constructed (Carmarthenshire County Council 2006a).

The Tywi catchment is a major surface water supply source for Dwr Cymru/ Welsh Water and supplies a large part of South Wales. Llyn Brianne at the headwaters of the Tywi is operated as a regulating reservoir to support abstractions of river water at Capel Dewi (Carmarthenshire County Council 2006a). Most of the surface water draining into Llyn Brianne suffers from acidification and a liming programme has been instigated by the Environment Agency to improve the water quality.

Llyn y Fan Reservoir on the River Sawdde also acts as a regulatory reservoir for abstractions. Total licensed abstractions from these catchment areas average 110 million litres per annum (Carmarthenshire County Council 2006a).

The Tywi is one of the premier rivers for salmon and sea trout in England and Wales, whilst the Taf is also noted for its stocks of migratory fish (Carmarthenshire County Council 2006a).

9.1.3 Loughor River Catchment Area

The River Loughor is situated in the southeast of the county and flows in a south-westerly direction from its source in the upland area of the Brecon Beacons National Park into the Burry Inlet. The catchment includes the Amman Valley and the coastal strip around Llanelli and Burry Port.

The demand for water supplies in the area is largely satisfied by water transferred from the Tywi Catchment. Surface water resources are currently used primarily for industry (Carmarthenshire County Council 2006a).

Dwr Cymru / Welsh Water hold licence rights from the source of the Loughor. It currently pipes water from a Carboniferous limestone aquifer to Bryngoch Water Treatment Works. However there are problems with the river continuing to fail its water quality targets (Carmarthenshire County Council 2006a).

Minewater discharge from abandoned mine workings are identified by the Carmarthenshire Contaminated Land Strategy as impacting on a number of watercourses within the Loughor River catchment. Discharges from the former mine workings have been causing staining of riverbeds with iron hydroxide (Carmarthenshire County Council 2006a).

9.1.4 Teifi River Catchment Area

Part of the catchment of the River Teifi is located in the north of the county and flows from the Cambrian Mountains in a westerly direction into Cardigan Bay. The valley is mainly rural in character with agriculture and forestry accounting for the majority of the land use (Carmarthenshire County Council 2006a). Large dairy farms predominate in the lower reaches, with mixed dairy and livestock on the middle reaches. In the upland areas of the catchment the poorer soil conditions restrict agriculture to livestock rearing on rough grazing and improved pastures (Carmarthenshire County Council 2006a).

Much of the urban development is found within the floodplain and usually located adjacent to the river. Settlements include Cenarth, Newcastle Emlyn, Pontwelli, Llanybydder and Cwmann. There is little significant industry in the area with agriculture and related industries providing the economic backbone for the area (Carmarthenshire County Council 2006a).

Surface water is the main source for water abstraction in the Teifi catchment. Patterns of low flows in many of the Teifi tributaries as well as the Teifi itself have been identified as an issue and it may be a requirement to strictly control abstraction in the future (Carmarthenshire County Council 2006a). The Teifi supports one of the most productive salmon and sea trout fisheries in Wales and also supports a good brown trout fishery. There are also concerns that groundwater levels are declining in the catchment (Carmarthenshire County Council 2006a).

9.1.5 River Quality

The management of flooding issues is undertaken sub-regionally in Wales. Carmarthenshire falls under the South West administrative area of Natural Resources Wales (formerly Environment Agency Wales). However, General Quality Assessment data on river quality information is monitored at the county level.

Summary data is provided in Table 5-3, based on the Carmarthenshire Local Evidence Package provided by the Environment Agency.

Table 9-3: Summary River Quality Information

Factor	Percentage for Carmarthenshire
Percentage of river lengths of good (A-C), fair (D), poor (E) or bad (F) chemical quality	Good: 100% Fair: 0% Poor: 0% Bad: 0%
Percentage of river lengths of good (A-C), fair (D), poor (E) or bad (F) biological quality	Good: 98.68% Fair: 0.72% Poor: 0.61% Bad: 0%

Data provided in the Carmarthenshire Local Evidence Package indicates that the vast majority of Carmarthenshire’s rivers are of Grade A, B or C (very good, good, fairly good) for water biology and chemistry. However, the Llanelli area in particular is known to have an inadequate sewerage and sewage disposal system. This has resulted in the discharging of sewage into the Loughor Estuary and the Towy River resulting in significant water quality issues and limiting future development due to the lack of capacity.

With respect to nutrient enrichment, nitrate levels are moderately low to very low across the county. Levels of phosphates are also typically low to moderately low. A small number of river stretches have high or very high levels of phosphates; for example on the Gwenlais and Loughor. This information does not translate into determining whether the measured levels of nutrients are good or bad as concentrations of nutrients vary naturally in different parts of the county. There are no nitrate vulnerable zones in the county.

There are only five locations within the county where the rivers fail River Quality Objectives (RQO) of very good or good quality; namely on the Tywi (2 locations), Doethie, Pysgotwr Fawr and Dafen. Since 1997, there has been a trend for the number of significant failures in RQO compliance to reduce.

Development in parts of river catchments around Carmarthen and Ammanford have been restricted due to limited capacity at waste water treatment works or where constraints exist on the sewerage network. The Llanelli area in particular is known to have an inadequate sewerage and sewage disposal system. This has resulted in the discharging of sewage into the Loughor Estuary and the Towy River resulting in significant water quality issues and limiting future development due to the lack of capacity.

9.1.6 Groundwater

Groundwater is a significant resource supplying base-flows to local rivers and wetlands. Historically it has been exploited for drinking water and commercial purposes (Carmarthenshire County Council 2006a).

The carboniferous limestone formations comprise a major aquifer that bears water that can be used to supply large abstractions for public or other purposes. Carboniferous limestone at Pendine is currently being used for public water supply abstraction (Carmarthenshire County Council 2006a).

The Old Red Sandstone and Millstone Grit rock formations are minor aquifers and are locally important sources of groundwater, although faulting may reduce the effectiveness of these rocks as aquifers. The coal measures in the southeast of the county also constitute a minor aquifer (Carmarthenshire County Council 2006a).

The alluvium deposits along the Rivers Teifi, Tywi and Loughor are minor aquifers. In the Teifi and Tywi, the alluvium gravel deposits are used extensively for public supply and agricultural purposes (Carmarthenshire County Council 2006a).

The Cleddau and Pembrokeshire Coastal Rivers, Swansea Bay, Teifi and North Ceredigion Catchment Abstraction Management Strategy (CAMS) documents detail the management of water abstraction in the County. The documents show that water is available for abstraction across much of the county. However there are a small number of areas that are described as being over abstracted to the north of Llanelli (Afon Tywi) and in the east of the county around the River Usk.

There are eleven source protection zones (SPZ) in the County where groundwater is abstracted for public supply. SPZs comprise a buffer around a borehole that indicates the area from which a borehole is at risk from contamination by activities at ground level. The largest SPZ is situated to the northwest of Pendine.

9.1.7 Flooding

In Carmarthenshire, there are 9,993 properties located in a flood zone and this represents approximately 15% of properties in the county.

There are 112 Lower Super Output Areas (LSOAs) in Carmarthenshire. For 12 of these LSOAs, 20% or more of the population are at risk from flooding and are typically located in the south of the county in the Llanelli area. Flood warning messages for main rivers in Carmarthenshire are disseminated by the Environment Agency to the following settlements:-

Table 9-4: Settlements that receive Flood Warning information

Catchment	Settlement
River Twrch	Cwmtwrch
River Loughor	Ammanford, Llandybie and Pontarddulais
River Gwendraeth Fawr	Pont Henry, Pontyates and Pontnewydd
River Gwendraeth Fach	Kidwelly
River Towy	Llandeilo, Abergwili, Carmarthen and Llangadog
River Bran	Llandovery
River Cothi	Pontargothi and Pontynyswen
River Taf	Whitland
River Gronw	Whitland
River Cynin	St River Clears
River Teifi	Llanybyther, Llandyssul, Newcastle Emlyn and Cenarth
Tidal Areas	Loughor, Llangennech, Kidwelly, Carmarthen, St Clears, Laugharne and Pendine

9.1.8 Catchment Flood Management Plans (CFMP)

(a) Loughor to Taf CFMP

The Loughor to Taf CFMP area covers most of the county. In this CFMP area, 8,700 people and 4,900 properties (3,700 in Loughor catchment, mostly in Llanelli and Llangennech) are currently at risk from flooding. In the future 11,600 people and 6,400 properties could be at flood risk, mainly due to overtopping of flood defences. Current flood risk in Llanelli is identified as being too high.

The CFMP area is divided into seven Policy Units, to which a defined approach to flood risk management is assigned:-

Table 9-5: Loughor to Taf Flood Risk Management

Policy Unit	Flood Risk Management and Actions
1 - Carmarthen	There will be a risk of floods overtopping the flood walls alongside the Afon Tywi. Currently there is already a high risk to people and property. The proposed policy is to investigate the feasibility of raising defences in Carmarthen and Abergwili, although the Plan states that creating defences on Carmarthen Quay would be of limited benefit compared to new defences elsewhere in the Plan area.
2 – Towy Corridor	Continue current flood risk management. This would have the effect of allowing an increase in flood risk. Defences would be maintained at Llanwrda and Ffairfach. The possible opportunities for gradual enhancement of channel habitats, where this supports the Afon Tywi’s designation as a Special Area of Conservation under the Habitats Directive, are referred to.

Policy Unit	Flood Risk Management and Actions
3 - Llandovery	Very high risk of flooding currently identified, which will increase significantly. Suggests a need to investigate feasibility of constructing and raising flood defences. New development could be at very high flood risk in future. An Emergency Response Plan is proposed.
4 – Rural Taf, Towy and Gwendraeth	Current fluvial flood risk is low, with no significant increase in the future. A reduction in flood risk management is proposed. Defences in St. Clears, Laugharne and Kidwelly would be maintained. Flood risk would increase but would be managed through influence and information.
5 - Whitland	A relatively low current flood risk but significant increase in risk in future from overtopping or failure of defences is identified. Further feasibility study into raising the flood defences in Whitland is proposed.
6 – Pembrey and Pendine	The area is primarily affected by coastal flooding, fluvial flood risk is negligible. Proposes no active intervention, leading to a marginal increase in flood risk. Watercourses will eventually revert to more natural systems, which will enhance biodiversity.
7 – Loughor and West Swansea	Ammanford, Llangennech and Llanelli are identified as being at high risk from fluvial flooding. Currently 3,700 properties are at risk. The number could rise to 4,852 by the end of the CFMP period. The CFMP states that further actions are required now. Tidal flood risk is high, especially at Llangennech. The existing defence system is piecemeal and its long term sustainability should be reviewed. Defences will continue to play an important role in managing flood risk. The Plan states that increased urbanisation is expected and that development may occur in areas at high risk of flooding.

(b) Pembrokeshire and Ceredigion Rivers CFMP

This CFMP includes the lower Teifi area that is in Carmarthenshire. There is one Policy Unit in the CFMP that covers this area:-

Table 9-6: Pembrokeshire and Ceredigion Flood Risk Management

Policy Unit	Flood Risk Management and Actions
3 – Lower Teifi	Flood risk in the area is low. The greatest risk of flooding to people and property is concentrated in the urban areas of Llanybydder, Llandysul and Cardigan. The majority of those people and properties at greater risk in the future are located in Llanybydder, Llandysul and Newcastle Emlyn. The Plan states that the annual cost of flood damages in the Lower Teifi Area is likely to rise by 90% if existing defences are relied upon.

9.1.9 Infrastructure at Risk

Within Carmarthenshire, several areas of infrastructure are currently at risk of flooding. This includes part of the M4 motorway near Llanelli and important infrastructure such as police stations. The rail line from Llanelli to Swansea is also likely to be at risk of flooding in stretches.

9.1.10 Water Framework Directive (WFD), River Basin Management Plans (RBMP) and Salmon Action Plans

The Environment Agency prepared the first round of River Basin Management Plans (RBMPs) for England and Wales. The RBMPs set out priorities for river management based on an assessment of the hydromorphological quality of the rivers and the level of modification that has previously occurred within the river basins and intend to begin to set out how the requirements of the Water Framework Directive will be managed.

Summary information is not readily available at the county level regarding the lengths of watercourses that are categorised according to the WFD classifications. However, mapping within the Western Wales RBMP indicates that the majority of streams in the county are classified as predominantly at good or moderate ecological status with a smaller number of streams classified at poor or bad ecological status. The ecological status of the county's lakes has not yet been assessed.

The ecological status of the county's coasts and estuaries is predominantly classified at good and moderate status. However, the transitional/coastal waters around Burry Inlet are at poor ecological status. The chemical status of Carmarthenshire's rivers has not widely been assessed, however the chemical status of Carmarthenshire's transitional/coastal waters are at good status. The chemical status of the county's groundwater bodies is poor, and this is consistent with the majority of the central and southern regions of Wales.

For the Western Wales River Basin District, the following pressures were identified as significant water management issues:-

- Phosphorus in rivers and standing waters
- Mines and mine waters
- Organic pollution (ammonia and biochemical oxygen demand)
- Pesticides
- Sediment (rivers and lakes)
- Other pollutants - Faecal indicator organisms
- Acidification
- Alien Species

Pressures that were found not to represent significant water management issues in the Western Wales River Basin District include:-

- Physical modification
- Urban pressures/transport

- Other pollutants - Metals
- Commercial fisheries
- Abstraction and other flow artificial flow pressures
- Nitrates
- Priority hazardous substances
- Recreation

Within Carmarthenshire, there are Salmon Action Plans in place for the Teifi, Cleddau, Tywi and Taf rivers. Water quality and channel structure and siltation are typically the key issues affecting the performance of the Teifi, Tywi and Taf as salmon fisheries. Exploitation is also a key issue on the Tywi, whereas the quality of the Cleddau river as a salmon fishery is not considered to be at risk.

9.1.11 Water Supply

The Welsh Water, Water Resources Management Plan shows that the supply of water in the Tywi/Gower Water Resource Zone exceeds demand. Therefore, the area is considered to be in surplus in terms of water availability. Throughout Wales as a whole, demand for water supplies is forecast to increase over the course of the WRMP (to 2035).

9.1.12 Coastal Waters

There are two EC identified bathing waters in the county at Pendine East and Pembrey. Under the revised Bathing Waters Directive, both these sites would be considered to be of a good standard.

Assessment: Risks and Opportunities

9.1.13 Effects within Carmarthenshire

New housing, employment, retail and community developments lead to water abstraction and rainwater run-off to land (with associated pressure on the drainage system). They may also put pressure on wastewater treatment works capacity. The relevant Catchment Abstraction Management Strategies (CAMS) indicate that there is sufficient water supply capacity in Carmarthenshire, however increasing efficiency of water resources is recommended given wider regional demands for water and the uncertainties regarding climate change. Policies SP2, SP14 and EP1 go some way to protecting controlled water and water resources, whilst SP17 will guide development to areas with adequate water supply and sewerage capacity.

The GA2/MU3 Machynys Bund site within Policy EMP4 provides mitigation for surface water and can go some way to protecting waterbodies in this location. Policies SP2, SP14 and EP1 will provide further potential for enhancement.

Risks to the sewerage system capacity is particularly great in Llanelli, which is identified in the LDP as a Growth Area with three Strategic Sites; one for mixed use and two for employment development. The Llanelli area is known to have an inadequate sewerage and sewage disposal system, which has resulted in the discharging of sewage into the Loughor Estuary and the Towy River. It has also

limited development due to the lack of capacity. For example in 2008, the development of 1,200 new homes was halted due to these issues. This year, Welsh Water has been carrying out a major investigation to identify weak points and provide improvements however it can still be considered a major constraint at present. It is considered that all potential developers should make a significant investment in infrastructure to reduce the load on the sewerage system, as a condition of being allowed to build.

In addition to this, flooding from the sea is an issue in Llanelli, with over 1,000 properties predicted to be at risk of flooding in the town by 2100 (1% annual exceedence probability). Carmarthen and Ammanford to Crosshands are also identified as Growth Areas, and both areas include land at risk of flooding. Policy CP2 provides support for proposals which avoid or where appropriate minimise the risk of flooding, including the incorporation of measures such as SUDS and flood-resilient design. Flood Risk Assessments should also be carried out prior to development to avoid or where appropriate mitigate for potential risks.

Policies EP4 and EP5 relate to coastal management and development. These aim to ensure that coastal defence schemes do not increase the risk of flooding elsewhere and that development in coastal locations does not increase the risk of flooding.

Proposed development, including road improvements near to water bodies could impact on their quality through run-off and infiltration, particularly in the short to medium term during construction. This is particularly relevant around the Tywi, Doethie, Pysgotwr Fawr and Dafen, where water quality does not meet the 'very good' or 'good' quality objectives. This is mitigated for to a large extent through Policies EP3 and TR3 which promote development and highways that incorporate Sustainable Drainage Systems which improve the quality and reduce the quantity of runoff.

The chemical status of ground water is poor throughout much of the county, so care must be taken to ensure this does not deteriorate further. Water effluent from mining activities can pollute water bodies and contaminate groundwater. Policy MPP1 in particular relates to the exploration and extraction of unconventional gas. This is a process which carries a high risk of groundwater contamination and has the potential to contaminate drinking water aquifers, affecting local water supply. The process of 'fracking' uses a vast quantity of water and can put pressure on existing supplies. The policy states that extraction of unconventional gas and other forms of onshore oil and gas will only be permitted where there are no unacceptable adverse impacts to the environment (amongst others). Along with Policies SP14 and EP1, this may help to reduce potential impacts however risks may still remain.

Policy SP10 requires proposals for mineral extraction to accord with all other relevant policies within the LDP, including those relating to environmental impacts, whilst SP14 and EP1 further ensure that due consideration should be given to controlled waters and water resources. These should reduce any risks of contamination to water bodies and groundwater.

Some renewable energy developments such as hydro-electric schemes and biomass facilities can affect water bodies through excessive water abstraction, which can reduce water flow levels, impacting on water quality and the aquatic ecosystems within the rivers. RE3 Non-Wind Renewable Energy Installations includes for the provision of hydro-electric schemes. SP11 supports renewable energies which can address environmental and cumulative impacts adequately whilst SP14 and EP1 support proposals which gives due consideration to impacts

on water and water resources which can reduce this risk somewhat. Within the supporting text for RE3, it states that proposals for biomass facilities will be required to demonstrate that the fuel used will not adversely impact upon water resources.

An identified opportunity is Policy SP12 Waste Management, which supports the adoption of a waste hierarchy, thereby directing waste away from landfill. This should reduce the risks that landfill sites pose to water quality through seepage and infiltration into the water systems. However, it is recognised that the proposed developments are likely to result in increased waste levels, thereby putting additional pressure on landfill. SP12 also aims to ensure there is sufficient capacity to absorb additional waste projected from new developments without increasing waste sent to landfill.

Contradicting the above to an extent is policy WPP1 which looks to maintain and explore options to enhance Nantycaws' landfill capacity. It also looks to identify other future options for residual treatment of waste.

Table 9-7: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP8 Retail SP16 Community Facilities H5 Adaptation and Re-Use of Rural Buildings for Residential Use H8 Renovation of Derelict or Abandoned Dwellings H6 Residential Care Facilities H7 Gypsy and Traveller	All relate to the use of land for development and are anticipated to result in water abstraction and land drainage in addition to wastewater treatment works capacity. Particular issue in Llanelli in relation to capacity.	SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment SP17 Infrastructure GP4 Infrastructure and New Development GP5 Phasing EP1 Water Quality and Resources EP3 Sustainable Drainage	Policies SP2, SP14, SP17 and GP4 aim to avoid, reduce, minimise or compensate for the potential negative impacts of these other policies. For the strategic policies, it is not possible to eliminate the risk (see recommendations). All potential developers should be required to make a significant investment in infrastructure to reduce the load on the sewerage system, as a condition of being allowed to build in Llanelli.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>Sites</p> <p>H9 Residential Caravans</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversification</p> <p>EMP5 Mixed Use Sites</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>MPP1 Mineral Proposals</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>TSM3 Small Scale Tourism Development in the Open Countryside</p> <p>TSM4 Visitor Accommodation</p> <p>TSM5 Major Tourism Proposals in the Open Countryside</p>	<p>Potential for development to modify water bodies and/or channelise watercourses</p>	<p>EP1 Water Quality and Resources</p> <p>SP14 Protection and Enhancement of the Natural Environment</p>	<p>Policy EP1 states that watercourses will be safeguarded through buffer zones to protect aspects such as riparian habitats and species.</p>
<p>RT9 Regional Centres (Retail Parks)</p> <p>MPP1 Mineral Proposals</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>TSM3 Small Scale Tourism Development in the Open Countryside</p> <p>TSM4 Visitor Accommodation</p> <p>TSM5 Major Tourism Proposals in the Open Countryside</p>	<p>All listed policies promote development which could increase the risk of flooding if built in inappropriate locations.</p>	<p>SP1 Sustainable Places and Spaces</p> <p>SP2 Climate Change</p> <p>EP5 Coastal Development</p> <p>EP3 Sustainable Drainage</p>	<p>SP2 and EP3 support development which incorporates measures such as SUDS and flood resilient design whilst SP1 directs development to the most sustainable locations.</p> <p>EP5 requires that new development in coastal locations does not increase the risk of flooding.</p>
<p>SP9 Transportation</p>	<p>New roads could result in water quality issues through increased runoff with potential indirect impacts through increasing air pollution.</p>	<p>SP2 Climate Change</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EP2 Pollution</p> <p>EP3 Sustainable Drainage</p>	<p>SP2 and EP3 promote use of SUDS in new development whilst SP14 supports development which gives due consideration to natural assets including controlled waters and water resources which would likely mitigate most of these potential risks.</p> <p>EP1 and EP2 seek to minimise impacts of pollution to water and air.</p>
<p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>H6 Residential Care</p>	<p>Increased production of waste, and therefore landfill, which must be managed carefully to</p>	<p>SP12 Waste Management</p>	<p>Policy SP12 aims to mitigate the potential increase in waste volumes by moving waste up the waste hierarchy, and away from landfill, which can pollute local water bodies</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>Facilities</p> <p>H7 Gypsy and Traveller Sites</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversification</p> <p>EMP5 Mixed Use Sites</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>TSM3 Small Scale Tourism Development in the Open Countryside</p> <p>TSM4 Visitor Accommodation</p> <p>TSM5 Major Tourism Proposals in the Open Countryside</p>	<p>avoid water pollution.</p>		<p>and groundwater through infiltration.</p>
<p>SP10 Sustainable Mineral Development</p> <p>MPP1 Mineral Proposals</p>	<p>Water effluent from mining and oil / gas exploration activities can pollute water bodies and contaminate groundwater.</p>	<p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EP1 Water Quality and Resources</p>	<p>Policies SP14 and EP1 aim to protect controlled waters and water resources.</p>
<p>SP11 Renewable Energy and Energy Efficiency</p> <p>RE3 Non-Wind Renewable Energy Installations</p>	<p>Some renewable energy schemes may reduce water levels.</p>	<p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EP1 Water Quality and Resources</p>	<p>SP14 and EP1 support proposals which give due consideration to controlled waters and water resources.</p>
<p>SP12 Waste Management</p>	<p>Moving waste</p>	<p>N/A</p>	<p>Policy SP12 promotes the</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
	up the waste hierarchy, away from landfill, which has risks associated with water pollution.		waste hierarchy, reducing risks of water contamination.
EMP5 Mixed Use Sites	Protects existing water bodies at the Machynys Bund site.	SP14 Protection and Enhancement of the Natural Environment EP1 Water Quality and Resources	These policies will provide further opportunities for enhancement of waterbodies.
EP4 Coastal Management EP5 Coastal Development	Promotes development which does not increase the risk of flooding.	N/A	Coastal protection schemes should not increase the risk of flooding elsewhere whilst development in coastal locations should not increase flooding.
SP12 Waste Management GP1 Sustainability and High Quality Design	Development should consider the generation, treatment and disposal of waste and the location of waste management facilities in formulating proposals.	N/A	Policy SP12 helps to ensure that development is located close to where waste can be managed. GP1 looks to ensure development proposals promote minimisation of waste and that they consider how it will be dealt with.
SP17 Infrastructure GP4 Infrastructure and New Development	Promotes location of development near to where there is adequate and appropriate infrastructure including water supply, sewerage and land drainage.	SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment	SP2 and SP14 further ensure that development will be situated in areas where there is sufficient water supply and sewerage infrastructure thereby reducing pressure on those already at risk.
All the development policies above, plus: SP2 Climate Change SP14 Protection and Enhancement of the Natural Environment	Potential net enhancements to water quality and water management.	N/A	Through investment attracted into development and into Carmarthenshire generally, Policies SP2, SP14 and EP1 have the potential to contribute to improved water quality and

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
EP1 Water Quality and Resources			management. This will depend upon a number of considerations, including the specific sites developed, the extent and nature of developer contributions.

9.1.14 Regional, National and Global Effects

There is the potential that contamination of any water body in Carmarthenshire could affect the water quality of other areas in the region where the water bodies flow. In addition, water abstraction level increases in the county could affect the regional and potentially the national supply of water to a small extent. It is recognised that Wales has a sufficient water supply at present however there is some long-term uncertainty when considered in conjunction with regional water demand and the potential effects of climate change.

SA Recommendations

9.1.15 Mitigation to Reduce Risk or Enhance Opportunities

The assessment of the Preferred Strategy has informed the updating of strategic policies and drafting of the draft specific LDP policies that fall under the strategic policies. The assessment of potential air quality impacts has facilitated the following improvements:

Table 9-8: Council's Response to Mitigation / Recommendations

Issue	Policy (ies)	Improvement
The further development of policy and proposals in support of Policy SP12 should aim to do more than offset the negative impacts of the LDP, and lead to a net reduction in the amount of waste sent to landfill.	SP12: Waste Management	Policy SP12 has been deemed sufficient.
It is recognised that Wales has a sufficient water supply at present however there is some long-term uncertainty when considered in conjunction with regional water demand and the potential effects of climate change.	All policies relating to use of land for development (see Table 9-7).	SPG on Design Principles will provide guidance on water efficiency in new development. Policy EP1's supporting text states that proposals should seek wherever possible to incorporate water conservation techniques including rainwater harvesting and grey-water recycling.
In Llanelli, all potential developers should be required to make a significant investment in infrastructure to reduce the load on the sewerage system, as a condition of being allowed to build in the area.	SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing	Resources. Policy GP4 Infrastructure and New Development states that proposals for development will be

Issue	Policy (ies)	Improvement
	<p>SP7 Employment – Land Allocations</p> <p>SP8 Retail</p> <p>SP16 Community Facilities</p>	<p>permitted where the infrastructure (which includes sewerage systems) is adequate to meet the needs of the development. Proposals where new or improved infrastructure is required but does not form part of an infrastructure provider’s improvement programme may be permitted where it can be satisfactorily demonstrated that this infrastructure will exist, or where the required work is funded by (or an appropriate contribution is provided by) the developer.</p>
<p>A key issue for biomass development is locating and relying upon a sustainable source of fuel, including their impacts on the water table. It is recommended that Policy RE3: Non-wind Renewable Energy installations require that developers of biomass facilities assess the impacts of their fuel source on water resources, and the Council should take into account the cumulative impact of previously approved developments when making its decision.</p>	<p>Policy RE3: Non-wind Renewable Energy installations</p>	<p>Supporting text for RE3 updated to include that proposals for biomass facilities will not adversely impact upon water resources.</p>
<p>Flood Risk Assessments should be carried out prior to development to avoid or where appropriate mitigate for potential risks.</p>	<p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>SP8 Retail</p> <p>SP9 Transportation</p> <p>SP10 Sustainable Mineral Development</p> <p>SP11 Renewable Energy and Energy Efficiency</p> <p>SP16 Community Facilities</p>	<p>Covered in part. Policy EP1: Water Quality and Resources states that watercourses will be safeguarded through buffer zones to provide for flood plain capacity.</p>
<p>Certain types of unconventional gas exploration and extraction present theoretical pathways for impacts on groundwater, water resources and the quality of drinking water in Carmarthenshire and beyond.</p> <p>Changes were initially made to a previous version of the policy for unconventional gas and oil exploration and extraction to reiterate the need and approach to environmental protection, however this policy was later deleted and merged into MPP1.</p>	<p>Policy MPP1: Mineral Proposals</p>	<p>The recommended changes to Policy MPP1, following the deletion of the original policy on unconventional gas and oil exploration and extraction, have been adopted by the Council and form part of the LDP. As a result of these changes, the key points of the SA’s original recommendations have been retained within the LDP and the environmental protection for onshore oil and gas exploration has been strengthened.</p>

Issue	Policy (ies)	Improvement
<p>The assessment of this focused change concluded that it would remove the existing beneficial environmental protections described under the original policy, particularly those relating to the water environment. Jacobs recommended that the Council retain the text from the original policy that referred to environmental protection within the supporting text to Policy MPP1. It was also advised that the text that related to the water environment should be strengthened by adding in text about what the Council would expect as a minimum for onshore oil and gas exploration (e.g. detailed baseline surveys, a Water Framework Directive Screening Assessment and a Monitoring and Response Plan). Mention is also made to water remediation strategies to deal with the risk of a pollution incident.</p>		

9.1.16 Key Residual Risks and Opportunities

The amendments as identified in Table 9-4 address much of the proposed mitigation and recommendations. It is recognised however that key residual risks may remain despite the mitigating policies already developed and standard controls which are likely to be enforced. The key residual risks and also the opportunities are summarised below.

- Mining activities including extraction of unconventional gas and other forms of onshore oil and gas provide long term risks (even with mitigation) to groundwater, drinking water aquifers and to water resources; and
- Increased waste from development can result in rising levels of waste sent to landfill, which can contaminate water bodies and groundwater through seepage. This should be offset to an extent by SP12, WPP1 and WPP2 but it is considered that it still presents a risk, as it is at least partially dependent upon behavioural factors.

Given strong statutory controls on discharges to water and abstraction licensing, it is difficult to predict impacts on the water environment from an unknown quantity and nature of potentially polluting developments. Even once adequate controls are in place, accidental spillages can occur, and the more activity there is (e.g. minerals effluent or industrial activity), the higher the risk. However, for the purposes of this SA, it must be considered that statutory controls, improving good practice and SUDS measures will continue to protect our water environment.

Other policies are thought likely to lead to a mix of potential slight negative effects and beneficial ones, such as where development is unavoidably located adjacent to a watercourse.

It is therefore considered likely that the LDP will have neutral / negligible effect in the short, medium and long term. However, alongside habitat enhancement, there is the potential for net benefits in the long term, depending upon the nature and extent of enhancement obtained from developers.

10 Material Assets

Topic Definition and Approach

Material assets in Carmarthenshire consist of mineral assets (such as mines and quarries), transport infrastructure (road network, rail network, cycling and walking) and waste infrastructure (landfill, recycling centres etc).

The table below sets out the SA Objectives and decision-making criteria for material assets which have been utilised to develop the baseline and guide the assessment process.

Table 10-1: SA Framework for Material

SA Objectives	Decision-Making Criteria
6 – Material Assets	
6-1 Minimise the use of finite resources and promote higher resource efficiency and the use of secondary and recycled materials	Will the LDP contribute to increased rates of recycling and higher resource efficiency?
6-2 Promote the waste hierarchy of reduce, reuse and recycle	Will the LDP ensure that needs can be met locally?
6-3 Encourage needs to be met locally	Will the LDP allow people to make more sustainable transport choices?
6-4 Promote the use of more sustainable resources	
6-5 Improve the integration of different modes of transport	
6-6 Promote the use of more sustainable modes of transport (e.g. cycling and walking)	

For the purposes of this SA, the material assets data relates to that which is important to local sustainable communities and so, as such, have been defined within three broad categories of minerals, transport and waste.

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 6-2 below describes the strategic policies of relevance to Material Assets.

Table 10-2: LDP Policies and Relevance to Material Assets

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>SP8 Retail</p> <p>SP9 Transportation</p> <p>SP10 Sustainable Mineral Development</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H3 Renovation of Derelict or Abandoned Dwellings</p> <p>H5 Adaptation and Re-Use of Rural Buildings for Residential Use</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversification</p> <p>EMP5 Mixed Use Sites</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>GP1 Sustainability and High Quality Design</p> <p>RT1 Retailing Hierarchy</p> <p>WPP1 Nantycaws Waste Management Facility</p>	<p><u>Risk of increased waste and demand on resources:</u> these policies lead to new development (in addition to ancillary development) which can lead to increased population growth with corresponding growth in traffic, demand on resources (including construction materials) and waste.</p>
<p>SP1 Sustainable Places and Spaces</p> <p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP10 Sustainable Mineral Development</p> <p>SP6 Affordable Housing</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p> <p>GP1 Sustainability and High Quality Design</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlements in</p>	<p><u>Protecting Carmarthenshire’s resources / needs:</u> these policies safeguard resources and guides development to the most sustainable locations.</p> <p>SP6 and SP16 can help meet local needs through the provision of affordable housing and community facilities.</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
the Countryside H6 Residential Care Facilities H7 Gypsy and Traveller Sites H9 Residential Caravans EP1 Water Quality and Resources EP4 Coastal Management MMP2 Mineral Buffer Zones MPP3 Mineral Safeguarding MPP4 Coal Extraction Operations TR1 Primary and Core Road Networks	
SP1 Sustainable Places and Spaces SP2 Climate Change SP3 Sustainable Distribution – Settlement Framework SP10 Sustainable Mineral Development SP11 Renewable Energy and Energy Efficiency RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-Wind Renewable Energy Installations SP12 Waste Management GP1 Sustainability and High Quality Design TR2 Location of Development – Transport Considerations TR3 Highways in Developments – Design Considerations TR4 Cycling and Walking TR6 Redundant Rail Corridors EP1 Water Quality and Resources MPP5 Aggregate Alternatives	<p><u>Promotion of more sustainable transportation and resource use:</u> these policies support proposals which reflect sustainable transport principles and minimises the need to travel. In addition, they promote renewable energy, energy efficiency and waste hierarchy, directing waste away from landfill.</p> <p>SP10 promotes the efficient and appropriate use of minerals by encouraging the re-use and recycling of suitable minerals as an alternative to primary won aggregates.</p>

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on ‘the topic’, or no association at all.

SA Baseline for Material Assets

10.1.1 Road Traffic

According to 2001 Census data, the percentage of the working population in Wales travelling to work by car is in line with the national average for Wales, at

approximately 70% of Carmarthenshire's working population. The rate of car ownership in Carmarthenshire is above the national average, with 76.9% of households having access to a private car. Such statistics suggest that residents in Carmarthenshire typically rely upon the car to meet their travel needs. These statistics are also perhaps indicative of a significant proportion of settlements in Carmarthenshire being rural in nature, in which the provision of integrated public transport facilities is likely to be limited.

The number of licensed private vehicles in Carmarthenshire in 2004 was the fourth highest of all the Unitary Authorities in Wales, with the highest numbers of licensed private vehicles registered in Cardiff, Swansea and Rhondda Cynon Taff. In addition, in 2004, 1.8 billion road vehicle kilometres were driven in Carmarthenshire. This is the third highest value of road vehicle kilometres driven out of all of the Unitary Authorities in Wales, falling behind Cardiff and Rhondda Cynon Taff only. These trends are in line with the largest centres of population in Wales, with Carmarthenshire being the fourth largest county in Wales by population behind Cardiff, Rhondda Cynon Taff and Swansea.

National trends for road transport indicate that the volume of road traffic is increasing and that the current trends for high levels of the population travelling to work by car is likely to remain constant without future interventions.

10.1.2 Transport Capacity

The South West Wales Integrated Transport Consortium (SWWITCH) has identified several areas of the road network in Carmarthenshire which suffers from the greatest congestion and so can affect road capacity. These areas include the town centres of Carmarthen and Llanelli and the A4138 and A48 up to the junction with the M4 motorway.

With regards to rail capacity, the line from Swansea to Llanelli is utilised to full capacity, as is the line from Carmarthen travelling south to Pembroke Dock (outside of Carmarthenshire). There is medium capacity on the line from Llanelli on to Carmarthen and beyond outside of the County to Milford Haven. The rail line from Llanelli to Llandrindod Wells is currently at low capacity (Network Rail, 2008). There is 20% forecast growth on the rail line in South West Wales for 2018/19.

The existence of single track on the otherwise double-track from Swansea to Carmarthen compromises calling patterns and performance outputs fall short of requirements with mismatched demand. One intermediate station at Gowerton lies on this single track stretch and less than half of all trains can stop here. West Wales train services (west of Carmarthen) and on the 'Heart of Wales' line between Swansea / Llanelli and Shrewsbury requires an hourly service in place of the two-hourly frequency pattern. This line has capacity issues where size, number and mix of services do not match current or future needs and supply and demand is mismatched.

10.1.3 Waste

Carmarthenshire falls within the South West Wales regional area for waste management. Industrial waste makes up the most significant proportion of the total controlled waste stream; that is municipal solid waste, commercial and industrial waste, construction and demolition waste and agricultural waste. Municipal and commercial waste is identified as the fastest growing waste stream in the region,

with the controlled fraction of agricultural waste making up a very small proportion of the area's generated waste.

For 2009-2010, Carmarthenshire produced 2% less waste than the previous year. Over the same time period, 40% of all household waste was recycled or composted, above the Welsh average. The 2013 targets stand at 52% and beyond 2013/14, achievements will only be gained if waste water treatment infrastructure can be upgraded (Wales Audit Office, 2011).

There are five household waste recycling centres in Carmarthenshire:

- Trostre, Llanelli
- Wernddu, Ammanford
- Nant-y-caws, Carmarthen
- Whitland
- Llangadog

In addition to these sites, there are 131 Bring Sites including 32 in Llanelli and eight in Carmarthen with the others scattered amongst the towns and villages of Carmarthenshire.

According to the Regional Waste Plan for the South West Wales Region (WAG, 2003), over half of all commercial and industrial waste and over 90% of construction waste are either reused or recycled.

The landfill site at Nantycaws accepts the majority of domestic and commercial waste within Carmarthenshire, although some waste is also taken for landfill disposal outside the County. The Nantycaws landfill site is managed by CWM Environmental Ltd., a company wholly owned by Carmarthenshire County Council.

Approximately 46,493 tonnes of municipal waste was sent to landfill in 2005/06, a reduction of nearly 9% from the previous year. In 2009/10, Carmarthenshire's landfill allowance stood at 36,844 tonnes (WAG, 2007).

In South West Wales, as of 2009, there was landfill capacity of 12,046,000m³ which represents a significant rise from 2004 levels of 4,415,000m³.

10.1.4 Minerals and Aggregates

Mineral industries in Carmarthenshire involve quarrying for stone, sand and gravel, coal mining. Metalliferous ores were mined in the past, and reserves of such ores, especially lead and zinc, are believed to remain. The main feature in the south of the County is the broad sweep of the Coal Measures outcrop, fringed to the north by Carboniferous Limestone. The northern parts of the county are underlain by older rocks of Ordovician and Silurian age, mainly sandstones, shales and slates.

(a) Aggregates

There are twenty-five quarries with planning permission in Carmarthenshire; of which nine are active on a continuous basis (Carmarthenshire County Council 2011). With the exception of the southeast of the county, Carmarthenshire remains predominantly rural, with the lower than average population density and generates a low demand for aggregates.

Carboniferous limestone deposits in Carmarthenshire outcrop to the north of the main South Wales coalfield, forming the higher parts of the Black Mountain and extending south westwards to the Kidwelly area. Limestone quarrying is the largest extractive industry in the county by output.

(b) Sandstones

Sandstone of Ordovician, Silurian, Devonian and Carboniferous age occurs widely in the County.

The Millstone Grit outcrop of the Carboniferous period fringes the anthracite coalfield in the south east of the County and extends west-south-westwards for some 26 miles from the Upper Twrch Valley though the crest line of the Black Mountain to a point immediately north of Llandybie and finally terminates in the Gwendraeth Valley near Kidwelly. This formation comprises silica stone, sand and clay, and has been quarried extensively for use in the manufacture of firebricks. With the decline in the smelting and metal industries that market has gone, but two quarries are still operating, producing hardcore, bulk fill, building stone, and some graded aggregate.

The Pennant Sandstones, also of the Carboniferous Period, which outcrop in the south eastern corner of the County in the Llanelli area, have been quarried considerably in the past for building stone and as flagstone for paving purposes.

(c) Clay and Shale

Clay and shale reserves in the County are vast, in the northern parts of the County. Some were used in the past for the production of bricks.

(d) Sand and Gravel

Deposits of sand and gravel of varying size and quality are found throughout the County, and in offshore banks in the Bristol Channel. Extensive tracts of blown sand, commonly called 'burrows' have formed along parts of the coast such as Pembrey and Pendine. Currently there is very little sand or gravel worked at sites within Carmarthenshire. Small quantities of river gravel are produced at two locations, but most material used of this size is crushed stone from quarries.

(e) Coal

The area occupied by the coal measures extends from Cwmllynfell in the east, through the Amman, Loughor and Gwendraeth Valleys, to the coast near Kidwelly, where it dips under Carmarthen Bay. There are no existing deep mines operating in the County.

Assessment: Risks and Opportunities

10.1.5 Effects within Carmarthenshire

In the short to medium term, it is anticipated that construction of the proposed LDP developments will require significant amounts of construction materials. This will put increased pressure on resources, although it is recognised that there is no real shortage in Carmarthenshire. Policies SP1 and SP2 promote efficient consumption of resources and use of sustainable construction methods. In addition, SP10, the

supporting text of Policy H3 and MPP5 promote the efficient and appropriate use of minerals by encouraging the re-use and recycling of suitable minerals as an alternative to primary won aggregates. This should help to counteract the potential negative effects presented by new development.

SP11 Renewable Energy and Energy Efficiency and its associated policies RE1, RE2 and RE3 can reduce reliance on fossil fuels whose extraction, transport, storage and combustion require large amounts of land and use of finite resources. This creates the opportunity for greater resource efficiency and more sustainable use of resources. However, conversely, biofuel developments can lead to the displacement of food crops, and thus in theory, less efficient use of agricultural land and greater transport of food (as well as potential socio-economic impacts). There is also uncertainty regarding the potential land required for any future solar energy developments should they come forward.

It is likely that new housing and employment development will increase production of waste in the County, leading to a long-term risk of negative effects on landfill. In order to meet the landfill allowance targets, there will need to be greater provision for how this additional waste will be catered for. Although there is sufficient capacity, the waste hierarchy needs to be followed as outlined in Policy SP12. In 2009/2010, Carmarthenshire produced 2% less waste than the previous year. In order for this trend to continue, there needs to be an emphasis on supporting proposals for development which encourages greater efficiency of resources and less waste, with the inclusion of waste management facilities where appropriate.

All policies relating to new development are anticipated to result in increasing traffic levels in the long term, which can put pressure on the existing transport network. This is known to be constrained in various locations such as the M4, A4138 and A48 in addition to the town centres of Carmarthen and Llanelli and on the rail network namely from Swansea to Llanelli. There is the potential that this risk can be reduced through policies SP1 and SP2, which focus on guiding development to sustainable locations and reducing the need to travel (particularly by the private car). However, achieving more sustainable transport in the county requires coordination with other bodies such as SWWITCH and Network Rail, and there is still the risk of low uptake of sustainable transport opportunities, and thus negative effects.

Further policies which aim to mitigate the above include specific Policies TR2, TR3 and TR4 which promote development that considers the suitable location and provision of more sustainable modes of transport including access to public transport, walking and cycling. Policy TR6 promotes active travel through use of redundant rail corridors for cycling, walking and riding.

Policy SP9 includes for road improvements and new roads aimed at alleviating congestion on identified routes. This is also promoted in Policy TR1. This can help to absorb some of the possible rises in traffic however the policy could also support improvements to the rail line, particularly from Swansea to Llanelli.

Table 10-3: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP8 Retail SP9 Transportation SP15 Tourism and the Visitor Economy SP16 Community Facilities GP6 Extensions H1 Housing Allocations H2 Housing within Development Limits H5 Adaptation and Re-Use of Rural Buildings for Residential Use H8 Renovation of Derelict or Abandoned Dwellings EMP1 Employment – Safeguarding of Employment Sites EMP2 New Employment Proposals EMP3 Employment – Extensions and Intensification EMP4 Farm Diversification EMP5 Mixed Use Sites RT9 Regional Centres (Retail)	These policies promote development which will require land and significant construction materials which could place demand on resources.	SP1 Sustainable Places and Spaces SP2 Climate Change SP10 Sustainable Mineral Development GP1 Sustainability and High Quality Design RT1 Retailing Hierarchy MPP2 Mineral Buffer Zones MPP3 Mineral Safeguarding	SP1, SP2 and GP1 policies support and direct development to the most sustainable locations promoting the efficient consumption of resources and utilising sustainable construction methods. SP10, MPP2 and MPP3 safeguard for the continuous supply of mineral reserves by safeguarding resources of minerals and ensure that potential resources are not sterilised. It also promotes re-use and recycling of suitable minerals.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Parks) GP1 Sustainability and High Quality Design RT1 Retailing Hierarchy			
SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations H1 Housing Allocations H2 Housing within Development Limits EMP1 Employment – Safeguarding of Employment Sites EMP2 New Employment Proposals EMP3 Employment – Extensions and Intensification EMP4 Farm Diversification EMP5 Mixed Use Sites	New housing and employment development is anticipated to increase levels of waste.	SP1 Sustainable Places and Spaces SP2 Climate Change SP12 Waste Management SP17 Infrastructure GP4 Infrastructure and New Development GP1 Sustainability and High Quality Design WPP1 Nantycaws Waste Management Facility	SP2 and SP12 promote the waste hierarchy which will help reduce levels of waste sent to landfill. WPP1 looks to safeguard the Nantycaws facility and there is the potential to expand landfill operations. SP1 and GP1 direct development to the most sustainable locations and use of sustainable construction methods which could reduce waste. SP17 and GP4 direct development to areas where infrastructure is readily available however they do not specify waste management facilities as being key infrastructure and therefore improvements to these policies could be made in this respect.
SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP8 Retail	All policies promote development which can increase pressure on the transport network.	SP1 Sustainable Spaces and Places SP2 Climate Change GP1 Sustainability and High Quality Design TR1 Primary and Core Road Networks	SP1 and SP2 direct development to the most sustainable locations. In particular, SP2 guides development to locations which reflect sustainable transport principles and minimise the need to travel. TR1, TR2, TR3 and TR4 look to ensure main routes do not become congested

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>SP9 Transportation</p> <p>SP10 Sustainable Mineral Development</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p>		<p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>TR4 Walking and Cycling</p>	<p>and that development is directed to locations which are accessible for non car modes of transport and provision is also made for non car modes of transport.</p>
<p>SP1 Sustainable Places and Spaces</p> <p>SP2 Climate Change</p> <p>SP3 Sustainable Distribution – Settlement Framework</p> <p>GP1 Sustainability and High Quality Design</p> <p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport Considerations</p>	<p>Directs development to sustainable locations and which reduce the need to travel, particularly by the private car.</p>	N/A	<p>Policies reflect the need to develop communities and settlements which are sustainable whilst meeting local needs.</p>
<p>SP9 Transportation</p> <p>TR1 Primary and Core Road Network</p>	<p>Transport infrastructure improvements can alleviate capacity issues on existing routes.</p>	N/A	<p>As identified in section 6.3.2, there are several areas where there are capacity issues on the transport network (see recommendations).</p>
<p>SP10 Sustainable Mineral Development</p> <p>MPP2 Mineral Buffer Zones</p> <p>MPP3 Mineral Safeguarding</p>	<p>Promotes safeguarding of mineral reserves in addition to re-use and recycling of suitable minerals.</p>	N/A	<p>Can help to protect Carmarthenshire’s mineral reserves and contribute to increasing recycling of aggregates.</p>
<p>SP11 Renewable Energy and Energy Efficiency</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local,</p>	<p>Policy promotes renewable energy use, reducing reliance on non-renewable</p>	N/A	<p>The policy can reduce reliance on fossil fuels, a finite resource. In some cases, the extraction, transport, storage and combustion of fossil fuels may require larger amounts</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Community and Small Wind Farms RE3 Non-Wind Renewable Energy Installations	sources.		of land than the renewable alternative.
SP12 Waste Management	Reduces waste sent to landfill, promoting the waste hierarchy.	N/A	Encourages greater recycling rates in accordance with the waste hierarchy.
SP12 Waste Management GP1 Sustainability and High Quality Design	Development should consider the generation, treatment and disposal of waste and the location of waste management facilities in formulating proposals.	N/A	Policy SP12 helps to ensure that development is located close to where waste can be managed. GP1 looks to ensure development proposals promote minimisation of waste and that they consider how it will be dealt with.

10.1.6 Regional, National and Global Effects

There are several potential cross-boundary effects of the LDP on material assets. Policy SP12 supports development which drives waste up the waste hierarchy and away from landfill as described in Section 6.4.1. This could be a regional benefit, depending upon the pressures on land and transport within Carmarthenshire, and the need to consider landfill in other counties (which SP12 is aimed at preventing).

The proposed housing allocations can lead to population growth thereby potentially increasing traffic into and out of the county as people travel for work, leisure and other purposes. This effect may not be significant alone, but combined with wider regional and national increases in population, significant impacts may be observed and transport capacity may be breached despite the protective policies, SP1, SP2, GP1, TR1, TR2, TR3 and TR4.

New developments proposed could pose a risk to regional resources of minerals depending upon where they are sourced.

SA Recommendations

10.1.7 Mitigation to Reduce Risk or Enhance Opportunities

The assessment of the Preferred Strategy has informed the updating of strategic policies and drafting of the draft specific LDP policies that fall under the strategic policies. The assessment of potential air quality impacts has facilitated the following improvements:

Table 10-4: Council's Response to Mitigation / Recommendations

Issue	Policy	Improvement
<p>It is felt that Strategic Policy SP9 requires a stronger sustainable transport element more in line with Policies SP1 and SP2.</p> <p>Prior to introducing road development proposals, it should elaborate on what reflecting sustainable transport principles should mean to developers. This may include planning to eliminate unnecessary car journeys, and maximising rail, bus, cycling and walking opportunities, prior to reliance on the road network for access to surrounding employment, retail, leisure and community facilities.</p>	<p>Policy SP9: Transportation</p>	<p>Additions have been made to the policy. The policy has been strengthened to include for the provision of an efficient, effective, safe and sustainable integrated transport system to be delivered through a variety of sustainable measures.</p> <p>Detailed policies which further support a reduction in car journeys include:</p> <p>GP1: Sustainability and High Quality Design</p> <p>TR1: Primary and Core Road Networks</p> <p>TR2: Location of Development – Transport Considerations</p> <p>TR3: Highways in Developments –Design Considerations</p>
<p>The detailed policies which support Policies SP1 and SP2 could promote development which ensures safe and convenient walking and cycling access to key destinations (e.g. shopping, community and leisure facilities) thereby helping to avoid unnecessary car journeys.</p>	<p>Policy SP1: Sustainable Places and Spaces</p> <p>Policy SP2: Climate Change</p>	<p>Policy SP1 amended to include text which states that active travel infrastructure and safe and convenient sustainable access particularly through walking and cycling should be promoted for new development.</p>
<p>The detailed policies in support of Policy SP12 could further provide for how additional waste from new development can be minimised and otherwise catered for, so that targets can be met or exceeded.</p>	<p>Policy SP12: Waste Management</p>	<p>Not accepted. Council state that the policy is sufficient.</p> <p>GP1 however does now include that proposals for large mixed use tenure developments or apartments should incorporate waste segregation areas.</p>
<p>Policy could provide support for proposals which incorporate small-scale waste management facilities and measures to reduce and recycle waste into development.</p>	<p>Policy SP1: Sustainable Places and Spaces</p> <p>Policy SP2: Climate Change</p>	<p>Not accepted. Council states that these policies are more general in nature to specifically relate to individual topic areas such as waste.</p> <p>GP1 however does now include that proposals for large mixed use</p>

Issue	Policy	Improvement
		tenure developments or apartments should incorporate waste segregation areas.
Policy WPP2 should express support for proposals which drive waste up the waste hierarchy, which would assist in mitigating the additional waste generated from new development.	Policy WPP1: Nantycaws Waste Management Facility Policy WPP2: Waste Management Facilities Outside Development Limits	WPP2 has been amended to include that proposals should, wherever possible, encourage the driving of waste up the waste hierarchy. Text added to WPP1 supporting text to state that the provision of a range of waste management operations emphasises the Authority's commitment on driving waste up the waste hierarchy. The Council recognises that although the push up the waste hierarchy will be supported, it is generally accepted by WAG that landfill will remain an important option for residual waste over the Plan period.
A key issue for biomass development is locating and relying upon a sustainable source of fuel, including one with acceptable transport impacts. It is recommended that Policy RE3: Non-wind Renewable Energy installations require that developers of biomass facilities demonstrate that there is a sufficient local source of fuel for which there is no reason to suspect its availability will cease, and any fuel source options which are more local have had good cause to be ruled out. The impacts on the transport network of transporting fuel should be a material consideration.	Policy RE3: Non-wind Renewable Energy installations	Supporting text updated to include that the source of fuel used will not have an unacceptable ecological impact, domestically or elsewhere. It also states that developers should ensure there is a sufficient source of local fuel.
Policy SP17 does not specify the proximity of waste management facilities as being a key infrastructure consideration, and so modification to this policy could be made to ensure that development is directed towards areas close to where there is capacity to deal with increased waste production.	Policy SP17: Infrastructure	It is considered that Policy SP17 is more general in nature to specifically relate to individual topic areas such as waste.
SP17 and GP4 direct development to areas where infrastructure is readily available however they do not specify waste management facilities as being key infrastructure and therefore improvements to these policies could be made in this respect.	Policy SP17: Infrastructure Policy GP4: Infrastructure and New Development	Policy GP4 amended to state that access to, and availability of appropriate waste management should also be considered an important element of infrastructure provision for new developments. It is considered that Policy SP17 is more general in nature to specifically relate to individual topic areas such as waste.
Policies GP3 and GP4 on the provision of infrastructure alongside new development should include for appropriate waste management, including access to local bring sites and	Policy GP3: Planning Obligations Policy GP4: Infrastructure and	Not accepted. Council disagree as Policy GP3 is more general in nature to specifically relate to individual topic areas such as

Issue	Policy	Improvement
composting facilities. For large mixed-tenure developments and apartment buildings, waste segregation areas incorporated into developments should be encouraged.	New Development	waste.

10.1.8 Key Residual Risks and Opportunities

The amendments as identified in Table 10-4 address much of the proposed mitigation and recommendations. It is recognised however that key residual risks may remain despite the mitigating policies already developed and standard controls which are likely to be enforced. The key residual risks and also the opportunities are summarised below.

- SP11, RE1, RE2 and RE3 provide the opportunity for greater resource efficiency and more sustainable use of resources;
- All policies relating to new development are anticipated to result in increasing traffic levels in the long term, which could put pressure on the existing transport network despite mitigating policies; and
- Although the waste hierarchy is promoted, new development could increase pressure on landfill capacity despite SP12 which encourages the location of development near to where there are appropriate waste management facilities (and capacity).

Combining the above, it is considered likely that the LDP could lead to slightly adverse effects cumulatively in the short to medium term, and slightly beneficial effects by the long term. In terms of the efficiency of the transport network, the long-term effect is more likely to remain slightly adverse from the LDP in isolation. However, other plans and strategies may develop further, more concrete sustainable transport measures which achieve a net neutral / negligible effect.

More modern waste management methods and renewable energy developments may go a long way towards improving resource efficiency by the long term.

11 Soil

Topic Definition and Approach

Soil is an essentially non-renewable resource and can be considered as one of the UK's most important assets. Soil has an intrinsic value as part of the natural heritage, and the functional value of soil provides for a broad range of ecological goods and services. For example, soils support plant communities and soil fauna, act as a filter / buffer for pollutants or as a carbon store, serve as repositories of palaeo-environmental and cultural information, and shape the diverse landscapes of Wales (Countryside Council for Wales, 2007).

This topic also considers the contamination of soil and its loss through erosion and introduction of impermeable surfaces.

The table below sets out the SA Objectives and decision-making criteria for soils which have been utilised to develop the baseline and guide the assessment process.

Table 11-1: SA Framework for Soil

SA Objectives	Decision-Making Criteria
7 – Soil	
7-1 To avoid and reduce contamination of soils and promote the regeneration of contaminated land.	Will the LDP increase or decrease land contamination?
7-2 To avoid loss of soils to non-permeable surfaces and minimise soil erosion.	Will the LDP result in an increase or loss of good quality soil resources?
7-3 To reduce SO ₂ and NO _x emissions and nitrate pollution from agriculture.	Will the LDP improve or degrade soil quality? Will the LDP involve development on previously used land?

For the purposes of this SA, soil sub-categories including contamination, soil resources and soils quality have been selected as it is considered that these have the potential to be affected by development proposals.

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 7-2 below describes the strategic policies of relevance to Soil.

Table 11-2: LDP Policies and Relevance to Soil

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>SP9 Transportation</p> <p>S10 Mineral Resources</p> <p>SP11 Renewable Energy & Energy Efficiency</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-Wind Renewable Energy Installations</p> <p>SP12 Waste Management</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H6 Residential Care Facilities</p> <p>H7 Gypsy and Traveller Sites</p> <p>H9 Residential Caravans</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversification</p> <p>EMP5 Mixed Use Sites</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>TSM3 Small Scale Tourism Development in the Open Countryside</p> <p>TSM4 Visitor Accommodation</p> <p>TSM5 Major Tourism Proposals in the Open Countryside</p> <p>WPP1 Nantycaws Waste Management Facility</p> <p>WPP2 Waste Management Facilities Outside Development Limits</p> <p>MPP1 Mineral Proposals</p>	<p><u>Risk of soil loss or damage (including contamination)</u>: these policies aim to help facilitate new development (including ancillary development) which has the potential to have impacts on soils and geology in its vicinity. Key issues include landtake, contamination, soil removal / erosion and compaction.</p> <p>Increasing numbers of visitors to Carmarthenshire as specified in SP15 could lead to further pressure on soils / geology.</p>
<p>SP14 Protection and Enhancement of the Natural Environment</p>	<p><u>Protection of soils / geology</u>: Policy SP14 specifies that the natural environment should be protected and where possible enhanced.</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
EP2 Pollution EP4 Coastal Management EP5 Coastal Development EP6 Unstable Land EQ5 Corridors, Networks and Features of Distinctiveness	<p>This includes protection of any geological designations, the 'best and most versatile' agricultural land and natural assets including soils.</p> <p>Policy EP2 addresses risks arising from contaminated land and ensures that appropriate land investigation and remediation is undertaken to ensure suitability for use.</p> <p>EP4 and EP5 ensure coastal management schemes and coastal development do not increase the risk of soil erosion.</p> <p>Policy EP6 addresses risks arising from land instability. It ensures that appropriate assessment of land instability is carried out and sets out a presumption against any development which cannot overcome slope instability satisfactorily.</p> <p>EQ5 states in supporting text that geodiversity features and other features such as peat bogs will be protected and appropriately managed.</p>
SP1: Sustainable Places and Spaces SP3: Sustainable Distribution – Settlement Framework SP14 Protection and Enhancement of the Natural Environment EP2 Pollution MPP6 Restoration and Aftercare of Mineral Sites WPP2 Waste Management Facilities Outside Development Limits	<p>Enhancement of soils: Policies SP1 and EP2 promote the efficient use of land, including brownfield land, which could improve soil quality where land is contaminated.</p> <p>SP14 aims to protect and where possible enhance the natural environment including soils.</p> <p>MPP6 and WPP2 support the appropriate restoration of minerals and waste sites respectively.</p>

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on 'the topic', or no association at all.

SA Baseline for Soil

11.1.1 Geology

The solid and drift geology of the County can be split into a number of broad categories (Carmarthenshire County Council 2006a):

- The Silurian series - present in the northernmost part of the County.
- Surrounding the Silurian series is the Ordovician series which constitutes the dominant strata of the County.

- Old Red Sandstone is present and extends in a broad band from west to east in the central areas of the county.
- Carboniferous Limestone is present around Pendine and in a narrow band from Kidwelly in the south and extends eastwards to the north of Ammanford and into the Brecon Beacons National Park.
- Millstone Grit Series is also present in a narrow band and overlies the carboniferous limestone series.
- The middle and lower coal measures are present in the South East of the County.
- Alluvium is present in the River valleys of the Tywi, Teifi and Loughor as well as the low-lying coastal areas around Pendine, Pembrey and Llanelli.

11.1.2 Agricultural Land Classification

Agriculture is a very important economic activity in Carmarthenshire. According to the Agricultural Land Classification (ALC) data made available by Defra, there is no land of the highest grades (Grade 1 and Grade 2) present in Carmarthenshire. A patchwork of Grade 3 land is situated towards the south and southeast of the county following the Tywi river valley, stretching from Llandovery in the east, through Llangadog, Llandeilo and Carmarthen. The majority of land in Carmarthenshire is classified as Grade 4 land, with a small proportion of Grade 5 land situated towards the northeast of the county.

11.1.3 Contaminated Land

Five priority Areas (former industrial areas and the key population centre of Carmarthen) have been identified for the inspection of contaminated land in the county (Carmarthenshire County Council 2003). These areas represent sites where contaminated land is considered most likely to be found:-

- Llanelli Central (2,810ha);
- Ammanford/Amman Valley (12,786ha);
- Llanelli Outer (6,963ha);
- Carmarthen (4,450ha); and
- Gwendraeth Valley (22,653ha).

Given that Carmarthenshire is a predominantly rural county, diffuse pollution from agricultural sources and inputs of fine sediment is likely to be of concern for fluvial environments in rural areas. However, water quality data indicate that the chemical and biological quality of the county's streams is typically good.

Data provided by the Environment Agency (Environment Agency, 2009) indicates that there is a large concentration of historic landfill sites around the Ammanford, Kidwelly and Llanelli areas in the south of the county. There is also a cluster of historic landfill sites along the A40, A48 and A484.

11.1.4 Soil Quality

In Wales as a whole, there is a high incidence of sensitive habitats exceeding critical loads with respect to acidification (acid deposition) and eutrophication (nutrient enrichment). Critical values represent levels above which pollutants are considered

to cause significant harm with respect to acidification and eutrophication (National Assembly for Wales, 2007b). It should be noted that the trends identified for acidification rates of sensitive habitats is likely to be associated with the fact that soils in upland areas have a poor neutralising capacity and are therefore more vulnerable to the effects of acidification (National Assembly for Wales 2007b).

Between 2002 and 2004, the percentage of sensitive habitats exceeding critical loads for acid deposition was 81.1%. For the same period, the percentage of sensitive habitats where pollutants causing eutrophication exceeded critical loads was 86.1% (National Assembly for Wales 2007b). Such values appear to be particularly high in comparison to rates of exceedance for the UK for acidification and eutrophication (55.9% and 59.5% respectively).

Data on critical loadings of nutrient nitrogen loads by nitrogen deposition (Centre for Ecology and Hydrology, 2004) indicate that the degree of breaching of critical loads in soils is predicted to reduce.

Similarly, critical loadings by acid deposition in soils are predicted to decrease, though areas will remain where critical loads are still exceeded. Soils are also an important carbon sink, and therefore soil conservation can contribute to buffering the predicted effects of climate change.

Assessment: Risks and Opportunities

11.1.5 Effects within Carmarthenshire

All proposed development within the LDP will involve some landtake leading to long-term risks to availability of good-quality agricultural land. Grade 3 agricultural land (as discussed in section 7.3.2) is found mainly in the south and southeast of the county, including around Carmarthen (an identified Growth Area). It is important that development avoids these areas where possible. Policies SP1 and SP14 should help direct development away from these locations, reducing risks.

Policies promoting development can pose a long-term risk to soils. Soils are sometimes stripped from a site prior to development, during and after which time their important environmental functions are lost and they may not be put to best use elsewhere (e.g. in a landfill, top soils buried in an engineering project, etc.) (Countryside Council for Wales, 2007). Even when stored temporarily during construction and later restored, soils can lose important attributes and never return to their previous quality.

Soil sealing under new development, including new roads, may destroy other essential soil functions such as regulating atmospheric gases, absorbing water to replenish ground water supplies and providing a habitat for soil organisms. (Rainwater runoff issues and the policies which require SUDS measures are discussed in Chapter 9.) Soil erosion may also occur during the construction process. Some impacts are likely to be unavoidable however Policies SP14 and EQ5 offer some protection to Carmarthenshire's soils.

Five priority areas have been identified for inspection in relation to contaminated land in Carmarthenshire. Four of these fall within the LDP Growth Areas with two in Llanelli, one in the Ammanford / Amman Valley and one in Carmarthen. These areas represent where contaminated land is most likely to be found. It is not certain whether the Strategic Sites include for redevelopment of contaminated land,

however Policies SP1 and EP2 help to promote their restoration to help improve soil quality.

Population growth associated with new development can increase waste sent to landfill. Landfill sites can contaminate soils through seepage of waste liquids and therefore new development poses a risk. Policy SP12 promotes the waste hierarchy and directs development to locations in proximity to facilities which can accommodate increasing waste. Policy WPP1 relates to the Nantycaws Waste Management Facility. The policy states that this facility remains important for landfilling and opportunities for future expansion of landfill operations will be explored. This could lead to further risks of soil contamination in the future.

Minerals and unconventional gas extraction can have several implications for soil, including disrupting the soil ecosystem, soil loss and degradation, soil contamination and disrupting the water flow through the soil. Policies SP10 and MMP1 ensure that proposals do not compromise environmental considerations and incorporate a high standard of restoration and aftercare at minerals sites, which could reduce risks. In addition, Policy SP14 provides for the protection and, where possible, the enhancement of environmental features, including soils.

Soil erosion may be caused in part through tourism and recreational activities which can lead to soil particles and their associated contaminants ending up in water courses. Recreational pressures may increase through increased population growth associated with new development and promotion of community facilities, including informal recreation. This can be mitigated for in part by policies SP14 and EP5 which look to protect soils and reduce the risk of coastal soil erosion.

Promotion of renewable energy technologies such as windfarms can result in removal of upland heathlands and blanket bog. These areas help reduce run-off and protect peat and therefore their removal presents a significant risk. Much of Carmarthenshire’s blanket bog (mainly found to the north) is modified and no longer peat forming. Peat and organic soils are large carbon stores and these soils should be protected as a high priority (Countryside Council for Wales, 2007).

Policy SP11 specifies that large-scale wind farms will only be permitted within refined Strategic Search Areas (Brechfa Forest and Pontardawe) which is further reflected in Policy RE1 Large Scale Wind Power. Several priority habitats are known to be present on common land in the Brechfa Forest SSA including upland heathland and blanket bog. There is the potential therefore that turbines placed in this location could impact on peat resources. Smaller-scale wind farms, as proposed in RE2 Local, Community and Small Wind Farms; may also pose a risk and therefore care should be taken avoid areas where peat reserves are present. Policy SP14 provides some protection for soils (including high carbon soils) and can direct development away from sensitive areas. In addition, Policy EQ5 protects Carmarthenshire’s special features including peat from inappropriate development.

Table 11-3: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP9 Transportation S10 Mineral Resources SP11 Renewable Energy & Energy Efficiency RE1 Large Scale Wind Power	Landtake associated with development can reduce availability of good quality agricultural land.	SP1: Sustainable Places and Spaces GP1 Sustainability and High Quality Design SP14 Protection and Enhancement of the Natural Environment	SP1 and GP1 direct development to where land can be utilised most efficiently including previously developed sites. Where Grade 3 agricultural land (the best in Carmarthenshire) is allocated for development, a detailed soils assessment should be conducted (see recommendations).
RE2 Local, Community and Small Wind Farms RE3 Non-Wind Renewable Energy Installations SP15 Tourism and the Visitor Economy SP16 Community Facilities H1 Housing Allocations H2 Housing within Development Limits H6 Residential Care Facilities H7 Gypsy and Traveller Sites H9 Residential Caravans EMP1 Employment – Safeguarding of Employment Sites EMP2 New Employment Proposals EMP3 Employment – Extensions and Intensification EMP4 Farm Diversification EMP5 Mixed Use Sites RT9 Regional Centres (Retail Parks) TSM3 Small Scale Tourism Development in the Open Countryside TSM4 Visitor Accommodation	Construction of development can reduce soil quality and increase erosion / removal.	SP1: Sustainable Places and Spaces SP14 Protection and Enhancement of the Natural Environment GP1 Sustainability and High Quality Design EP4 Coastal Management EP5 Coastal Development EP2 Pollution	SP1 and GP1 direct development to where land can be utilised most efficiently including previously developed sites. EP4 and EP5 look to prevent coastal management schemes and coastal development which can increase the risk of erosion. EP2 states that risks arising from contaminated land should be addressed through appropriate land investigation and assessment of risk and land remediation to ensure its suitability for its proposed use.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
TSM5 Major Tourism Proposals in the Open Countryside WPP1 Nantycaws Waste Management Facility WPP2 Waste Management Facilities Outside Development Limits MPP1 Mineral Proposals			
SP3: Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations H1 Housing Allocations H2 Housing within Development Limits EMP1 Employment – Safeguarding of Employment Sites EMP2 New Employment Proposals EMP3 Employment – Extensions and Intensification EMP4 Farm Diversification EMP5 Mixed Use Sites	New development and associated population growth can increase waste.	SP1 Sustainable Places and Spaces SP2 Climate Change SP12 Waste Management SP17 Infrastructure GP4 Infrastructure and New Development GP1 Sustainability and High Quality Design WPP1 Nantycaws Waste Management Facility	SP2 and SP12 promote the waste hierarchy which will help reduce levels of waste sent to landfill. WPP1 looks to safeguard the Nantycaws facility and there is the potential to expand landfill operations. SP1 and GP1 direct development to the most sustainable locations and use of sustainable construction methods which could reduce waste. SP17 and GP4 direct development to areas where infrastructure is readily available however they do not specify waste management facilities as being key infrastructure and therefore improvements to these policies could be made in this respect.
SP10 Sustainable Mineral Development MPP1 Mineral Proposals	Minerals extraction can have several implications for soil, including disrupting the soil ecosystem, soil loss and degradation, soil contamination and disrupting the water flow through the soil.	SP14 Protection and Enhancement of the Natural Environment EP4 Coastal Development EP6 Unstable Land MPP1 Mineral Proposals MPP6 Restoration and Aftercare of Mineral Sites	SP14 provides for the protection and, where possible, the enhancement of environmental features including soils. Policy EP4 looks to ensure that development does not increase the risk of coastal erosion. MPP1 and EP6 promote development which satisfactorily details mitigation measures proposed to minimise any

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
			<p>potential effects from subsidence or land instability.</p> <p>MPP6 details that appropriate restoration and aftercare of mineral sites for its beneficial re-use and enhancement should be implemented.</p>
<p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p>	<p>Increased erosion / compaction of soils.</p>	<p>SP14 Protection and Enhancement of the Natural Environment</p>	<p>SP14 may afford some protection to soils around visitor attractions and recreational facilities.</p>
<p>SP11 Renewable Energy and Energy Efficiency</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p>	<p>Removal of peat for windfarms.</p>	<p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p>	<p>SP14 includes for the protection of soils including high carbon soils (such as peat).</p> <p>In addition, EQ5 states that features such as peat (amongst others) should be protected and managed appropriately.</p>
<p>SP12 Waste Management</p>	<p>Reduced waste to landfill which can contaminate soils through seepage.</p>	<p>N/A</p>	<p>SP12 promotes the waste hierarchy resulting in less waste to landfill which can contaminate soils.</p>
<p>SP1: Sustainable Places and Spaces</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>GP1 Sustainability and High Quality Design</p> <p>EP2 Pollution</p> <p>MPP6 Restoration and Aftercare of Mineral Sites</p> <p>WPP2 Waste Management Facilities Outside Development Limits</p>	<p>Presents opportunity to improve soil quality and direct development to the most suitable locations.</p>	<p>N/A</p>	<p>These policies have the potential to contribute to improved soil quality. This will depend upon a number of considerations, including the specific sites developed, the extent and nature of developer contributions.</p>

11.1.6 Regional, National and Global Effects

Removal of good quality agricultural land, particularly around Carmarthen due to new development could impact on the regional and national supply of agricultural products stemming from this land depending on where products are distributed and sold.

There is growing evidence of increased carbon loss from Welsh soils. These changes are most critical in peatlands and organic soils. The Carmarthenshire LBAP states that upland heathlands and blanket bog are particularly sensitive to development such as windfarms. These areas help reduce run-off and protect peat and are therefore vital in the challenge to address climate change.

SA Recommendations

11.1.7 Mitigation to Reduce Risk or Enhance Opportunities

The assessment of the Preferred Strategy has informed the updating of strategic policies and drafting of the draft specific LDP policies that fall under the strategic policies. The assessment of potential air quality impacts has facilitated the following improvements:

Table 11-4: Council's Response to Mitigation / Recommendations

Issue	Policy	Improvement
Policy SP1 could be further refined to promote restoration of contaminated land in the first instance to help improve soil quality in Carmarthenshire.	Policy SP1: Sustainable Places and Spaces	Policy EP2: Pollution specifies that developers should ensure that risks arising from contaminated land are addressed through an appropriate land investigation and assessment of risk and land remediation to ensure its suitability for the proposed use.
Policy SP14 (or its future subsidiary policies) should also provide for the protection of peat soils as a high priority.	Policy SP14: Protection and Enhancement of the Natural Environment	Supporting text updated to state that the LDP recognises the potential of encouraging land uses and land management practises which help to secure and protect carbon sinks (including peat). In addition, EQ5 states that features such as peat (amongst others) should be protected and managed appropriately.
The LDP should condition that where Grade 3 agricultural land (the best in Carmarthenshire) is allocated for development, a detailed soils assessment should be conducted and the loss or reduction in quality to any 'best and most versatile' land should be first avoided, then minimised.	SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP9 Transportation S10 Mineral Resources SP11 Renewable Energy & Energy Efficiency	The text is included in the supporting information for SP14.

11.1.8 Key Residual Risks and Opportunities

The amendments as identified in Table 11-4 address much of the proposed mitigation and recommendations. It is recognised however that key residual risks may remain despite the mitigating policies already developed and standard controls which are likely to be enforced. The key residual risks and also the opportunities are summarised below.

- Landtake required for new development could present risks to good-quality agricultural land, particularly that found around Carmarthen. A detailed soils assessment should help to identify and mitigate for any risks;
- Recreational pressures particularly on footpaths and coastal areas can increase soil erosion and compaction;
- Potential risks to soil quality through mineral extraction and unconventional gas extraction, which can contaminate soils and affect the soil ecosystems; and
- Opportunities for development to remediate contaminated land, particularly within identified Growth Areas which have areas of contaminated land present.

Combining the above, it is considered likely that the LDP will lead to slightly adverse effects cumulatively in the short, medium and long term.

12 Cultural Heritage

Topic Definition and Approach

Cultural heritage relates to the legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations. It includes buildings and historic places, monuments, artefacts (etc.) and less tangible aspects such as historic landscapes. It serves as a framework for the evolution and development of our built environment.

The table below sets out the SA Objectives and decision-making criteria for cultural heritage which have been utilised to develop the baseline and guide the assessment process.

Table 12-1: SA Framework for Cultural Heritage

SA Objectives	Decision-Making Criteria
8 - Cultural Heritage	
8-1 To protect historic and cultural assets and local distinctiveness from negative effects of development/ regeneration and support their enhancement.	Are there any sites of archaeological importance that can be positively or negatively affected by the LDP?
8-2 To promote high quality design reflecting local character and distinctiveness.	Are there any historic landscape or historic parks and gardens s that can be positively or negatively affected by the LDP? Are there any listed buildings that can be positively or negatively affected by the LDP?

For the purposes of SA, this topic and SA Objectives include historic and cultural assets such as Scheduled Monuments and Listed Buildings and the historic landscape. These features are considered to be those within the historic environment which could be significantly affected by any LDP proposals and policies, whilst other aspects are more specific to project-level design or other activities.

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 8-2 below describes the strategic policies of relevance to cultural heritage.

Table 12-2: LDP Policies and Relevance to Cultural Heritage

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP1 Sustainable Places and Spaces</p> <p>SP13 Protection and Enhancement of the Built and Historic Environment</p> <p>SP14 Protection and enhancement of the Natural Environment</p> <p>SP13 Protection and Enhancement of the Built and Historic Environment</p> <p>SP 14 Protection and Enhancement of the Natural Environment</p> <p>GP1 Sustainability and High Quality Design</p> <p>EQ1 Protection of Buildings, Landscapes and Features of Historic Interest</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p> <p>MPP1 Mineral Proposals</p> <p>MPP4 Coal Extraction Operations</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p> <p>EMP2 New Employment Proposals</p> <p>H2 Housing within Development Limits</p> <p>H3 Conversion or Sub-conversion of Existing Dwelling</p> <p>H4 Replacement Dwellings</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>H8 Renovation of Derelict or Abandoned Dwellings</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p>	<p>Protection and enhancement: Policy SP1 aims for new development to respect, reflect and enhance local character and distinctiveness, in addition to taking account of cultural considerations. Policy SP13 and EQ1 aim for development proposals to preserve or enhance the historic environment, and promote high-quality design. Policy SP14 and EQ5 include in particular protection and enhancement of landscapes, and contribution towards local distinctiveness. RE1 and RE2 particularly protect historic environment features from small scale wind and non-wind related renewable energy projects. Policy MPP4 restricts development of coal extraction operations within 500m of international or national designations of environmental importance. Other policies aim to minimise adverse effects of development on the architectural qualities and historic/cultural qualities of the area. Together, these policies can counteract the potential negative impacts of the introduction of new development (see below), and potentially lead to net benefits.</p>
<p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>SP8 Retail</p> <p>SP9 Transportation</p> <p>SP10 Sustainable Mineral Development</p> <p>SP11 Renewable Energy & Energy Efficiency</p>	<p>Direct risks to the integrity or setting of cultural heritage features: these policies can facilitate new development which has the potential to affect the integrity of the historic environment through physical damage to, or destruction of, features.</p> <p>They can also affect the setting of the historic environment through visual and contextual changes associated with new development.</p> <p>Effects are dependant on the specific location of new development and the</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP12 Waste Management</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p> <p>SP17 Infrastructure</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p> <p>GP5 Advertisements</p> <p>GP6 Extensions</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H3 Conversion or Sub-conversion of Existing Dwelling</p> <p>H8 Renovation of Derelict or Abandoned Dwellings</p> <p>H4 Replacement Dwellings</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>H6 Residential Care Facilities</p> <p>H7 Gypsy and Traveller Sites</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversifications</p> <p>EMP5 Mixed Use Sites</p> <p>RT1 Retailing Hierarchy</p> <p>RT2 Principal Centres (Growth Areas): Primary Retail Frontage</p> <p>RT3 Principal Centres (Growth Areas): Secondary Retail Frontage</p> <p>RT4 Principal Centres (Growth Areas): Town Centre Zone</p> <p>RT5 Town Centres (Service Centres)</p> <p>RT6 Town Centres (Service Centres) –</p>	<p>proximity to cultural heritage features, as well as the existing use of the site (including any pre-existing impacts).</p> <p>Policy SP10 is in parentheses as it does not advocate new minerals development, however it does safeguard resources which is inherently tied to the potential for future extraction.</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>Convenience Stores</p> <p>RT7 District Centres (Local Service Centres)</p> <p>RT8 Local Shops and Facilities</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>TR5 Gwili Railway</p> <p>TR6 Redundant Rail Corridors</p> <p>EP4 Coastal Management</p> <p>EP5 Coastal Development</p> <p>REC 1 Protection of Open Space</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>TSM3 Small Scale Tourism Development in the Open Countryside</p> <p>TSM4 Visitor Accommodation</p> <p>TSM5 Major Tourism Proposals in the Open Countryside</p> <p>MPP1 Mineral Proposals</p> <p>MPP5 Aggregate Alternatives</p> <p>MPP1 Mineral Proposals</p> <p>WPP1 Nantycaws Waste Management Facility</p> <p>WPP2 Waste Management Facilities Outside Development Limits</p> <p>EQ2 Enabling Development</p>	
<p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>SP8 Retail</p> <p>SP9 Transportation</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy</p>	<p><u>Indirect risks to the integrity of cultural heritage features:</u> new development can lead in turn to a growth in transport. Particularly where by road, increased transport can have negative air pollution and vibration impacts which affect cultural heritage features.</p> <p>The effects will depend upon the proximity of both existing and new transport infrastructure to cultural heritage features, and the degree of impact (including whether or not it is significant) may depend upon the existing status of the feature, including whether there is a pre-existing problem.</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>Installations</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H3 Conversion or Sub-conversion of Existing Dwelling</p> <p>H4 Replacement Dwellings</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>H6 Residential Care Facilities</p> <p>H7 Gypsy and Traveller Sites</p> <p>H8 Renovation of Derelict or Abandoned Dwellings</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversifications</p> <p>EMP5 Mixed Use Sites</p> <p>RT1 Retailing Hierarchy</p> <p>RT2 Principal Centres (Growth Areas): Primary Retail Frontage</p> <p>RT3 Principal Centres (Growth Areas): Secondary Retail Frontage</p> <p>RT4 Principal Centres (Growth Areas): Town Centre Zone</p> <p>RT5 Town Centres (Service Centres)</p> <p>RT6 Town Centres (Service Centres) – Convenience Stores</p> <p>RT7 District Centres (Local Service Centres)</p> <p>RT8 Local Shops and Facilities</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>TR5 Gwili Railway</p> <p>TR6 Redundant Rail Corridors</p>	

Policies in the LDP	Relevant Association of Policies with SA Objectives
EP4 Coastal Management EP5 Coastal Development REC 1 Protection of Open Space TSM1 Static Caravan and Chalet Sites TSM2 Touring Caravan and Tent Sites TSM3 Small Scale Tourism Development in the Open Countryside TSM4 Visitor Accommodation TSM5 Major Tourism Proposals in the Open Countryside MPP1 Mineral Proposals MPP5 Aggregate Alternatives WPP1 Nantycaws Waste Management Facility WPP2 Waste Management Facilities Outside Development Limits EQ2 Enabling Development	
SP10 Sustainable Mineral Development SP11 Renewable Energy & Energy Efficiency SP12 Waste Management	<p><u>Reducing the potential for impacts by reducing the need for new development:</u> these policies work to discourage unnecessary minerals or landfill development. SP10 advocates the re-use and recycling of minerals. SP11 reduces reliance on fossil fuels, whose extraction, transport, storage and combustion require large amounts of land. SP12 facilitates driving waste up the waste hierarchy to avoid landfill. This can reduce the land which would have otherwise been needed for minerals, energy and waste management development, and may have otherwise had a negative impact on buried archaeology or other cultural heritage features.</p>

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on the topic, or no association at all.

SA Baseline for Cultural Heritage

Given the often large distances between regional centres in Carmarthenshire, towns and villages have historically developed distinctive local identities and cultures, based around industrial and agricultural heritage.

There are seven Landscapes of Outstanding Historic Interest that fall wholly or partly within Carmarthenshire:-

- *Black Mountain & Mynydd Myddfai;*
- *Tywi Valley;*
- *Preseli;*
- *Dolaucothi;*
- *Taf and Tywi Estuary;*
- *Drefach and Felindre; and*
- *Lower Teifi Valley.*

There are 352 Scheduled Ancient Monuments (SAM) in Carmarthenshire, ranging from prehistoric to post-medieval / modern features of cultural heritage interest.

The following Registered Parks and Gardens are situated in Carmarthenshire (Data provided by Cadw):

- Plas Dinefwr (Grade I): an outstandingly beautiful and picturesque eighteenth-century landscaped park, incorporating the remains of a medieval castle, a small lake, two walled gardens and fine sweeping drives;
- Paxton's Tower (Grade II*): a folly built as a memorial and eye catcher and forms a spectacular picturesque landmark overlooking the Tywi Valley, being visible for miles around;
- Golden Grove (Grade II*): formerly one of the most important estates in West Wales, this site's park and gardens contain many ancient trees, good-quality formal terraces and an outstanding arboretum associated with the Victorian House;
- Llanmiloe House (Grade II): a well preserved Edwardian garden with much original planting;
- Laugharne Castle & Castle House (Grade II): an unusual example of picturesque garden laid out in a medieval castle, which contains remains dated to the Tudor period;
- Maesycrugiau Hall (Grade II): the remains of an extraordinary Edwardian summerhouse in a neglected contemporary garden, with some pre-1891 features;
- Middleton Hall (Grade II): a late eighteenth-century landscaped park in fine countryside, with lakes as a main feature, and which includes unusual double-walled kitchen garden and a preserved ice house;
- Aberglasney (Grade II): formal gardens and informal woodland garden of a long-established country mansion, with its most important feature being an arcaded court with a raised walk around, probably dating to early seventeenth century;
- Derwydd (Grade II): a small late nineteenth century garden with surviving iron work, topiary, walled garden, walks and croquet lawn, incorporating earlier features including a pre-1809 terrace;
- Dolaucothi (Grade II): an early nineteenth-century parkland with remnants of possible lime avenue, a partially intact walled garden and a few specimen trees;
- Edwinsford (Grade II): vestiges of parkland including an oak avenue dating possibly to about 1635, with a fine bridge linking utilitarian area, including walled garden, coach house, gardener's cottage to the mansion;

- Glynhir (Grade II): an early to mid-nineteenth century garden, including fine dovecot, canal, walled garden, ice house and woodland garden with picturesque walks;
- Pantglas (Grade II): victorian gardens (including a lake) which were constructed to complement the Italianate mansion built around 1853;
- Taliaris (Grade II): the essential layout of the park appears to have been little altered in the last two hundred years, although there is evidence for some change in land use;
- Parc Howard (Grade II): early to mid-twentieth century purpose-built municipal park, including fine gates, railings, bandstand, mature shelter belt and a small sunken garden;
- Stradey Castle (Grade II): a parkland which was probably enclosed in the late sixteenth to early seventeenth century that has been retained and includes a fine terraced garden, some interesting water features, a good range of trees, a fine walled garden and a nursery area;
- Llechdwnni (Grade II): an unusual and early walled garden and formal pool associated with one of the former most historic houses in the south of the country, including a long terrace, terminated at each end by projecting round gazebos; and
- Llwynywormwood (Grade II): late eighteenth or early nineteenth-century landscaped park created out of rolling countryside, with scenic drives which maximise the picturesque views, not only of the park, house, stream and a lake, but also of the Brecon Beacons beyond.

There are 1,833 Listed Buildings in Carmarthenshire as of January 2009. Of these, 24 are Grade I, 119 are Grade II* and 1,690 are Grade II.

There is also a significant range of known archaeological resources that are not scheduled in Carmarthenshire. These resources have not been fully/systematically investigated in terms of their condition, but constitute an important component of the historic context of the County. There are 15,122 non-scheduled archaeological features scattered across the county and comprise a range features with varying management issues that contribute to the wider cultural landscape.

Assessment: Risks and Opportunities

12.1.1 Effects within Carmarthenshire

A number of LDP policies that promote new development (see Table 12-3) including growth in housing, employment and new infrastructure/development have the potential to put the historic environment at risk. These policies have the potential to result in permanent long-term effects on cultural heritage/historic landscape features in the vicinity of new development.

The proposed strategic sites and growth areas within the LDP include Llanelli, Carmarthen and Ammanford/Cross Hands. There are clusters of historic resources, largely Listed Buildings and Scheduled Monuments concentrated in these towns, particularly Carmarthen and Llanelli. A number of policies, particularly those related to new housing, renewable energy, employment and retail development, have the potential to effect the integrity (through damage and destruction) and setting

(through visual effects or change in land use) of features within these towns, depending on the location of new development.

More rural new development, for example housing development nearer rural villages, transport infrastructure, wind farms or other renewable energy developments, also have the potential to effect the integrity and setting of the historic environment, particularly those features more commonly found in a rural setting. These include Registered Parks and Gardens, Landscapes of Outstanding Historic Interest, and recorded/unrecorded archaeology, as well as Listed Buildings and Scheduled Monuments.

Furthermore, the growth in population associated with new housing development and employment allocations (particularly related to strategic sites and growth areas) is likely to result in increased traffic volumes. There is therefore the potential for noise/vibration and air quality risks to the integrity of sensitive historic environment features within proximity to existing and proposed transport routes.

Policies SP1, SP13, SP14, GP1, EQ1 and EQ5 provide opportunities for the preservation and enhancement of the historic and built environment features of Carmarthenshire through development proposals, as well as providing opportunities for enhancing local character and distinctiveness. In addition SP1, GP1 and SP13 promote high quality design the potential respect and enhance the setting of historic environment features. A number of other policies relating to housing, employment, renewable energy and minerals development require that development does not affect the setting of historic environment features or the character of the surrounding area. These policies are likely to mitigate potential effects on historic environment features, however due to the requirement for new development; it is not possible for the policies to fully eliminate the risk to the historic environment.

Table 12-3: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP1 Sustainable Places and Spaces SP13 Protection and Enhancement of the Built and Historic Environment SP14 Protection and Enhancement of the Natural Environment GP1 Sustainability and High Quality Design EQ1 Protection of Buildings, Landscapes and Features of Historic	The promotion of high-quality design and consideration of impacts on the historic environment and character of the area can lead to net enhancements.	None	SP1, GP1 and SP13 promote high quality design which has the potential to respect and enhance the setting of historic environment features, and perhaps in a few cases, their integrity. Policy SP13 and EQ1 specifically aim to protect the historic environment. The net effect of the LDP will depend upon the siting and layout of development, including degree to which developments make use of cultural heritage to their advantage and incorporate

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>Interest</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p> <p>MPP1 Mineral Proposals</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p> <p>EMP2 New Employment Proposals</p> <p>H2 Housing within Development Limits</p> <p>H3 Conversion or Sub-conversion of Existing Dwelling</p> <p>H8 Renovation of Derelict or Abandoned Dwellings</p> <p>H4 Replacement Dwellings</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p>			<p>its protection and enhancement into design.</p> <p>Further policies aim to protect historic environment and quality character of the area features from development.</p>
<p>EQ5 Corridors, Networks and Features of Distinctiveness</p>	<p>Opportunities for enhancements to local distinctiveness.</p>	<p>None</p>	<p>This policy does not permit development that would adversely affect features contributing to local distinctiveness.</p>
<p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment –</p>	<p>Direct risks to integrity of features through physical damage associated with new development.</p>	<p>SP1 Sustainable Places and Spaces</p> <p>SP13 Protection and Enhancement of the Built and Historic Environment</p> <p>SP14 Protection and</p>	<p>SP1, GP1, SP13, SP14 and EQ1 promote protection of the historic environment and high-quality design which has the potential to respect and enhance the setting of historic environment features. RE2 and RE3 aim to protect historic features</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Land Allocations SP8 Retail SP9 Transportation SP10 Sustainable Mineral Development SP11 Renewable Energy & Energy Efficiency SP12 Waste Management SP15 Tourism and the Visitor Economy SP16 Community Facilities SP17 Infrastructure RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-wind Renewable Energy Installations GP5 Advertisements GP6 Extensions H1 Housing Allocations H2 Housing within Development Limits H3 Conversion or Sub-conversion of Existing Dwelling H8 Renovation of Derelict or Abandoned Dwellings H4 Replacement Dwellings H5 Adaptation and Reuse of Rural buildings for Residential Use H6 Residential Care Facilities		Enhancement of the Natural Environment GP1 Sustainability and High Quality Design EQ1 Protection of Buildings, Landscapes and Features of Historic Interest EQ5 Corridors, Networks and Features of Distinctiveness MPP1 Mineral Proposals RE2 Local, Community and Small Wind Farms RE3 Non-wind Renewable Energy Installations EMP2 New Employment Proposals H2 Housing within Development Limits H3 Conversion or Sub-conversion of Existing Dwelling H8 Renovation of Derelict or Abandoned Dwellings H4 Replacement Dwellings H5 Adaptation and Reuse of Rural buildings for Residential Use AH3 Affordable Housing – Minor Settlement in the Open Countryside	from impacts of renewable energy development. A number of other policies aim to protect the historic environment and character of the area from adverse effects. As above, the net effect of the LDP will depend upon the siting and layout of development, including degree to which developments make use of cultural heritage to their advantage and incorporate its protection and enhancement into design.
	Risks to the setting of features through visual effects and	SP1 Sustainable Places and Spaces SP13 Protection and	SP1, GP1, SP13, SP14 and EQ1 promote protection of the historic environment and

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>H7 Gypsy and Traveller Sites</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification EMP4 Farm Diversifications</p> <p>EMP5 Mixed Use Sites</p> <p>RT1 Retailing Hierarchy</p> <p>RT2 Principal Centres (Growth Areas): Primary Retail Frontage</p> <p>RT3 Principal Centres (Growth Areas): Secondary Retail Frontage</p> <p>RT4 Principal Centres (Growth Areas): Town Centre Zone</p> <p>RT5 Town Centres (Service Centres)</p> <p>RT6 Town Centres (Service Centres) – Convenience Stores</p> <p>RT7 District Centres (Local Service Centres)</p> <p>RT8 Local Shops and Facilities</p>	<p>land use change associated with new development.</p>	<p>Enhancement of the Built and Historic Environment</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>GP1 Sustainability and High Quality Design</p> <p>EQ1 Protection of Buildings, Landscapes and Features of Historic Interest</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p> <p>MPP1 Mineral Proposals</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p> <p>EMP2 New Employment Proposals</p> <p>H2 Housing within Development Limits</p> <p>H3 Conversion or Sub-conversion of Existing Dwelling</p> <p>H8 Renovation of Derelict or Abandoned Dwellings</p> <p>H4 Replacement Dwellings</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p>	<p>high-quality design which has the potential to respect and enhance the setting of historic environment features. RE2 and RE3 aim to protect historic features from impacts of renewable energy development. A number of other policies aim to protect the historic environment and character of the area from adverse effects. As above, the net effect of the LDP will depend upon the siting and layout of development, including degree to which developments make use of cultural heritage to their advantage and incorporate its protection and enhancement into design.</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
RT9 Regional Centres (Retail Parks)			
TR1 Primary and Core Road Networks	Noise and vibration impacts on the integrity of the built historic environment. These policies have the potential to increase traffic volumes via increased residents and employment destinations, and/or new transport infrastructure. Impacts could also be caused by new industry.	SP13 Protection and Enhancement of the Built and Historic	Policy SP13 and EQ1 aim to preserve and enhance the built and historic resource from the adverse effects of these policies. EP2 aims to minimise noise pollution.
TR2 Location of Development – Transport Considerations		EQ1 Protection of Buildings, Landscapes and Features of Historic Interest	
TR3 Highways in Development – Design Considerations		EP2 Pollution	
TR5 Gwili Railway			
TR6 Redundant Rail Corridors			
EP4 Coastal Management	Air quality impacts on the integrity of the built historic environment. Higher traffic volumes, new transport infrastructure and new industry can lead to air pollution which affects historic environment features.	SP13 Protection and Enhancement of the Built and Historic Environment	Policy SP13 and EQ1 aim to preserve or enhance the built and historic resource from the adverse effects of these policies. SP14 requires development proposals to consider the natural assets of the area, including air. SP2 seeks to minimise impacts of pollution including air quality.
EP5 Coastal Development		SP14 Protection and Enhancement of the Natural Environment	
REC 1 Protection of Open Space		EQ1 Protection of Buildings and Features of Historic Interest	
TSM1 Static Caravan and Chalet Sites		EP2 Pollution	
TSM2 Touring Caravan and Tent Sites			
TSM3 Small Scale Tourism Development in the Open Countryside			
TSM4 Visitor Accommodation			
TSM5 Major Tourism Proposals in the Open Countryside			
MPP1 Mineral Proposals			
MPP5 Aggregate Alternatives			
WPP1 Nantycaws Waste Management Facility			
WPP2 Waste Management Facilities Outside			

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Development Limits EQ2 Enabling Development			

12.1.2 Regional, National and Global Effects

There is the potential for secondary effects on the historic environment in neighbouring counties as a result of the growth in population, which in turn would lead to increased traffic volumes. This could lead to increased air pollution as well as noise and vibration effects on key infrastructure routes, with potential risks to the integrity of historic environment features in close proximity to any of these routes.

Policy SP11, RE1, RE2 and RE3 support renewable energy development, which is an alternative to fossil fuels. Fossil fuels also often require a larger amount of land through the combined activities of extraction, transport, storage, combustion and transmission. Reducing reliance on fossil fuels can reduce the amount of land required to produce energy overall, which in turn can reduce the potential for land use conflict with cultural heritage on a regional, national or even international scale.

Policy SP12 supports development which drives waste up the waste hierarchy and away from landfill. Developments which achieve this are likely to require less landtake by comparison to landfill, and therefore reduce the potential for land use conflicts with conservation of the historic environment (both direct and indirect impacts). This could be a regional benefit, depending upon the pressures on land and transport within Carmarthenshire, and the need to consider landfill in other counties (which SP12 is aimed at preventing).

SA Recommendations

12.1.3 Mitigation to Reduce Risk or Enhance Opportunities

The implementation of LDP policies on protecting the historic environment should address the impacts (including from transport) of noise, vibration and air pollution associated with development proposals.

Although we are not making monitoring recommendations at this stage, it is apparent that individual developments may not be responsible for significant air quality impacts on cultural heritage resources, but cumulatively, many developments may be. The ‘buildings at risk’ register should be monitored for those sites which are at risk of harm from air pollution, and consideration should be given to a relevant proportion of developer contributions for developments over a wide area (given likely journey patterns) towards their repair and maintenance.

All previously recommended mitigation has been considered and incorporated into the LDP. Table 12-4 sets out improvements made to the LDP policies as a result of the assessment and recommendations.

Table 12-4: Improvements Made to LDP Policies as a Result of SA Work

Issue	Policy	Improvement
Potential to enhance GP5 Advertisements and GP6 Extensions to ensure the setting and integrity of the historic environment is not adversely affected.	GP5 Advertisements GP6 Extensions	Protection of the setting and integrity of the historic environment has been incorporated.
Expansion of policy wording to incorporate the protection of setting and integrity of the historic environment.	RE1, RE2, RE3, H8, H5, H6, H7, H8, AH2, AH3, EMP2, EMP3, EP5, EP5, TSM1, TSM3, TSM4 and MPP6.	RE1 – supporting text updated. GP1, RE2, RE3, H5, H6, H7, H8, EP5, TSM3 and MPP6 – policy wording has been amended requiring that there are no adverse effects on the setting and integrity of the historic environment. SP17 – policy wording has been updated to include requirements that ancillary developments to utilities infrastructure should not conflict with the built, historic and cultural qualities of the area. EMP3 – policy wording has been updated to ensure that proposals will be subject to other relevant policies within the LDP.
Introduction of text requiring the protection of the historic environment.	H4	Policy wording updated to state that development will be permitted where there are no adverse effects on the setting or integrity of the historic environment. .

12.1.4 Key Residual Risks and Opportunities

Recommendations and associated improvements to the LDP policies are set out above in Table 12-4. SA recommendations have enabled a number of LDP policies to be enhanced through the expansion of policy wording to require that no adverse effects on the setting and integrity of the historic environment will result from new development. However due to the requirement for new development; and the site specific-nature of potential impacts on the historic environment, it is not possible for the policies to fully eliminate the risk to the historic environment.

The key residual risks are those which will remain despite the mitigating policies already developed, amendments to policies as a result of the SA recommendations and standard controls which are likely to be enforced. The key residual risks and also the opportunities are summarised below.

- A combination of different types of new development can occur within a relatively small area, and therefore there remains a risk to the setting of historic features, even if policy mechanisms successfully protect the integrity of all features and minimise impacts to setting;
- Adverse effects to the setting and integrity of historic environment features and landscapes as a result of new development pressures (unknown sensitivities);
- Adverse indirect effects on the integrity of historic environment features through increased traffic volumes associated with new development;
- Opportunities to enhance the historic environment through promoting high-quality design;

- Opportunities for enhancements to local distinctiveness; and
- Opportunities to minimise the need for fossil fuel-related development or landfill by promoting renewable energy and more sustainable waste management, in turn reducing the risk of land use conflicts with the historic environment.

Combining the above, it is considered likely that the LDP could lead to slightly adverse effects cumulatively in the short, medium and long term. Localised effects of lesser and greater magnitude are likely, and these cannot be accurately predicted.. The preferred solution for historic environment features is preservation in its current context, however this is often not practical. The LDP could lead to net benefits through the renovation and identification of a use for any derelict or 'at risk' historic structures.

13 Landscape

Topic Definition and Approach

Landscape results from the way that different components of our environment – both natural (the influences of geology, soils, climate, flora and fauna) and cultural (the historical and current impact of land use, settlement, enclosure and other human interventions) – interact together and are perceived by us.

The table below sets out the SA Objectives and decision-making criteria for landscape which have been utilised to develop the baseline and guide the assessment process.

Table 13-1: SA Framework for Landscape

SA Objectives	Decision-Making Criteria
9 - Landscape	
9-1 To protect and enhance landscape / townscape from negative effects of land use change	Will the LDP have a positive or negative impact on landscapes or townscapes?
9-2 To take sensitive locations into account when siting development and to promote high quality design	Will the LDP have a positive or negative impact on designated landscapes?
9-3 To encourage appropriate future use of derelict land	Will the LDP encourage the redevelopment of brownfield land?

For the purposes of this assessment, we have defined the topic by looking at designated and other sensitive landscapes / townscapes in addition to brownfield land. These are considered of most relevance to the LDP and its potential effects.

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 9-2 below describes the strategic policies of relevance to the landscape.

Table 13-2: LDP Policies and Relevance to Landscape

Policies in the LDP	Relevant Association of Policies with SA Objectives
SP1 Sustainable Places and Spaces SP13 Protection and Enhancement of the Built and Historic Environment SP 14 Protection and Enhancement of the Natural Environment RE1 Large Scale Wind Power RE2 Local, Community and Small Wind	<p>Protection and potential enhancement: through these policies, there is the potential that this may have positive impacts on landscapes and townscapes, with development located away from sensitive locations and promotion of high-quality design. In addition, the policies encourage appropriate use of previously developed sites, which can lead to landscape character creation,</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p> <p>GP1 Sustainability and High Quality Design</p> <p>GP2 Development Limits</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H4 Replacement Dwellings</p> <p>H8 Renovation of Derelict or Abandoned Dwellings</p> <p>EMP2 New Employment Proposals</p> <p>EMP4 Farm Diversification</p> <p>RT4 Principal Centres (Growth Areas): Town Centre Zone</p> <p>EQ1 Protection of Buildings, Landscapes and Features of Historic Importance</p> <p>EQ3 Regional and Local Designations</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p> <p>EQ6 Special Landscape Areas</p> <p>EP4 Coastal Management</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>MPP6 Restoration and Aftercare of Mineral Sites</p> <p>WPP2 Waste Management Facilities Outside Development Limits</p>	<p>restoration or enhancement.</p>
<p>SP2 Climate Change</p> <p>SP10 Sustainable Mineral Development</p> <p>SP11 Renewable Energy & Energy Efficiency</p> <p>SP12 Waste Management</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p>	<p><u>Opportunities to Reduce Potential Effects:</u> these policies have the potential to reduce possible climate change or development related effects on the landscape resource.</p> <p>Policies SP2, SP11, RE1, RE2 and RE3 aim to address climate change and there is the potential that in the long term, these policies can reduce associated effects on the landscape.</p> <p>Policies SP10 and SP12 aim to reduce reliance on landfill and minerals. In addition, Policy SP11 aims to reduce reliance on fossil fuels. These policies have the potential to reduce the requirement for development.</p>
<p>SP2 Climate Change</p>	<p><u>Risks to Landscape and Townscape:</u> all of these policies have the potential to result in</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>SP8 Retail</p> <p>SP9 Transportation</p> <p>SP11 Renewable Energy & Energy Efficiency</p> <p>SP12 Waste Management</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p> <p>SP17 Infrastructure</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p> <p>GP5 Advertisements</p> <p>GP6 Extensions</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H3 Conversion or Sub-conversion of Existing Dwelling</p> <p>H4 Replacement Dwellings</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>H6 Residential Care Facilities</p> <p>H7 Gypsy and Traveller Sites</p> <p>H8 Renovation of Derelict or Abandoned Dwellings</p> <p>H9 Residential Caravans</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and</p>	<p>new development with the potential to affect the landscape and/or townscape of Carmarthenshire, if not sensitively sited and designed.</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
Intensification EMP4 Farm Diversifications	
EMP5 Mixed Use Sites	
RT1 Retailing Hierarchy	
RT2 Principal Centres (Growth Areas): Primary Retail Frontage	
RT3 Principal Centres (Growth Areas): Secondary Retail Frontage	
RT4 Principal Centres (Growth Areas): Town Centre Zone	
RT5 Town Centres (Service Centres)	
RT6 Town Centres (Service Centres) – Convenience Stores	
RT7 District Centres (Local Service Centres)	
RT8 Local Shops and Facilities	
RT9 Regional Centres (Retail Parks)	
TR1 Primary and Core Road Networks	
TR2 Location of Development – Transport Considerations	
TR3 Highways in Development – Design Considerations	
TR5 Gwili Railway	
TR6 Redundant Rail Corridors	
EP4 Coastal Management	
EP5 Coastal Development	
REC 1 Protection of Open Space	
TSM1 Static Caravan and Chalet Sites	
TSM2 Touring Caravan and Tent Sites	
TSM3 Small Scale Tourism Development in the Open Countryside	
TSM4 Visitor Accommodation	
TSM5 Major Tourism Proposals in the Open Countryside	
MPP1 Mineral Proposals	
MPP5 Aggregate Alternatives	
WPP1 Nantycaws Waste Management Facility	
WPP2 Waste Management Facilities Outside Development Limits	
EQ2 Enabling Development	

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on 'the topic', or no association at all.

SA Baseline for Landscape

The Brecon Beacons National Park is one of the most important landscape and nature conservation designations in the country. The National Park is an important geological resource, as well as also being important for biodiversity, and cultural heritage. The management of development in the National Park is covered by a separate National Park Development Plan Document, and as such is not incorporated into the Carmarthenshire LDP.

A small area of the Gower Area of Outstanding Natural Beauty crosses the County border in the south.

There are also sixteen Special Landscape Areas in the county (Carmarthenshire County Council 2006a).

A number of pressures are identified on Special Landscape Areas, these are outlined below:

- North Eastern Uplands: The rural upland identity of the North – Eastern Uplands landscape area should be safeguarded in the interests of tourism and for the benefit of the local agricultural economy and resident population.
- Towy Valley: The pastoral character of the Towy Valley should be retained and enhances and safeguarded from intrusive and unsympathetic development.
- Cothi Valley: The value of the unspoiled Cothi Valley should be safeguarded and inappropriate development resisted.
- Carmarthen Bay Coast: Within the Carmarthen Bay Coastal area development pressures should be directed to appropriate inland locations relating to existing developed areas. Development proposals on the western boundary of the Pembrokeshire Coast National Park should ensure no adverse effects on the landscape, character and amenity of the National Park.
- Cych Valley: Within the Cych Valley it is recognised that the continued farming of this area is of paramount importance for the landscape.

In addition three Welsh Seascapes are relevant for Carmarthenshire:

- 41 – Giltar Point to Pembrey Burrows (Carmarthen Bay);
- 42 – Taf, Tywi and Gwndraeth Estuaries; and
- 43 – Loughor Estuary.

Within the Carmarthen Bay Seascape unit pressures include development pressure on tourist settlements, windfarm development, recreational use on coastal paths and climate change and sea level rise. Within the area of the Taf, Tywi and Gwendraeth Estuaries Seascape unit pressures identified include climate change and sea level rise and development pressure on rural settlements. The Loughor Estuary Seascape unit incorporates an area to the east of Carmarthen. Pressures include wind farm and other industrial development and development pressures around the settlements.

There are Conservation Areas in the following settlements in Carmarthenshire

- Abergorlech
- Cenarth
- Cwmdu
- Kidwelly
- Laugharne
- Llanboidy
- Llanddarog
- Llandeilo
- Llandovery
- Llanelli
- Llangadog
- Llangathen
- Llansaint
- Llansteffan
- Newcastle Emlyn
- St Clears
- Talley

The following areas in Carmarthen Town are also Conservation Areas:-

- Carmarthen Town
- Lammas Street
- North Carmarthen
- Parcmaen Street/St Davids
- Picton Terrace/Penllwyn Park
- Pontgarreg and St Davids Hospital
- Priory Street
- The Parade/Esplanade
- The Quay/Towyside
- Water Street

Assessment: Risks and Opportunities

13.1.1 Effects within Carmarthenshire

A number of LDP Policies promote the provision of significant new development within Carmarthenshire as indicated in Table 9-3. The provision of new housing, employment and strategic sites will undoubtedly effect on the landscape/townscape resource in the area through land use change and associated potential adverse long-term permanent impacts on landscape character.

There are a number of conservation areas within Carmarthenshire, including ten areas of Carmarthen and an area of Llanelli which incorporates St Ellyw's Church and grounds, The Verandah and parts of Bridge Street and Church Street. Development is likely to be directed to these Growth Area towns, amongst other centres, through policies promoting new housing, employment land and retail development. There is therefore the potential for adverse effects to the quality of townscape of towns and villages as a result of inappropriate development. To address this, Policies SP1, SP13 and GP1 aim specifically to promote high-quality design, attractive places and the preservation and enhancement of the built environment. Policy EQ1 protects buildings and features of historic importance from significant adverse effects. Policy RE2 and RE3 specifically protect the setting of Conservation Areas from local, community and small scale wind and other non-wind renewable energy development. These policies may therefore reduce potential risks to the Carmarthenshire townscape.

New development pressures may also affect the landscape character of Carmarthenshire through unsympathetic development and land use change. A number of pressures to Special Landscape Areas and Welsh Seascapes have been identified by previous studies. Risks to these features associated with LDP policies include development pressures from housing and employment land on rural and tourist settlements, pressures from wind farm developments and industry, pressures from recreation and risks associated with climate change (although SP2 and SP11 may go some way to reducing these). Policy EQ5 protects features of distinctiveness from development, including elements which contribute towards Carmarthenshire's landscape quality. Policy EQ6 specifically safeguards Special Landscape Areas from development. It is considered that this policy could be expanded to include other areas designated for they're landscape importance.

Numerous other policies also aim to protect the landscape and townscape from unacceptable impacts of housing, employment and other development, including impacts on visual quality. It is considered that whilst these policies aim to reduce associated effects on the wider landscape, townscape and visual resource, effects are still likely to occur.

Policy SP14, EQ5 and EQ6 specifically aim to protect landscapes and features which contribute towards the landscape. Equally SP14 and EQ1 specifically aim to protect and potentially enhance townscape. In addition, Policy SP1 provides opportunities for protecting character and encouraging development to sustainable locations, use of previously developed land and high-quality design. These policies should assist in directing development to appropriate locations and away from designated and important landscape / townscape features for which development may have a detrimental impact. In addition, Policies SP10, SP11 and SP12 have the potential to reduce the requirement for land-intensive development (landfill, minerals extraction and infrastructure for the extraction, transport, storage and combustion of fossil fuels), thereby reducing the potential for adverse effects on the

landscape.

Indirect effects on the landscape could also result from increased population associated with new development, particularly larger-scale new housing, employment and strategic sites. This may lead to effects such as increased recreational pressure and requirements for new infrastructure affecting the landscape.

Table 9-13-3: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP1 Sustainable Places and Spaces SP13 Protection and Enhancement of the Built and Historic Environment EQ1 Protection of Buildings, Landscapes and Features of Historic Interest RE2 Local, Community and Small Wind Farms RE3 Non-wind Renewable Energy Installations	Protection and potential enhancement of townscape in particular conservation areas and their setting.	None	Policies SP1, SP13 and EQ1 have the potential to contribute towards the protection and enhancement of heritage features and conservation areas including promoting high quality design. Policy RE2 Local, Community and Small Wind Farms does not permit development within a Conservation Area, or development that will impact on the setting of a Conservation Area. RE3 specifically do not permit development that will negatively affect the setting of Conservation Areas.
SP1 Sustainable Places and Spaces SP 14 Protection and Enhancement of the Natural Environment EQ5 Corridors, Networks and Features of Distinctiveness EQ6 Special Landscape Areas	Protection and potential enhancement of landscapes, in particular areas of identified landscape quality, and features which contribute towards the landscape.	None	Policies SP1 and SP14 have the potential to contribute towards the protection and enhancement of landscape features. EQ5 protects features that make important contributions to landscape quality. EQ6 seeks to enhance or improve the Special Landscape Areas through proposals design, appearance and landscape schemes.
SP10 Sustainable Mineral Development	Reducing the potential	None.	This policy advocates the reuse and recycling of

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
	requirement for mineral extraction and associated adverse effects on the landscape.		minerals, and thus has the opportunity to reduce potential effects on the landscape by reducing the need for new minerals development.
SP11 Renewable Energy & Energy Efficiency RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-wind Renewable Energy Installations	Reducing the potential requirement for fossil fuels and associated adverse effects on the landscape.	None.	These policies have the opportunity to reduce those potential effects on the landscape which could be caused by new fossil-fuel related development (extraction, transport, storage and combustion). (See also negative risks below.)
SP12 Waste Management	Reducing the potential for landfill and associated adverse effects on the landscape.	None.	This policy has the opportunity to reduce potential effects on the landscape by reducing the need for new development.
SP2 Climate Change SP11 Renewable Energy & Energy Efficiency RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-wind Renewable Energy Installations	Policies relating to addressing climate change have opportunities to protect the landscape from potential long term climate change related pressures.	None.	These policies have the potential to work towards addressing climate change, reducing associated effects on the landscape from climate change impacts. (See also negative risks below.)
SP2 Climate Change SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing SP7 Employment – Land Allocations SP8 Retail SP9 Transportation SP10 Sustainable Mineral Development	Long term risks to the landscape may occur as a result of new development.	SP13 Protection and Enhancement of the Built and Historic Environment SP14 Protection and Enhancement of the Natural Environment EQ5 Corridors, Networks and Features of Distinctiveness EQ6 Special Landscape Areas	Policies SP13, SP14, H1, H4, EMP2, EMP3, TSM1, TSM2, WPP2 MPP6 and GP1 aim to reduce potential negative impacts on landscape associated with these policies. RE1, RE2 and RE3 require proposals to not result in unacceptable harm to the landscape. EQ6 seeks to enhance or improve the Special Landscape Areas through proposals design, appearance and landscape schemes.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP11 Renewable Energy & Energy Efficiency SP12 Waste Management SP15 Tourism and the Visitor Economy SP16 Community Facilities SP17 Infrastructure RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-wind Renewable Energy Installations GP5 Advertisements GP6 Extensions H1 Housing Allocations H2 Housing within Development Limits H3 Conversion or Sub-conversion of Existing Dwelling H8 Renovation of Derelict or Abandoned Dwellings H9 Residential Caravans H4 Replacement Dwellings H5 Adaptation and Reuse of Rural buildings for Residential Use H6 Residential Care Facilities H7 Gypsy and Traveller Sites AH1 Affordable Housing AH2 Affordable Housing – Exceptions Sites AH3 Affordable Housing – Minor Settlement in the Open Countryside EMP1 Employment – Safeguarding of Employment Sites		Policy EP4 Coastal Management GP1 Sustainability and High Quality Design H1 Housing Allocations H4 Replacement Dwellings AH3 Affordable Housing – Minor Settlement in the Open Countryside EMP2 New Employment Proposals EMP4 Farm Diversifications RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-wind Renewable Energy Installations TSM1 Static Caravan and Chalet Sites TSM2 Touring Caravan and Tent Sites MPP6 Restoration and Aftercare of Mineral Sites WPP2 Waste Management Facilities Outside Development Limits	EQ5 protects features that make important contributions to landscape quality. Policy EP4 requires coastal management to be in keeping with the surrounding landscape.
AH3 Affordable Housing – Minor Settlement in the Open Countryside EMP1 Employment – Safeguarding of Employment Sites	Long term risks to Special Landscape Areas and seascapes.	SP13 Protection and Enhancement of the Built and Historic Environment SP 14 Protection and Enhancement	Policies SP13, SP14, H1, H4, EMP2, TSM1, TSM2, MPP6 and GP1 aim to reduce potential negative impacts on landscape associated with these policies. RE1, RE2 and RE3

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversifications</p> <p>EMP5 Mixed Use Sites</p> <p>RT1 Retailing Hierarchy</p> <p>RT2 Principal Centres (Growth Areas): Primary Retail Frontage</p> <p>RT3 Principal Centres (Growth Areas): Secondary Retail Frontage</p> <p>RT4 Principal Centres (Growth Areas): Town Centre Zone</p> <p>RT5 Town Centres (Service Centres)</p> <p>RT6 Town Centres (Service Centres) – Convenience Stores</p> <p>RT7 District Centres (Local Service Centres)</p> <p>RT8 Local Shops and Facilities</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>TR5 Gwili Railway</p> <p>TR6 Redundant Rail Corridors</p> <p>EP4 Coastal Management</p> <p>EP5 Coastal Development</p> <p>REC 1 Protection of</p>		<p>of the Natural Environment</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p> <p>EQ6 Special Landscape Areas</p> <p>Policy EP4 Coastal Management</p> <p>GP1 Sustainability and High Quality Design</p> <p>H1 Housing Allocations</p> <p>H4 Replacement Dwellings</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 New Employment Proposals – Rural Enterprises</p> <p>EMP4 Farm Diversifications</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>MPP6 Restoration and Aftercare of</p>	<p>require proposals to not result in unacceptable harm to the landscape.</p> <p>EQ6 seeks to enhance or improve the Special Landscape Areas through proposals design, appearance and landscape schemes.</p> <p>EQ5 protects features that make important contributions to landscape quality.</p> <p>Policy EP4 requires coastal management to be in keeping with the surrounding landscape.</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Open Space		Mineral Sites	
TSM1 Static Caravan and Chalet Sites	Long term risks to townscape may occur as a result of new development.	SP13 Protection and Enhancement of the Built and Historic Environment	Policies SP13, SP14, MPP1, EMP2, aim to reduce potential negative impacts on townscape character associated with these policies.
TSM2 Touring Caravan and Tent Sites		SP14 Protection and Enhancement of the Natural Environment	RE2 and RE2 require proposals to not result in unacceptable harm to the character of local area and conservation areas/other historic features.
TSM3 Small Scale Tourism Development in the Open Countryside		GP1 Sustainability and High Quality Design	Policy GP1 promotes high quality design that conforms with the character and appearance of the site and retains important features.
TSM4 Visitor Accommodation		EQ1 Protection of Buildings, Landscapes and Features of Historic Interest	Development should also protect and enhance the historic and cultural heritage of the County.
TSM5 Major Tourism Proposals in the Open Countryside		MPP1 Mineral Proposals	Housing policies H3 – H5 seek to protect the built environment including architectural quality, character and appearance.
MPP1 Mineral Proposals		RE2 Local, Community and Small Wind Farms	
MPP5 Aggregate Alternatives		RE3 Non-wind Renewable Energy Installations	
WPP1 Nantycaws Waste Management Facility		Housing within Development Limits	
WPP2 Waste Management Facilities Outside Development Limits		H3 Conversion or Sub-conversion of Existing Dwelling	
EQ2 Enabling Development		H4 Replacement Dwellings	
		H5 Adaptation and Reuse of Rural buildings for Residential Use	
		H8 Renovation of Derelict or Abandoned Dwellings	
		AH3 Affordable Housing – Minor Settlement in the Open Countryside	
	Potential for new	SP13 Protection and Enhancement	Policies SP13, SP14, H1, H4, EMP2, TSM1, TSM2,

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
	<p>development to result in increased population, leading to potential increased pressures on the landscape from recreational and other associated uses.</p>	<p>of the Built and Historic Environment</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p> <p>EQ6 Special Landscape Areas</p> <p>Policy EP4 Coastal Management</p> <p>GP1 Sustainability and High Quality Design</p> <p>H1 Housing Allocations</p> <p>H4 Replacement Dwellings</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP2 New Employment Proposals</p> <p>EMP4 Farm Diversifications</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>MPP6 Restoration and Aftercare of</p>	<p>and GP1 aim to reduce potential negative impacts on landscape associated with these policies. RE1, RE2 and RE3 require proposals to not result in unacceptable harm to the landscape.</p> <p>EQ6 seeks to enhance or improve the Special Landscape Areas through proposals design, appearance and landscape schemes.</p> <p>EQ5 protects features that make important contributions to landscape quality.</p> <p>Policy EP4 requires coastal management to be in keeping with the surrounding landscape.</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
	<p>Potential for effects on landscape associated with a potential increase in population resulting from these policies. This may lead to an increased requirement for new infrastructure development to meet increased population needs.</p>	<p>Mineral Sites</p> <p>SP13 Protection and Enhancement of the Built and Historic Environment</p> <p>SP 14 Protection and Enhancement of the Natural Environment</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p> <p>EQ6 Special Landscape Areas</p> <p>GP1 Sustainability and High Quality Design</p> <p>H1 Housing Allocations</p> <p>H4 Replacement Dwellings</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP2 New Employment Proposals</p> <p>EMP4 Farm Diversifications</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>MPP6 Restoration</p>	<p>Policies SP13, SP14, H1, H4, EMP2, TSM1, TSM2, MPP6 and GP1 aim to reduce potential negative impacts on landscape associated with these policies. RE1, RE2 and RE2 require proposals to not result in unacceptable harm to the landscape.</p> <p>EQ6 seeks to enhance or improve the Special Landscape Areas through proposals design, appearance and landscape schemes.</p> <p>EQ5 protects features that make important contributions to landscape quality.</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
		and Aftercare of Mineral Sites	
<p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H3 Conversion or Sub-conversion of Existing Dwelling</p> <p>H8 Renovation of Derelict or Abandoned Dwellings</p> <p>H9 Residential Caravans</p> <p>H4 Replacement Dwellings</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>H6 Residential Care Facilities</p> <p>H7 Gypsy and Traveller Sites</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversifications</p> <p>EMP5 Mixed Use Sites</p>	<p>Potential for effects on the landscape associated with increased requirement for landfill.</p>	<p>SP13 Protection and Enhancement of the Built and Historic Environment</p> <p>SP 14 Protection and Enhancement of the Natural Environment</p> <p>SP11 Renewable Energy & Energy Efficiency</p> <p>EQ5 Corridors, Networks and Features of Distinctiveness</p> <p>EQ6 Special Landscape Areas</p> <p>GP1 Sustainability and High Quality Design</p> <p>H1 Housing Allocations</p> <p>H4 Replacement Dwellings</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP4 Farm Diversifications</p>	<p>Policies SP13, SP14, H1, H4, EMP2, EMP3, and GP1 aim to reduce potential negative impacts associated with these policies. SP11 aims to reduce the requirement for landfill.</p> <p>EQ6 seeks to enhance or improve the Special Landscape Areas through proposals design, appearance and landscape schemes.</p> <p>EQ5 protects features that make important contributions to landscape quality.</p>

13.1.2 Regional, National and Global Effects

Adverse effects on the landscape and townscape resource within Carmarthenshire have the potential to result in cumulative adverse effects across the wider landscapes and townscapes of Wales.

Policies which aim to address climate change and therefore indirect effects on the landscape, have the potential to have wider effects, potentially limiting adverse effects associated with climate change pressures on regional and national landscapes.

Policy SP11 supports renewable energy development, which is an alternative to fossil fuels, which often require a larger amount of land through the combined activities of extraction, transport, storage, combustion and transmission. This means that reducing reliance on fossil fuels can reduce the amount of land required to produce energy overall. There are no fossil fuel-supplied power plants in Carmarthenshire, and sources of fuel tend to cover a wide geographical area. Therefore, this is considered a regional or national benefit, but could also cross international boundaries.

Policy SP12 supports development which drives waste up the waste hierarchy and away from landfill, having benefits to landscape as described in Section 2.4.1. This could be a regional benefit, depending upon the pressures on land and transport within Carmarthenshire, and the need to consider landfill in other counties (which SP12 is aimed at preventing).

SA Recommendations

13.1.3 Mitigation to Reduce Risk or Enhance Opportunities

Policy wording on landscape could include further provision for enhancement, such as by achieving character creation and restoration where it is needed.

All other previously recommended mitigation has been considered, and there are no further recommendations this stage. Table 13-4 sets out improvements made to the LDP policies as a result of the assessment and recommendations.

Table 13-4: Improvements Made to LDP Policies as a Result of SA Work

Issue	Policy	Improvement
Expansion of policy wording to incorporate the protection of townscapes, including Conservation Areas.	RE1	Text to include protection of the historic environment has been incorporated into the supporting text. SP13 has also been amended to include the preservation and enhancement of the townscape.
Expansion of policy wording to specify safeguarding of designated landscape areas from development.	RE1, RE2, RE3 and MPP1	RE1 to RE3 – the Council decided not to incorporate this recommendation due to the effect on the SSA and current applications that have been submitted and not determined to date. MPP1 – text incorporated within the policy wording to protect areas of landscape importance. In addition text incorporated in order to minimise landscape and visual impacts.

Issue	Policy	Improvement
Enhance policy wording to include all areas designated for their landscape/seascape value.	EQ6	Policy EQ1 has been enhanced to include landscapes. The policy now states that it will only permit new development where the distinctiveness, integrity or setting of the feature, landscape, townscape or building are not adversely affected .
Enhancement of policy wording to include text highlighting that there should be no adverse effects on landscape/townscape.	AH3,TSM1, H4, H6, H7, AH2, RE3, TSM3, TSM4, and MPP1 and MPP6.	Policy wording of AH3, TSM1, H4, H6, H7, TSM3, TSM4, MPP1 and MPP6 updated to incorporate landscape/townscape.

13.1.4 Key Residual Risks and Opportunities

Recommendations and associated improvements to the LDP policies are set out above in Table 13-4. SA recommendations have enabled a number of LDP policies to be enhanced through the expansion of policy wording to require that impacts on landscape/townscape are minimised. However due to the requirement for new development; and the site specific nature of potential impacts on the landscape/townscape, it is not possible for the policies to fully eliminate the risk.

The key residual risks are those which will remain despite the mitigating policies already developed, amendments to policies as a result of the SA recommendations and standard controls which are likely to be enforced. The key residual risks and also the opportunities are summarised below.

- Because of the many uncertainties in the location, pattern, layout and detailed design of development, there remains a risk of negative effects to landscape character and townscape;
- Opportunities to enhance the townscape of the area through promotion of high-quality design;
- Potential opportunities to reduce risk to the landscape associated with climate change;
- Risks to landscape character through land use change;
- Risks to townscape through unsympathetic development;
- Opportunities to safeguard Special Landscape Areas and other landscapes; and
- Opportunities to safeguard Conservation Areas from small wind and non-wind renewable energy development.

Combining the above, it is considered likely that the LDP could lead to slightly adverse effects cumulatively in the short to medium term, and slightly beneficial effects by the long term. Localised effects of lesser and greater magnitude are likely, and these cannot be accurately predicted. Beneficial effects can occur through habitat and general landscape character creation or restoration.

14 Population

Topic Definition and Approach

The mid-2009 population estimate for the UK stood at 21,792,000, with the average age of the population at 39.5 years (ONS, 2010).

National legislation provides a key requirement to promote equality of opportunity, good relations between people of different racial groups, and positive attitudes towards disabled persons, while eliminating unlawful discrimination.

‘Ensuring a strong, healthy and just society’ is one of the objectives of the UK Sustainable Development Strategy.

The table below sets out the SA Objectives and decision-making criteria for population which have been utilised to develop the baseline and guide the assessment process.

Table 14-1: SA Framework for Population

SA Objectives	Decision-Making Criteria
10 – Population	
10-1 Ensure suitable, affordable housing stock with access to education and employment facilities.	Will the LDP increase the provision of affordable housing in Carmarthenshire?
10-2 Promote the retention of younger people.	Will the LDP contribute to promoting the retention of young people in the county?
10-3 Encourage growth of the Welsh language and culture.	Will the LDP encourage the growth of the Welsh language and culture?
10-4 Promote inclusion of disadvantaged and minority groups into society.	Will the LDP contribute to social inclusion?

For the purposes of this SA we have looked at the population issues identified in Table 10-1 as it is considered that these are most likely to be affected by the proposals and policies within the LDP.

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 10-2 below describes the strategic policies of relevance to Carmarthenshire’s population.

Table 14-2: LDP Policies and Relevance to Population

Policies in the LDP	Relevant Association of Policies with SA Objectives
SP1 Sustainable Places and Spaces SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing SP6 Affordable Housing	<p><u>Opportunities for better social inclusion</u></p> <p>These policies promote inclusion through a number of different measures including provision of community facilities and housing opportunities.</p>
SP7 Employment – Land Allocations SP11 Renewable Energy & Energy Efficiency SP16 Community Facilities H1 Housing Allocations H2 Housing within Development Limits H5 Adaptation and Reuse of Rural buildings for Residential Use H6 Residential Care Facilities H7 Gypsy and Traveller Sites AH1 Affordable Housing AH2 Affordable Housing – Exceptions Sites AH3 Affordable Housing – Minor Settlement in the Open Countryside GP1 Sustainability and High Quality Design GP3 Planning Obligations TR1 Primary and Core Road Networks TR2 Location of Development – Transport Considerations TR3 Highways in Development – Design Considerations TR4 Cycling and Walking TR6 Redundant Rail Corridors EMP1 Employment - Safeguarding of Employment Sites EMP2 New Employment Proposals EMP3 Employment – Extensions and Intensification EMP5 Mixed Use Sites RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-wind Renewable Energy Installations MPP1 Mineral Proposals	<p><u>Opportunities to retain young people</u></p> <p>These policies promote the provision of factors that may assist in retaining the younger population of Carmarthenshire. These include provision of community facilities and potential employment opportunities.</p>
SP6 Affordable Housing H5 Adaptation and Reuse of Rural Buildings for	<p><u>Opportunities to provide suitable affordable housing</u></p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
Residential Use H6 Residential Care Facilities H7 Gypsy and Traveller Sites AH1 Affordable Housing AH2 Affordable Housing – Exceptions Sites AH3 Affordable Housing – Minor Settlement in the Open Countryside	This policy provides for the delivery of affordable housing through the planning system.
SP1 Sustainable Places and Spaces SP15 Tourism and the Visitor Economy SP18 The Welsh Language GP5 Advertisements	<p><u>Promotion of Welsh Language</u></p> Policy SP18 safeguards and promotes the interests of the Welsh language, encouraging its continued development.

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on ‘the topic’, or no association at all.

SA Baseline for Population

The data provided is based upon selected 2001 Census data held at the Local Authority level by the Office of National Statistics (ONS 2008).

14.1.1 Demographics

At the 2001 Census, the population of Carmarthenshire was 172,842. Between 1991 and 2001 the population of Carmarthenshire grew by 2.36%; slightly above the national population growth of 1% for the same period.

In the 0-19 and 20-44 age groups in Carmarthenshire between 1991 and 2001, the percentage of the Carmarthenshire population making up these age groups decreased, whilst the component population of 45-64 and 65+ age groups increased. This suggests that there is a tendency of out-migration amongst young people in Carmarthenshire.

Given the decline in people aged 20-44 and wider trends for falling birth rates and increased life expectancy in developed nations, the population structure of Carmarthenshire is likely to become skewed towards an older population.

A small percentage of people in Carmarthenshire (0.94%) are from ethnic minority groups. The national percentage population from ethnic minority groups in Wales is 2.0%. The average rate of residents in Wales being born outside the country is 24.6%. Statistics for Carmarthenshire indicate that a much lower percentage of the population are born outside Wales (19.9%).

14.1.2 Children and Young People

The number of children and young people in Carmarthenshire is falling, this is leaving a lot of empty spaces in schools. The availability of jobs and higher education is a key issue in retaining the young population. In particular the Carmarthenshire Economic Development Strategy 2005 – 2015 identifies that young people between 20 and 39 years are under represented in the County due to out-migration of people seeking work and opportunities elsewhere. The Strategy identifies the following opportunities for addressing this issue:

- Developing the business environment for young people through creating quality jobs appropriate to higher level skills, encouraging entrepreneurship.
- Creating a youth friendly culture through supporting innovation and involving young people in decisions and generating ideas.
- Marketing Carmarthenshire to young people through targeted marketing, assisting employers to widen recruitment opportunities.
- Providing the lifestyle environment required by young people through art, culture, sports and music, improving access to information, ensuring high environmental quality and housing that is appropriate and affordable.

Key drivers for these issues include business, skills and learning and infrastructure.

The Carmarthenshire Children and Young People's Plan 2008 – 2011 (Carmarthenshire County Council 2008b) states that access to services is an issue for children and young people living in rural areas. In addition, school building stock in the county is generally in poor condition and some 1300 children live in accommodation without central heating. Levels of obese and pre-obese children are increasing in the county, there are low rates of participation in physical activity and the proportion of young smokers is also particularly high. 8% of children and young people in Carmarthenshire are described as being 'not in education, employment or training' (NEET).

14.1.3 Welsh Language

A high percentage of Carmarthenshire's residents identify themselves as Welsh (23.4%) when compared to the national average (17.9%). Carmarthenshire also has a high percentage of Welsh speakers (50.3% of the county population) when compared to the average for Wales (20.8%). The Welsh language is an important cultural, social and economic component of life in Carmarthenshire (Carmarthenshire County Council 2008a). Census data indicates that in Carmarthenshire, the proportion of people using the Welsh language is increasing, particularly young people. The community areas of Laugharne and Pendine represent the parts of the county where rates of stated use of the Welsh Language are lowest according to Census data.

14.1.4 Unoccupied Household Spaces

National statistics indicate that the purchase of second homes or holiday accommodation is prevalent in some counties in Wales. The national average rate of unoccupied household spaces (second residences) as a percentage of all unoccupied household spaces is 23.2%. The rate for Carmarthenshire falls significantly below this at 12.5%, indicating that the trend for purchasing second homes is stronger in other counties in Wales.

Assessment: Risks and Opportunities

14.1.5 Effects within Carmarthenshire

Out-migration of young people is a key issue in Carmarthenshire. Policies promoting increased housing allocations, growth areas and employment opportunities have the potential to assist in addressing these issues. In addition Policy SP16 supports the provision of new community facilities. Improved arts, culture and sports facilities in particular all have the potential to provide better lifestyle options for younger people. GP3 also ensures that appropriate contributions are provided for new development to ensure that appropriate facilities are provided.

The local environment may also be a factor in retaining the younger population; in particular SP1 and GP1 support the creation of safe, attractive and accessible environments which contribute to well-being throughout the County. SP1 also seeks to improve social and economic well-being. Other policies that promote housing, employment and other mixed use development (Strategic policies SP1, SP3, SP4, SP5, SP6 and SP7 and associated specific policies), through the development of growth within key centres and strategic sites, have the potential to direct this type of development towards more desirable locations with an extensive range of services and facilities, particularly growth areas such as Llanelli and Carmarthen. The LDP recognises that affordable housing should be provided for local needs (AH1) and that employment provision should be well-placed in relation to deprivation.

Several policies are also likely to provide appropriate and affordable housing to the younger generation. This has been informed by a viability assessment undertaken by the Council, combined with other contributions. In addition, policies that promote new technologies, such as renewable energy (SP11, RE1, RE2 and RE3) and unconventional oil and gas extraction (MPP1) are likely to bring new opportunities into the area and have the potential to increase employment opportunities for those with higher levels skills.

Retention of the young population may have secondary benefits to the County's Economy and Skills, through the retention of higher skilled workers. Education is also likely to benefit.

A number of policies (Strategic policies SP1, SP3, SP4, SP5, SP6, SP7 and SP16 and associated specific policies including GP1 and GP3) may bring opportunities for increased social inclusion, through the provision of new community facilities, directing housing towards growth areas. The most deprived areas in Carmarthenshire are areas around Llanelli. The LDP outlines Llanelli as a growth area as well as promoting three strategic sites for mixed use and employment uses around Llanelli. This may benefit disadvantaged and minority groups through providing new facilities and opportunities into this area. Other deprived areas include those around Carmarthen and Llandovery. These towns are identified as growth areas and service centres respectively. These areas may benefit from similar policies.

SP6, AH1, AH2 and AH3 have the potential to increase opportunities for affordable housing with the potential for benefits to the population. As stated in the LDP, the Council will seek an affordable housing target of 30% in the higher viable sub-market areas, 20% in middle viable sub-market areas, and 10% within the Ammanford / Cross Hands sub-market areas with affordable housing being required to be provided on proposals of 5 or more houses in all settlements. Specific site targets may vary subject to viability and negotiation.

The LDP also provides opportunities for the growth of the Welsh language and culture. SP18 promotes the use of the Welsh language. In addition Policy SP1 aims to enhance local character, SP15 Tourism and the Visitor Economy ensures that development will not materially and adversely affect social and cultural aspects of the County.. Opportunities for growth of the Welsh Economy may have secondary effects in developing education and skills and Welsh language related economy.

Table 14-3: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP1 Sustainable Places SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing SP6 Affordable Housing SP7 Employment – Land Allocations SP16 Community Facilities	Opportunities to promote and encourage social inclusion.	None.	SP3, SP4, SP5, SP6, SP7 and SP16 provide opportunities for development which has the potential to encourage social inclusion. SP1 promotes safe attractive and accessible environments as well as social well-being.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
H1 Housing Allocations H2 Housing within Development Limits H5 Adaptation and Reuse of Rural buildings for Residential Use H6 Residential Care Facilities H7 Gypsy and Traveller Sites AH1 Affordable Housing AH2 Affordable Housing – Exceptions Sites AH3 Affordable Housing – Minor Settlement in the Open Countryside GP1 Sustainability and High Quality Design GP3 Planning Obligations TR1 Primary and Core Road Networks TR2 Location of Development – Transport Considerations TR3 Highways in	Opportunities to retain the younger population.	None.	SP3, SP4, SP5, SP6, SP7 and SP16 provide opportunities for development and opportunities which have the potential to encourage the retention of younger people. SP1 promotes safe attractive and accessible environments as well as social well-being.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>Development – Design Considerations</p> <p>TR4 Cycling and Walking</p> <p>TR6 Redundant Rail Corridors</p> <p>EMP1 Employment - Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP5 Mixed Use Sites</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p> <p>MPP1 Mineral Proposals</p>	<p>Retaining the younger population may have secondary benefits to the economy through increased numbers of skilled workers in the County.</p>	<p>None.</p>	<p>These policies have the potential to assist in retaining the younger population of the County. This has the potential to feed through to the economy as highly skilled population may remain within Carmarthenshire.</p>
<p>SP11 Renewable Energy & Energy Efficiency</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p>	<p>Potential to retain younger population through promotion of new technologies and skills.</p>	<p>None.</p>	<p>These policies promote renewable energy development and other new technologies. There is the potential for new skills and technologies to move into the County, which may result in the retention of highly skilled younger population.</p>
<p>SP1 Sustainable Places and Spaces</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP18 The Welsh Language</p> <p>GP5 Advertisements</p>	<p>Opportunities for promoting the Welsh Language.</p>	<p>None.</p>	<p>These policies provide opportunities to promote the Welsh language and culture through tourism opportunities, new development and safeguarding the language and character.</p>
<p>SP6 Affordable Housing</p> <p>H5 Adaptation and Reuse of</p>	<p>Opportunities to increase</p>	<p>P3 Sustainable Distribution –</p>	<p>Policy SP3 may assist in directing affordable</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Rural buildings for Residential Use H6 Residential Care Facilities H7 Gypsy and Traveller Sites AH1 Affordable Housing AH2 Affordable Housing – Exceptions Sites AH3 Affordable Housing – Minor Settlement in the Open Countryside	affordable housing availability.	Settlement Framework	housing growth to the most appropriate areas.
SP1 Sustainable Places and Spaces SP15 Tourism and the Visitor Economy SP18 The Welsh Language GP5 Advertisements	Promoting the Welsh Language may have secondary benefits to the skills and literacy.	None.	These policies promote the interests of the Welsh language; this may provide opportunities for increased learning throughout the County.
SP1 Sustainable Places and Spaces SP15 Tourism and the Visitor Economy SP18 The Welsh Language GP5 Advertisements	Promoting the Welsh Language may have secondary benefits to the Welsh language related economy and tourism.	None.	These policies have the potential to promote the Welsh Language and culture. Improvements to this may feed through to the County's economy.

14.1.6 Regional, National and Global Effects

Benefits are likely to be seen across the region through retaining the younger population and aiming to address social inclusion.

Retaining the younger population has the potential to feed down into the economy through retention of highly skilled workers. This may also benefit the populations of the surrounding regions.

SA Recommendations

14.1.7 Mitigation to Reduce Risk or Enhance Opportunities

All previously recommended mitigation has been considered, and there are no further recommendations this stage. Table 14-4 sets out improvements made to the LDP policies as a result of the assessment and recommendations.

Table 14-4: Improvements Made to LDP Policies as a Result of SA Work

Issue	Policy	Improvement
Inclusion of text that requires infrastructure and spaces to be designed to be 'disability-friendly' allowing for easy and safe access by people with mobility difficulties. This should include such considerations as avoiding and then minimising the use of steps, using dropped kerbs and tactile paving at crossings, avoiding pavement clutter, audible pedestrian signals at crossing points, etc.	TR2, TR3 and TR4.	Text incorporated into policy wording of TR2 and supporting text of TR3 and TR4.
Policy text should promote community facilities for disadvantaged and minority groups.	SP16	Policy SP9 promotes social inclusion through increased accessibility to employment, services and facilities.
Policy relating to affordable housing should specify a locational requirement to ensure safe and convenient access to education, employment and other community facilities. Affordable housing should be located in areas of identified need.	Detailed affordable housing policies.	Detailed policies require that the provision of affordable housing meets local needs.

14.1.8 Key Residual Risks and Opportunities

Recommendations and associated improvements to the LDP policies are set out above in Table 14-4. SA recommendations have enabled several LDP policies to be enhanced through the expansion of policy wording to require that issues such as disability and mobility are included within relevant policies.

The SA has identified no residual risks associated with the LDP Policies. The key residual opportunities as a result of the LDP Policies and associated recommended enhancements are summarised below.

- Opportunities for retaining the younger population;
- Opportunities for encouraging social inclusion;
- Opportunities for promoting the Welsh Language; and
- Opportunities for providing affordable housing.

Combining the above, it is considered likely that the LDP could lead to slightly beneficial effects cumulatively in the short to medium term, and moderately beneficial effects by the long term.

15 Health and Well Being

Topic Definition and Approach

The World Health Organisation defines health as "a state of complete physical, mental and social well being and not merely the absence of disease or infirmity" (WHO, 1948).

Many factors that affect health are covered through other considerations such as improving education and skills, income, housing, employment, air quality, transport, water and waste disposal.

The table below sets out the SA Objectives and decision-making criteria for health and well-being, which have been utilised to develop the baseline and guide the assessment process.

Table 15-1: SA Framework for Health and Well Being

SA Objectives	Decision-Making Criteria
11 - Health and Well-Being	
11-1 Create opportunities for people to live active, healthy lifestyles through planning activities.	Will there be a positive or negative impact on human health?
11-2 Provide access to health and recreation facilities and services.	Will access to health services and recreation facilities including natural heritage features be increased?
11-3 Encourage walking or cycling as alternative means of transportation.	Will the LDP increase opportunities for walking and cycling?
11-4 Promote access to Wales' natural heritage.	

The SA has looked at the areas identified in Table 11-1, as these were considered to be those most likely to be affected by the proposals and policies within the LDP.

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 11-2 below describes the strategic policies of relevance to the health and well-being of Carmarthenshire's population.

Table 15-2: LDP Policies and Relevance to Health and Well Being

Policies in the LDP	Relevant Association of Policies with SA Objectives
SP1 Sustainable Places and Spaces SP3 Sustainable Distribution – Settlement Framework	<u>Promotion of active and healthy lifestyles</u> These policies promote development of safe, attractive and accessible environments which contribute to people's health and well-being and

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP4 Strategic Sites</p> <p>SP9 Transportation</p> <p>SP11 Renewable Energy and Energy Efficiency</p> <p>SP16 Community Facilities</p> <p>GP1 Sustainability and High Quality Design</p> <p>RT8 Local Shops and Facilities</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>TR4 Cycling and Walking</p> <p>TR6 Redundant Rail Corridors</p> <p>RE1 Large Scale Wind Power</p> <p>REC1 Protection of Open Space</p> <p>REC2 Open Space Provision and New Developments</p> <p>REC3 Proposed New Open Space</p>	<p>improving social well-being – aiming to promote healthy lifestyles and access to facilities and services.</p> <p>Development is also promoted in areas with existing sport and recreational facilities.</p> <p>SP11 and RE1 have the potential to promote active and healthy lifestyles through the provision of large scale wind farms, which have the potential to incorporate and safeguard recreational facilities.</p> <p>GP1 requires development proposals to provide a network that promotes the interests of pedestrians and cyclists. REC2 and REC3 promote new open space provision.</p>
<p>SP1 Sustainable Places and Spaces</p> <p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP9 Transportation</p> <p>SP16 Community Facilities</p> <p>GP1 Sustainability and High Quality Design</p> <p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>TR4 Cycling and Walking</p> <p>TR6 Redundant Rail Corridors</p> <p>RE1 Large Scale Wind Power</p> <p>REC1 Protection of Open Space</p> <p>REC2 Open Space Provision and New Developments</p> <p>REC3 Proposed New Open Space</p>	<p><u>Promotion of access to recreation and natural heritage</u></p> <p>These policies promote accessible environments and new development in locations with existing access to recreational facilities and natural heritage.</p> <p>REC2 and REC3 promote new open space provision. REC3 proposes new open space provision south of Picton Terrace, Carmarthen; to the rear of Ammanford Comprehensive School which could create new habitats; to the rear of Station Road, St Clears; and at Dylan, Trallwm, Llanelli.</p> <p>Transport policies promote accessible environments.</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP1 Sustainable Places and Spaces</p> <p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP9 Transportation</p> <p>SP16 Community Facilities</p> <p>SP17 Infrastructure</p> <p>GP1 Sustainability and High Quality Design</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p>	<p><u>Promotion of access to health facilities</u></p> <p>These policies direct development to locations with existing health facilities.</p>
<p>SP1 Sustainable Places and Spaces</p> <p>SP4 Strategic Sites</p> <p>SP9 Transportation</p> <p>SP11 Renewable Energy and Energy Efficiency</p> <p>SP15 Tourism and the Visitor Economy</p> <p>GP1 Sustainability and High Quality Design</p> <p>RT8 Local Shops and Facilities</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>TR4 Cycling and Walking</p> <p>TR6 Redundant Rail Corridors</p> <p>RE1 Large Scale Wind Power</p> <p>REC1 Protection of Open Space</p> <p>REC2 Open Space Provision and New Developments</p>	<p><u>Opportunities for walking and cycling</u></p> <p>These policies aim to provide facilities that are serviceable by walking and cycling, promoting active travel and benefiting human health.</p> <p>Policy SP4 identifies sites for settlement growth areas. These sites include healthcare and open space / amenity areas, improving access to these services and opportunities for walking/cycling.</p> <p>GP1 requires development proposals to provide a network that promotes the interests of pedestrians and cyclists. REC2 and REC3 promote new open space provision.</p>
<p>MPP1 Mineral Proposals</p>	<p><u>Potential for negative health impacts through new development</u></p> <p>There is the potential for the risk of pollution to ground water and air quality through potential extraction technologies. These may have knock on effects to human health.</p>
<p>SP2 Climate Change</p> <p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p>	<p><u>Potential for negative health and well-being impacts</u></p> <p>All new development, if not appropriately designed, has the potential to sever access to health, recreational facilities and the countryside</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>SP8 Retail</p> <p>SP9 Transportation</p> <p>SP10 Sustainable Mineral Development</p> <p>SP11 Renewable Energy & Energy Efficiency</p> <p>SP12 Waste Management</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p> <p>SP17 Infrastructure</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>H6 Residential Care Facilities</p> <p>H7 Gypsy and Traveller Sites</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP1 Employment - Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification EMP5 Mixed Use Sites</p> <p>RT1 Retailing Hierarchy</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>TR1 Primary and Core Road Networks</p> <p>EP5 Coastal Development</p> <p>EP4 Coastal Management</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tents Sites</p> <p>TSM3 Small Scale Tourism</p>	<p>for existing residents. They can also lead to existing facilities going over capacity, leading to a relative lack of enough facilities in an area. This is why the policies listed above are so important.</p> <p>Other SA topics are also relevant, as air, water, soil and other environmental impacts have a very direct association with people’s health and well-being.</p> <p>Policies SP2, SP14, GP3 and RE1 aim to avoid, reduce, minimise or compensate for the potential negative impacts of these other policies. For the strategic policies, it is not possible to eliminate the risk (see recommendations).</p> <p>Protection of designated sites or key habitats (see HRA).</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
Development in the Open Countryside TSM5 Major Tourism Proposals in the Open Countryside MPP1 Mineral Resources MPP5 Aggregate Alternatives WPP1 Nantycaws Waste Management Facility WPP2 Waste Management Facilities Outside Development Limits GP3 Planning Obligations RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-wind Renewable Energy Installations	

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on ‘the topic’, or no association at all.

SA Baseline for Health and Well Being

The Health, Social Care and Well-being Strategy for Carmarthenshire identifies the key issues for health and well being needs of the population. These include general demography and factors affecting health and well-being, special health conditions and population groups with particular health and well being needs. Tywi, Teifi and parts of Taf Myrddin in particular are sparsely populated with implications for transport and access to community facilities and services. Poverty is identified as the single biggest determinant of ill-health, this is particularly evident in deprived areas to the south and east of the County.

The rate of individuals in Carmarthenshire who rate their general state of health as ‘good’ rests at 62.4% and falls below the national average of 65.1%. The rate of individuals in Carmarthenshire with a long-term limiting illness is particularly elevated above the national average of 23.3% at a rate of 35.6%. However life expectancy for individuals in Carmarthenshire is in line with the national average for both males and females. The national rate of teenage conceptions per 1,000 individuals Wales is 45.7. The rate for Carmarthenshire falls significantly below this at 36.7 per 1,000 population.

The proportion of adult smokers and the prevalence of obesity in Carmarthenshire are both slightly above the national average.

Obesity is considered to be one of the most important health issues in Wales (National Public Health Service for Wales 2007). A report by The Wales Centre for Health (2007) looked at the distribution of health statistics between urban areas and sparse and less sparse rural areas.

The report highlighted that determinants of health are more accurately displayed at the Lower Super Output Area (LSOA) level, given the tendency for figures at the Unitary Authority level to mask smaller scale trends. Although the report doesn't name LSOAs in which poor levels of health statistics are recorded, the following trends should be considered: -

- Access to healthcare services in rural areas is particularly important given recent closures of hospitals in rural areas;
- Low income and lack of work contribute to poor health and well-being;
- Rural deprivation is often a consequence of seasonal, self-employment and part-time work;
- Populations in rural areas are commonly older on average than urban areas;
- Rural areas that are less sparsely populated commonly have a higher proportion of individuals receiving income support than the Welsh average;
- Poorer housing domain scores from the Wales Index of Multiple Deprivation (WIMD) tend to be in rural areas of north and east Wales;
- Slightly more people in rural areas tend to have 5 GCSEs and higher, compared to those in urban areas;
- Areas of central rural Wales have poorer access to hospitals;
- Car ownership in rural areas is considered to be essential;
- 'Rural less sparse areas' can also be associated with high levels of deprivation in comparison to urban areas and rural sparse areas; and
- 'Rural less sparse areas' show poorer figures than the Welsh average for income indicators.

Assessment: Risks and Opportunities

15.1.1 Effects Within Carmarthenshire

Poverty is one of the biggest determinants of ill-health in the county, and within Carmarthenshire, the most deprived areas are situated in the south. Access to services and facilities could be improved through Strategic Policies SP1, SP3, SP4, SP9 and SP16 and a number of Specific Policies including policies GP1, RT7 and transport policies TR2, TR3, TR4 and TR6. These policies aim to promote sustainable development and new community facilities as well as promoting access. In particular, the growth areas and strategic sites are focused around key towns with good access to facilities and services. The area around Llanelli especially is identified as being deprived and strategic development sites in the vicinity are likely to provide mixed-use development with better access to health facilities. Key health services are concentrated in the main towns of the County - Llanelli and Carmarthen (LDP growth areas), as well as Llandovery and Llanelli (LDP service centres). Promoting development within these areas will for allow for better access health services. Policies SP9 and SP17 are also likely to promote better access to health facilities through improved transport infrastructure.

Similarly, strategic policies promoting healthy and active lifestyles include SP1, SP3, SP4, SP11 and SP16. Policies SP1 and SP16 promote people's health and well-being and the provision of new community facilities, including those related to recreation and sport. Amenity and open spaces are also likely to be provided through these policies and supported through specific policies REC1, REC2 and

REC3. Policies SP3 and SP4 are likely to promote development in areas with existing health facilities, encouraging active lifestyles through easier access. Specific development policies including GP1 require development proposals to provide an integrated network of access for all. A number of specific policies also promote healthy and active lifestyles particularly through transport policies promoting walking and encouraging cycling and other forms of recreation (TR2, TR3, TR4 and TR6).

Policy SP4 identifies sites for settlement growth areas. These sites include health care and open space / amenity areas, improving access to these services and opportunities for walking / cycling. Policy SP11, alongside Policy RE1, promotes renewable development, including large scale wind farm development. Large scale wind farm development has the potential promote opportunities for healthy lifestyles and include access to recreational activities through the nature of their development. Policy RE1 safeguard existing walking, mountain biking and horse riding facilities from large scale wind farm development, particularly noted is the protection of important outdoor recreational facilities at Brechfa Forest.

Policy SP1, SP9 and specific policies GP1, TR1, TR2, TR3, TR4 and TR6 are also likely to promote and encourage active transport and access to natural environments through creating attractive and accessible environments.

Up to 132 MW of wind farm development is proposed within the Brechfa Forest SSA, based on Garrad Hassan’s independent review of potential capacity in the SSAs. As noted in a 2006 study by Arup, ‘The Garrad Hassan work ... considers a more conservative noise approach including a buffer around residential properties of 700m and a 40dB(A) absolute limit.’ The potential for noise impacts will therefore be an important consideration in achieving this target.

All new development has the potential to affect access to health, recreational facilities and the countryside, through severing access or the potential for existing facilities to reach capacity. Policies SP1, SP3, SP4, SP14, SP16, SP17 and GP1 aim to ensure that there is sufficient infrastructure of the correct type to support the health and well-being of new residents and others. Policy SP14 regards the protection of the environment, as is assessed in detail under the other topics of this SA. RE1 aims to protect existing recreational facilities and public access from large scale wind farm development.

Policy MPP1 has the potential to risk human health through impacts to air quality, groundwater and other water resources. Policies EP1 and EP2 seek to minimise pollution and adverse impacts on the water environment may assist in ensuring impacts are minimal.

Table 15-3: Risks and Opportunities Summary

Key			
	Risk of a Negative Effect		
	Opportunity		
Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP1 Sustainable Places and Spaces	Opportunities to promote healthy and active	None.	These policies promote development in sustainable places, in safe attractive and

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP9 Transportation	lifestyles through new development.		accessible environments which contribute towards people’s health and well-being.
SP16 Community Facilities GP1 Sustainability and High Quality Design TR4 Cycling and Walking TR6 Redundant Rail Corridors RT8 Local Shops and Facilities TR2 Location of Development – Transport Considerations TR3 Highways in Development – Design Considerations RE1 Large Scale Wind Power REC1 Protection of Open Space REC2 Open Space Provision and New Developments REC3 Proposed New Open Space	Opportunities to promote access to recreation.	None.	These policies promote development in sustainable areas where opportunities for recreation and access to recreation are higher.
RE1 Large Scale Wind Power	Opportunities to safeguard existing recreation from development.	None	This policy safeguards existing recreational facilities for walking, mountain biking and equestrian activities from large scale wind power development.
SP1 Sustainable Places and Spaces SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP9 Transportation SP16 Community Facilities	Opportunities to promote access to health facilities.	None.	These policies promote development to key growth areas and service centres, with higher provisions of health facilities and access opportunities. Transport policies also promote accessible developments by a number of modes

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP17 Infrastructure GP1 Sustainability and High Quality Design TR2 Location of Development – Transport Considerations TR3 Highways in Development – Design Considerations			
SP9 Transportation TR1 Primary and Core Road Networks TR2 Location of Development – Transport Considerations TR3 Highways in Development – Design Considerations	Improves accessibility to health services.	None	This policy can improve accessibility to key health services and facilities through new and improved transport infrastructure.
SP1 Sustainable Places and Spaces SP9 Transportation GP1 Sustainability and High Quality Design TR1 Primary and Core Road Networks TR2 Location of Development – Transport Considerations TR3 Highways in Development – Design Considerations TR4 Cycling and Walking TR6 Redundant Rail Corridors	Opportunities to promote access to natural heritage.	None.	This policy promotes development that creates accessible environments.
SP1 Sustainable Places and Spaces SP4 Strategic Sites SP9 Transportation SP11 Renewable Energy and Energy Efficiency SP15 Tourism and the	Opportunities to promote and encourage walking and cycling.	None.	These policies promote sustainable development which creates safe and accessible environments which contribute towards people’s health and well being. SP11 and RE1 have the potential to encourage walking and cycling through

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>Visitor Economy</p> <p>GP1 Sustainability and High Quality Design</p> <p>RT8 Local Shops and Facilities</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>TR4 Cycling and Walking</p> <p>TR6 Redundant Rail Corridors</p> <p>RE1 Large Scale Wind Power</p> <p>REC1 Protection of Open Space</p> <p>REC2 Open Space Provision and New Developments</p>			<p>the provision of large scale wind farms, which have the potential to incorporate and safeguard recreational facilities.</p>
<p>MPP1 Mineral Proposals</p>	<p>There is the potential for the risk of pollution to ground water and other parameters through potential extraction technologies. These may have knock on effects to human health.</p>	<p>EP1 Water Quality and Resources</p> <p>EP2 Pollution</p>	<p>These policies seek to minimise pollution and adverse impacts on the water environment.</p>
<p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>SP7 Employment – Land Allocations</p> <p>SP8 Retail</p> <p>SP9 Transportation</p> <p>SP10 Sustainable Mineral Development</p>	<p>Potential for negative health and well-being impacts</p>	<p>SP1 Sustainable Places and Spaces</p> <p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP14 Protection and Enhancement of the Natural</p>	<p>Policies SP1, SP3, SP4, SP14, SP16 and SP17 aim to ensure that there is enough infrastructure of the correct type to support the health and well-being of new residents and others. Policy SP14 regards the protection of the environment, as is assessed in detail under the other topics of this SA.</p> <p>RE1 aim to protect existing recreational facilities and public access from large</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>SP11 Renewable Energy & Energy Efficiency</p> <p>SP12 Waste Management</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP16 Community Facilities</p> <p>SP17 Infrastructure</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>H6 Residential Care Facilities</p> <p>H7 Gypsy and Traveller Sites</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP1 Employment - Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP4 Employment – Extensions and Intensification.</p> <p>EMP5 Mixed Use Sites</p> <p>RT1 Retailing Hierarchy</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>TR1 Primary and Core Road Networks</p> <p>EP5 Coastal Development</p> <p>EP4 Coastal Management</p> <p>TSM1 Static Caravan and Chalet Sites</p>		<p>Environment</p> <p>SP16 Community Facilities</p> <p>SP17 Infrastructure</p> <p>RE1 Large Scale Wind Power within Strategic Search Areas</p> <p>GP3 Planning Obligations</p> <p>MPP4 Coal Extraction Operations</p>	<p>scale wind farm development.</p> <p>Policy MPP4 restricts development of coal extraction operations within 500m of the development limits of identified settlements within the LDP and the supporting text requires proposals to be accompanied by a Health Impact Assessment where appropriate.</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
TSM2 Touring Caravan and Tents Sites			
TSM3 Small Scale Tourism Development in the Open Countryside			
TSM5 Major Tourism Proposals in the Open Countryside			
MPP1 Mineral Resources			
MPP5 Aggregate Alternatives			
WPP1 Nantycaws Waste Management Facility			
WPP2 Waste Management Facilities Outside Development Limits			
GP3 Planning Obligations			
RE1 Large Scale Wind Power			
RE2 Local, Community and Small Wind Farms			
RE3 Non-wind Renewable Energy Installations			

15.1.2 Regional, National and Global Effects

The promotion of healthy and active lifestyles has the potential to be beneficial to the surrounding regions through the provision of more accessible areas.

In addition, safeguarding existing recreational facilities is likely to result in benefits across Wales through existing important resources (particularly at Brechfa Forest) being protected from large scale wind farm development.

SA Recommendations

15.1.3 Mitigation to Reduce Risk or Enhance Opportunities

All previously recommended mitigation has been considered, and there are no further recommendations this stage. Table 15-4 sets out improvements made to the LDP policies as a result of the assessment and recommendations.

Table 15-4: Improvements Made to LDP Policies as a Result of SA Work

Issue	Policy	Improvement
Policies could provide a stronger active transport element.	SP1 and SP9	Policies reworded to include active transport .
Renewable energy policies could be enhanced through the policy wording being expanded to include text promoting the enhancement of existing facilities and provision of new recreational facilities.	RE1 and RE2	Following text incorporated into supporting text <i>'existing bridleways and footpaths shall be safeguarded and encouragement will be given to enhancing existing facilities and providing new recreational facilities'</i> .
Recommended re-wording of supporting text to give more emphasis on potential impacts and associated implications	MPP1	Reworded supporting text to further emphasise the requirement for either no significant impacts on public health or appropriate mitigation.

15.1.4 Key Residual Risks and Opportunities

Recommendations and associated improvements to the LDP policies are set out above in Table 15-4. SA recommendations have enabled a number of LDP policies to be enhanced through the expansion of policy wording to require that impacts on health are minimised and that issues such as active transport are included. However due to the requirement for new development; and the site specific nature of potential impacts on the landscape/townscape, it is not possible for the policies to fully eliminate risks associated with the extraction of unconventional gas.

The key residual risks are those which will remain despite the mitigating policies already developed, amendments to policies as a result of the SA recommendations and standard controls which are likely to be enforced. The key residual risks and also the opportunities are summarised below.

- Opportunities for the promotion of access to health facilities;
- Opportunities for the promotion of access to recreation;
- Opportunities for the promotion of active and healthy lifestyles through active transport, walking, cycling and other recreational facilities;
- Opportunities to promote access to natural heritage;
- Opportunities to safeguard existing recreational and access facilities; and
- Mining activities including extraction of unconventional gas and other forms of onshore oil and gas provide long term risks to groundwater, drinking water aquifers and to water resources, even with mitigation and associated recommended amendments to the policy. This has the potential for associated risks to human health.

Combining the above, it is considered likely that the LDP could lead to slightly beneficial effects cumulatively in the short to medium term, and moderately beneficial effects by the long term.

Management and controls regarding water quality issues are addressed in Chapter 9.

16 Education and Skills

Topic Definition and Approach

The quality of education in the UK is high with overall increases in GCSE and A-Level results each year and rising levels of people gaining at least an NVQ4 qualification. The level of inequality in education is rising nationally however with poorer families almost half as likely to achieve good GCSE results and twice as likely to be expelled.

The table below sets out the SA Objectives and decision-making criteria for education and skills which have been utilised to develop the baseline and guide the assessment process.

Table 16-1: SA Framework for Education and Skills

SA Objectives	Decision-Making Criteria
12 - Education and Skills	
12-1 Provide accessible educational and training facilities which meet the future needs of the area.	Will the LDP contribute to increasing attainment levels amongst young people?
12-2 Increase levels of literacy (in English and Welsh) and numeracy.	Will the LDP promote access to education facilities for all members of the community?
12-3 Promote lifelong learning.	Will the LDP contribute to increasing literacy and numeracy levels?

The LDP can improve the provision of education and training facilities and so the SA has focused on identifying current levels of education and training facilities and needs along with assessing present levels of literacy and numeracy to give an indication of need in the towns and villages of Carmarthenshire.

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 12-2 below describes the strategic policies of relevance to education and skills.

Table 16-2: LDP Policies and Relevance to Education and Skills

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP1 Sustainable Places and Spaces</p> <p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP9 Transportation</p> <p>SP16 Community Facilities</p> <p>GP1 Sustainability and High Quality Design</p> <p>GP3 Planning Obligations</p> <p>EMP5 Mixed Use Sites</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>EMP5 Mixed Use Sites</p>	<p><u>Accessible educational and training facilities</u></p> <p>These policies promote the provision of sustainable, accessible development and community facilities.</p> <p>Policy SP4 identifies sites for settlement growth areas. These sites include consolidation of educational facilities, improving access to these services.</p>
<p>SP18 The Welsh Language</p> <p>SP16 Community Facilities</p> <p>GP3 Planning Obligations</p> <p>GP5 Advertisements</p>	<p><u>Increased levels of literacy</u></p> <p>These policies encourage the promotion of the Welsh Language and minimising the erosion of the language therefore has the potential to result in increased literacy levels.</p>
<p>SP16 Community Facilities</p> <p>GP3 Planning Obligations</p> <p>EMP5 Mixed Use Sites</p>	<p><u>Lifelong learning</u></p> <p>Community facilities can provide opportunities for lifelong learning through the provision of training and educational facilities.</p>
<p>SP3 Sustainable Distribution – Settlement Framework</p> <p>SP4 Strategic Sites</p> <p>SP5 Housing</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H5 Adaptation and Reuse of Rural Buildings for Residential Use</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP5 Mixed Use Sites</p>	<p><u>Potential for negative impacts on existing education facilities</u></p> <p>New housing development, if not appropriately planned for, has the potential to lead to existing schools and other education facilities going over capacity, leading to a relative lack of enough facilities in an area. This is why the policies listed above are so important.</p>

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on 'the topic', or no association at all.

SA Baseline for Education and Skills

Data from the 2001 Census indicates that the proportion of Carmarthenshire's 19-21 year olds with at least an NVQ Level 2 qualification or equivalent rests at 20.6% and falls just above the national average of 19.78%. The proportion of the Carmarthenshire population that has at least an NVQ level 4 qualification or equivalent is in line with the national average. However, the proportion of people in Carmarthenshire with no qualifications is above the national average at 34% and is particularly high when compared against a rate of 25.0% in the neighbouring local authority of Ceredigion.

At the national level, 25% of the adult Welsh population have entry level or below literacy skills, and 53% of the adult Welsh population have entry level or below numeracy skills. This compares to 16% and 47% of the combined adult England and Wales population for literacy and numeracy skills respectively. In the south west region, rates of entry level literacy and numeracy skills are in line with the average for Wales. The standards for Level 1 and Level 2 are equivalent to those demanded for a Level One or Level Two qualification in the National Qualifications Framework. If a person is classified at Entry level, it suggests that they lack the necessary literacy or numeracy to achieve a formal qualification.

In Carmarthenshire, 20% of the adult Welsh population have entry level or below literacy skills whilst 59% have entry level numeracy skills. The proportion of the adult Welsh population that have Level 2 numeracy skills falls some way below the national rate of 22% at 8%.

Although statistics suggest that the population of foreign migrants in Carmarthenshire is small, access to education facilities for a variety of ethnic groups will need to be provided.

Assessment: Risks and Opportunities

16.1.1 Effects within Carmarthenshire

The LDP promotes development in sustainable locations, particularly within proximity to areas with existing services and facilities, including educational facilities. In particular for areas such as Llanelli and Carmarthen, Policies SP1, SP3 and SP4 promote the provision of new development within proximity to growth areas and service centres. Specific policies also aim to located development with good accessibility. Policy GP1 requires development to provide integrated access networks. Transportation Policies SP9, TR2 and TR3 promote increased accessibility to employment, services and facilities via a variety of different transport modes whilst Policy SP16 promotes new community facilities and EMP5 promotes mixed use developments including educational facilities. These facilities can assist in educational and training provision.

In terms of literacy, again SP16, GP3 and EMP 6 may result in improvements through the provision of facilities that can provide training and educational opportunities. In addition the LDP supports the Welsh language through SP18 and

EMP4, which aims to minimise the erosion of the Welsh language. SP18 may result in improved options for Welsh Language learning.

Other benefits associated with better access to education and facilities can include opportunities for the economy of the County through a more highly skilled workforce and the retention of the younger population.

LDP housing allocations and provision have the potential to negatively affect the capacity of educational facilities. Policies include SP3, SP4, SP5, H1, H2 and EMP5. However it is likely that Policies SP1, SP3, SP16, SP17 and GP3 will ensure that there is enough infrastructure of the correct type to support the educational needs of new residents and others.

Table 16-3: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP1 Sustainable Places and Spaces SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP9 Transportation GP1 Sustainability and High Quality Design TR2 Location of Development – Transport Considerations TR3 Highways in Development – Design Considerations EMP5 Mixed Use Sites	Improved access to education facilities.	None.	These policies promote better access to education through the sustainable location of new development.
SP16 Community Facilities GP3 Planning Obligations EMP5 Mixed Use Sites	Improved education and training facilities.	None.	These policies provide new opportunities for educational and training facilities.
SP1 Sustainable Places and Spaces SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP9 Transportation SP16 Community Facilities SP16 Community Facilities GP1 Sustainability and High	A highly skilled population has the potential for improved opportunities for economic growth.	None.	These policies promote better access to educational facilities, which in turn have the potential to benefit the Welsh economy.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Quality Design GP3 Planning Obligations EMP5 Mixed Use Sites TR2 Location of Development – Transport Considerations TR3 Highways in Development – Design Considerations			
SP1 Sustainable Places and Spaces SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP9 Transportation SP16 Community Facilities SP16 Community Facilities GP1 Sustainability and High Quality Design GP3 Planning Obligations EMP5 Mixed Use Sites TR2 Location of Development – Transport Considerations TR3 Highways in Development – Design Considerations	Increased access to education has the potential to retain the younger population.	None.	These policies promote better access to educational facilities, with the potential for this to result in the retention of younger people within the Council.
SP18 The Welsh Language SP16 Community Facilities GP3 Planning Obligations EMP5 Mixed Use Sites	Promoting literacy within the County.	None.	These policies have the potential to provide better opportunities for learning, potentially improving both English and Welsh literacy.
SP16 Community Facilities GP3 Planning Obligations EMP5 Mixed Use Sites	Promoting lifelong learning.	None.	These policies have the potential to encourage lifelong learning through provision of better facilities.
SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP5 Housing H1 Housing Allocations	Potential to negatively affect the capacity of education facilities.	SP1 Sustainable Places and Spaces SP3 Sustainable Distribution –	Policies SP1, SP3, SP16, SP17 and GP3 aim to ensure that there is enough infrastructure of the correct type to support the

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
H2 Housing within Development Limits H5 Adaptation and Re-use of Rural Buildings for Residential Use AH1 Affordable Housing AH2 Affordable Housing – Exceptions Sites AH3 Affordable Housing – Minor Settlement in the Open Countryside EMP5 Mixed Use Sites		Settlement Framework SP4 Strategic Sites SP16 Community Facilities GP3 Planning Obligations	educational needs of new residents and others.

16.1.2 Regional, National and Global Effects

Improved opportunities for skills increase and education within the county has the potential to benefit across the region through providing a more highly skilled workforce.

SA Recommendations

16.1.3 Mitigation to Reduce Risk or Enhance Opportunities

All previously recommended mitigation has been considered, and there are no further recommendations this stage. Table 16-4 sets out improvements made to the LDP policies as a result of the assessment.

Table 16-4: Improvements Made to LDP Policies as a Result of SA Work

Issue	Policy	Improvement
There is the potential to expand policy wording to include support for the provision of new educational and training-related development.	SP16	Recommendation incorporated into policy wording.

16.1.4 Key Residual Risks and Opportunities

Recommendations and associated improvements to the LDP policies are set out above in Table 16-4. SA recommendations have enabled one LDP policy to be enhanced through the expansion of policy wording to support the provision of new educational and training-related development.

The SA has identified no residual risks associated with the LDP Policies. The key residual opportunities as a result of the LDP Policies and associated recommended enhancements are summarised below.

- Opportunities to promote access to education and learning facilities;
- Opportunities to promote literacy;
- Opportunities to support the provision of new educational and training-related development;
- Opportunities to promote lifelong learning; and
- Opportunities for secondary effects on the economy and retention of younger people.

Combining the above, it is considered likely that the LDP will slightly improve access levels to educational facilities over the short and medium term, but this would lead to slightly beneficial effects cumulatively in the long term.

17 Economy

Topic Definition and Approach

The UK economy is currently recovering after the 2008-2009 recession. Currently, unemployment is the largest issue facing the economy with over 2.5 million people unemployed. The service sector is the most dominant in the UK economy, making up approximately 73% of Gross Domestic Product (GDP) (ONS, 2010).

The table below sets out the SA Objectives and decision-making criteria for Carmarthenshire’s economy which have been utilised to develop the baseline and guide the assessment process.

Table 17-1: SA Framework for Economy

SA Objectives	Decision-Making Criteria
13-1 To promote sustainable economic growth.	Will there be any adverse economic impacts on land and premises in employment use?
13-2 To provide good quality employment opportunities for all sections of the population.	Will there be a positive or negative impact on jobs opportunities as a result of the LDP?
13-3 To promote sustainable businesses in Wales.	

For the purposes of this SA, the promotion of sustainable economic growth, employment opportunities and sustainable business have been a focus. This is because the LDP has the ability to affect these parameters.

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 13-2 below describes the strategic policies of relevance to Carmarthenshire’s economy.

Table 17-2: LDP Policies and Relevance to Economy

Policies in the LDP	Relevant Association of Policies with SA Objectives
SP4 Strategic Sites SP5 Housing SP6 Affordable Housing SP7 Employment – Land Allocations SP8 Retail SP15 Tourism and the Visitor Economy SP17 Infrastructure	Stabilisation of the economy: policies allocate land to meet the needs of employers including larger businesses and small-scale employees. SP17 guides development to areas where appropriate infrastructure is in place to support the economy. SP8 supports retail proposals including small local conveniences

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>SP18 The Welsh Language</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>H10 Home Working</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversifications</p> <p>EMP5 Mixed Use Sites</p> <p>RT1 Retailing Hierarchy</p> <p>RT2 Principal Centres (Growth Areas): Primary Retail Frontage</p> <p>RT3 Principal Centres (Growth Areas): Secondary Retail Frontage</p> <p>RT4 Principal Centres (Growth Areas): Town Centre Zone</p> <p>RT5 Town Centres (Service Centres)</p> <p>RT6 Town Centres (Service Centres) – Convenience Stores</p> <p>RT8 District Centres (Local Service Centres)</p> <p>RT8 Local Shops and Facilities</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>EP5 Coastal Development</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>TSM3 Small Scale Tourism Development in the Open Countryside</p> <p>TSM4 Visitor Accommodation</p> <p>TSM5 Major Tourism Proposals in the Open Countryside</p>	<p>contributing to the viability of rural settlements.</p> <p>SP18 looks to promote the Welsh language which plays an important role in economic life of Carmarthenshire’s residents and its visitors.</p> <p>A number of specific policies are also relevant through providing land allocation and support for employment, retail, tourism and other developments including renewable energy technologies.</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>MPP1 Mineral Proposals</p> <p>MPP5 Aggregate Alternatives</p> <p>WPP2 Waste Management Facilities Outside Development Limits</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p>	
<p>SP1 Sustainable Places and Spaces</p> <p>SP2 Climate Change</p> <p>SP8 Retail</p> <p>SP9 Transportation</p> <p>SP11 Renewable Energy and Energy Efficiency</p> <p>SP15 Tourism and the Visitor Economy</p> <p>SP17 Infrastructure</p> <p>H10 Home Working</p> <p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification</p> <p>EMP4 Farm Diversifications</p> <p>EMP5 Mixed Use Sites</p> <p>RT1 Retailing Hierarchy</p> <p>RT2 Principal Centres (Growth Areas): Primary Retail Frontage</p> <p>RT3 Principal Centres (Growth Areas): Secondary Retail Frontage</p> <p>RT4 Principal Centres (Growth Areas): Town Centre Zone</p> <p>RT5 Town Centres (Service Centres)</p> <p>RT6 Town Centres (Service Centres) – Convenience Stores</p> <p>RT7 District Centres (Local Service Centres)</p> <p>RT8 Local Shops and Facilities</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>EP5 Coastal Development</p> <p>TSM1 Static Caravan and Chalet Sites</p>	<p>Potential for economic and employment growth: these policies have the potential to bring new business development into the area, increasing employment opportunities.</p> <p>SP9, TR1, TR2 and TR3 can improve the connectivity of the County and can therefore encourage businesses and people move to the area.</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
TSM2 Touring Caravan and Tent Sites	
TSM3 Small Scale Tourism Development in the Open Countryside	
TSM4 Visitor Accommodation	
TSM5 Major Tourism Proposals in the Open Countryside	
MPP1 Mineral Proposals	
MPP5 Aggregate Alternatives	
WPP2 Waste Management Facilities Outside Development Limits	
RE1 Large Scale Wind Power	
RE2 Local, Community and Small Wind Farms	
RE3 Non-wind Renewable Energy Installations	

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on ‘the topic’, or no association at all.

SA Baseline for Economy

According to the Annual Population Survey 2008, the economic activity rate of Carmarthenshire’s working age population is 75.4%. This figure ranks 12th out of the 22 Welsh local authorities and is comparable with the Welsh rate of 75.7%.

The Economic Inactivity rate for the same period stands at 24.6%, placing Carmarthenshire 10th in the ranking of all Welsh local authorities. Again, this is comparable with the Wales figure of 24.3%, but is higher than the UK level of 21.4%.

Compared to other Welsh Local authorities, the economic activity rate in Carmarthenshire compares relatively equally with the neighbouring counties, namely, Pembrokeshire (76.5%), and Swansea (75.4%) and compares favourably against Neath Port Talbot (69.9%) and Ceredigion (68%).

Carmarthenshire has the 12th highest employment rate in Wales compared to the other 21 Welsh local authorities. In terms of unemployment, as of October 2008, unemployment in Carmarthenshire stood at 2.3%, below the Welsh and UK average however it had increased by 20.65% from the previous year. This increase is reflected throughout the UK however and represents less of an increase.

Of the Travel to Work areas, only Carmarthen has seen a reduction in unemployment rates from 2007 to 2008. The most significant rise in unemployment was in Llanelli at nearly 30% and currently had the highest unemployment rate of 3.2% as of 2008. Llandeilo had the lowest unemployment rate at 1.2%.

The proportion of people in Carmarthenshire that claim Job Seeker’s Allowance is 2.4% of the population and falls just below the national average of 3%.

In Carmarthenshire, the types of industries in which most people are employed are:

- Wholesale, retail and repairs;
- Health and Social;
- Manufacturing; and
- Education.

This pattern is consistent with the trends in the neighbouring local authorities of Ceredigion and Powys.

Agriculture is also an important economic activity in the county. A key aim of the Wales Rural Development Plan is to increase the competitiveness of the agricultural sector.

The percentage of the working population that work mainly at or from home is 7.9% and is lower than the national average of 9.7%.

The Carmarthenshire Strategy for Prosperity 2005 – 2015 (Carmarthenshire Connexions 2005), states that Gross Value Added (GVA) per capita and productivity in the county have shown strong performance by historical standards. There has been growth in the establishment of new business as a trend for an increasing number of people gaining higher-level qualifications and a fall in those without any qualifications.

The main economic challenges that the county faces relate to the needs to increase rates of productivity, and to retain talented and qualified young people. Economic and social exclusion are also considered to represent challenges in the community and skill levels fall below UK levels. The Strategy also indicates that the environmental quality of key towns and retail centres needs to be improved.

Assessment: Risks and Opportunities

17.1.1 Effects within Carmarthenshire

Strategic policies SP1, SP4, SP7 and SP8 allocate land to meet the needs of employers and contribute towards economic well-being, alongside a number of strategic policies. These policies are further enhanced by SP17 which ensures that sufficient infrastructure is in place to support the local economy. In addition to this, SP9, along with specific transport policies, promotes improvements to the transport infrastructure in Carmarthenshire ensuring of an effective, efficient, safe and sustainable integrated transport system which can attract new businesses and workers through better linkages between areas of Carmarthenshire and beyond. SP9 could be further improved to maximise rail, bus, cycling and walking opportunities, prior to reliance on the road network for access to surrounding employment. Specific policies TR2 and TR3 aim to provide new development with minimal reliance on car travel.

There are no significant issues relating to unemployment in Carmarthenshire when considered alongside the rest of Wales and the UK as a whole. Unemployment however has risen in the last few years due to the recession that hit the UK. It is therefore considered that the policies promoting new employment, for example within the tourism and renewable energy sector which present an opportunity for the County. Llanelli has the highest unemployment rate (as of 2008) and declined significantly (by 30%) from 2007 to 2008. This town is highlighted as a Growth Area with three Strategic Sites including two areas of employment use and one of mixed use. A focus on provision of employment in this area can create a significant

opportunity and may help to reduce unemployment levels. A large number of policies have the potential to increase employment opportunities in Carmarthenshire. EMP1 safeguards employment sites - the LDP identifies that the focus of employment land provision is within the defined Growth Areas, notably in respect of Llanelli and Ammanford/Cross Hands. The LDP recognises that provision in Llanelli for example, is well placed in terms of reflecting the relative high unemployment rates and the standing in relation to deprivation. In addition, Policy H10 supports proposals for home working recognising that many small businesses are started by individuals working from their own homes and such instances are likely to increase as technological innovations increase.

Policies which support the growth of high value and green sectors such as tourism and renewable energy generation (such as SP15, SP11, TSM1-3, RE1, RE2 and RE3) can help develop a resilient economy, protecting its viability. Renewable energy policies have the potential to bring in new types of development and technologies to the county, promoting employment opportunities and boosting economic growth in the region. In addition, policies such as SP8 can help rural communities to be more self-sufficient through the provision of local conveniences. In addition the promotion of new technologies such as unconventional oil and gas exploration through Policy MPP1, have the potential to increase employment opportunities and provide economic benefits to the area. One of the main economic challenges identified for Carmarthenshire is the retention of its young and highly skilled workers and so the LDP could go further and try and attract businesses which can retain these people. Promoting the Welsh language as outlined in SP18 can also help retain young people and also attract tourist to the area, thereby further benefiting the economy.

Agriculture is also an important economic activity in the county. There is the potential for policies that facilitate new development to result in landtake which can affect existing agricultural business. However strategic polices SP1 and SP14 direct development to efficient locations and aim to protect the natural environment. Policy EMP4 supports proposals for farm diversification, which are supported where they are compatible with, and support, the continued operation of the agricultural activity. The LDP recognises that agriculture is an essential contributor to the area's future economy and that the retention of a healthy agricultural sector has employment benefits for surrounding communities and benefits through the availability of locally produced food.

The promotion of retail development also has the potential to improve the economic viability of settlements. Policy RT8 however has the potential to damage viability through the promotion of out of centre development.

Strategic policies SP5 Housing and SP6 Affordable Housing alongside specific policies H1, H2 and AH1 – 4 forms an important component of the strategy particularly in contributing to the development of sustainable and well balanced communities. Provision of sufficient and affordable housing to meet the needs of Carmarthenshire's population can help to retain young people and has the possibility to attract new people to the area. This could increase skills levels and indirectly could attract new businesses.

Table 17-3: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
(All which facilitate new development – see soils chapter.)	Negative agricultural landtake impacts can affect agricultural businesses.	SP1: Sustainable Places and Spaces SP14 Protection and Enhancement of the Natural Environment EMP2 New Employment Proposals EMP3 Employment – Extensions and Intensification EMP4 Farm Diversifications	SP1 directs development to where land can be utilised most efficiently including previously developed sites. Where agricultural land is allocated for development, consideration of the impact on agricultural holdings and businesses should be made.
EMP2 New Employment Proposals EMP3 Employment – Extensions and Intensification EMP4 Farm Diversifications	Protection of agricultural and rural economy	N/A	Proposals are required to demonstrate that a Countryside location is required. Proposals for the expansion of existing rural enterprises will be supported and proposals for farm diversification are supported where they are compatible with, and support, the continued operation of the agricultural activity.
SP1 Sustainable Places and Spaces SP4 Strategic Sites SP7 Employment – Land Allocations SP8 Retail H10 Home Working EMP1 Employment – Safeguarding of Employment Sites EMP2 New Employment Proposals EMP3 Employment – Extensions and Intensification EMP4 Farm Diversifications EMP5 Mixed Use Sites	Provides opportunity for needs of businesses to be met.	SP17 Infrastructure SP9 Transportation TR1 Primary and Core Road Networks TR2 Location of Development – Transport Considerations TR3 Highways in Development – Design Considerations	These policies allocate land to meet the needs of employers including larger businesses and small scale employees. SP17 directs development to areas where there is appropriate and adequate infrastructure to ensure it is in place to support the local economy. SP9, TR1, TR2 and TR3 can help improve linkages between areas within

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
RT1 Retailing Hierarchy RT2 Principal Centres (Growth Areas): Primary Retail Frontage RT3 Principal Centres (Growth Areas): Secondary Retail Frontage RT4 Principal Centres (Growth Areas): Town Centre Zone RT5 Town Centres (Service Centres) RT6 Town Centres (Service Centres) – Convenience Stores RT7 District Centres (Local Service Centres) RT8 Local Shops and Facilities RT9 Regional Centres (Retail Parks)			Carmarthenshire and beyond thereby further attracting businesses and potential workers.
SP4 Strategic Sites SP5 Housing SP6 Affordable Housing SP7 Employment – Land Allocations SP8 Retail SP15 Tourism and the Visitor Economy SP17 Infrastructure SP18 The Welsh Language H1 Housing Allocations H2 Housing within Development Limits H5 Adaptation and Reuse of Rural buildings for Residential Use H10 Home Working AH1 Affordable Housing AH2 Affordable Housing – Exceptions Sites AH3 Affordable Housing – Minor Settlement in the Open Countryside	Provision of Employment Opportunities	N/A	These policies promote a number of different types of development that has the potential to provide better employment opportunities.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>EMP1 Employment – Safeguarding of Employment Sites</p> <p>EMP2 New Employment Proposals</p> <p>EMP3 Employment – Extensions and Intensification EMP4 Farm Diversifications</p> <p>EMP5 Mixed Use Sites</p> <p>RT1 Retailing Hierarchy</p> <p>RT2 Principal Centres (Growth Areas): Primary Retail Frontage</p> <p>RT3 Principal Centres (Growth Areas): Secondary Retail Frontage</p> <p>RT4 Principal Centres (Growth Areas): Town Centre Zone</p> <p>RT5 Town Centres (Service Centres)</p> <p>RT6 Town Centres (Service Centres) – Convenience Stores</p> <p>RT7 District Centres (Local Service Centres)</p> <p>RT8 Local Shops and Facilities</p> <p>RT9 Regional Centres (Retail Parks)</p> <p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>EP5 Coastal Development</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p> <p>TSM3 Small Scale Tourism Development in the Open Countryside</p>			

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>TSM4 Visitor Accommodation</p> <p>TSM5 Major Tourism Proposals in the Open Countryside</p> <p>MPP1 Mineral Proposals</p> <p>MPP5 Aggregate Alternatives</p> <p>WPP2 Waste Management Facilities Outside Development Limits</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p>			
<p>SP5 Housing</p> <p>SP6 Affordable Housing</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p>	<p>Increases housing availability and affordability thereby potentially attracting people to the area.</p>	<p>N/A</p>	<p>Can improve opportunities for people to move to the area which could result in new employers also relocating.</p>
<p>SP15 Tourism and the Visitor Economy</p> <p>SP13 Protection and Enhancement of the Built and Historic Environment</p> <p>SP14 Protection and Enhancement of the Natural Environment</p> <p>SP18 The Welsh language</p> <p>TSM1 Static Caravan and Chalet Sites</p> <p>TSM2 Touring Caravan and Tent Sites</p>	<p>Increases visitors to the area leading to growth in the tourism sector and potential for employment.</p>	<p>N/A</p>	<p>SP15 supports tourism development whilst SP13 and SP14 afford protection to the natural, built and historic environment which can safeguard their integrity and attract visitors to the area.</p> <p>SP18 safeguards and promotes the Welsh language which could</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
<p>TSM3 Small Scale Tourism Development in the Open Countryside</p> <p>TSM4 Visitor Accommodation</p> <p>TSM5 Major Tourism Proposals in the Open Countryside</p>			<p>encourage tourism.</p> <p>TSM1, TSM2, TSM3 and TSM5 all promote tourist related development.</p>
<p>RT9 Regional Centres (Retail Parks)</p>	<p>Risks to viability of settlements through provision of out of town units.</p>	<p>N/A</p>	<p>This policy promotes out of town retail development which could be a risk to existing settlements. The policy does require an impact assessment for the potential effects on established town centres however there is still the potential for adverse effects.</p>
<p>SP8 Retail</p> <p>RT1 Retailing Hierarchy</p> <p>RT2 Principal Centres (Growth Areas): Primary Retail Frontage</p> <p>RT3 Principal Centres (Growth Areas): Secondary Retail Frontage</p> <p>RT4 Principal Centres (Growth Areas): Town Centre Zone</p> <p>RT5 Town Centres (Service Centres)</p> <p>RT6 Town Centres (Service Centres) – Convenience Stores</p> <p>RT7 District Centres (Local Service Centres)</p> <p>RT8 Local Shops and Facilities</p>	<p>Promotes viability of settlements in Carmarthenshire.</p>	<p>SP9 Transportation</p> <p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p>	<p>These policies promote retail development and recognise the sustainability benefits of improving self-containment, promoting small local convenience facilities in rural areas as well as urban areas.</p> <p>Transport policies can enhance viability of settlements through better connectivity, particularly in rural areas.</p>
<p>SP9 Transportation</p> <p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport</p>	<p>Can attract new businesses and people to the County.</p>	<p>N/A</p>	<p>The policies improve connectivity and can attract businesses through better reliability of journey times. This could be</p>

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Considerations TR3 Highways in Development – Design Considerations			further developed however (see recommendations).
MPP1 Mineral Proposals	Potential for growth in the economy.	N/A	This policy has the potential for growth in the economy due to new technology.
SP2 Climate Change SP11 Renewable Energy and Energy Efficiency MPP1 Mineral Proposals RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-wind Renewable Energy Installations	Can attract new employment opportunities through provision of renewable energy technologies and other technologies.	N/A	These policies can improve employment opportunities and boost economic growth in the region.

17.1.2 Regional, National and Global Effects

Attracting new businesses to Carmarthenshire including tourism and renewable energies through measures identified in section 13.4.1 can contribute to the general resilience and sustainability of the Welsh economy. In addition, encouraging the Welsh language can promote Welsh tourism, thereby providing a boost to the economy in this respect.

Improving the transport network as specified in Policy SP9 can improve linkages between areas of Carmarthenshire and beyond. This can not only attract businesses to Carmarthenshire but can also improve flows of goods to and from the County thereby benefiting the regional and Welsh economy as a whole.

SA Recommendations

17.1.3 Mitigation to Reduce Risk or Enhance Opportunities

All previously recommended mitigation has been considered, and there are no further recommendations this stage. Table 17-4 sets out improvements made to the LDP policies as a result of the assessment.

Table 17-4: Improvements Made to LDP Policies as a Result of SA Work

Issue	Policy	Improvement
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<p>Provision of a stronger sustainable transport element within policy wording. Prior to introducing road development proposals, it should elaborate on what reflecting sustainable transport principles should mean to developers. This may include planning to eliminate unnecessary car journeys, and maximising rail, bus, cycling and walking opportunities, prior to reliance on the road network for access to surrounding employment, retail, leisure and community facilities.</p>	<p>SP9</p>	<p>Recommendations integrated into SP9 and detailed transport policies.</p>
<p>Further detailed policies of the LDP should take the potential impacts of new development on agricultural holdings and businesses into account, and aim to ensure that appropriate steps are taken to protect the rural economy.</p>	<p>All detailed economy and employment policies.</p>	<p>Detailed policy EMP4 aims to protect existing farming activity and support rural economies.</p>

17.1.4 Key Residual Risks and Opportunities

Recommendations and associated improvements to the LDP policies are set out above in Table 17-4. SA recommendations have enabled a number of LDP policies to be enhanced through the expansion of policy wording to include an emphasis on sustainable transport access to employment and other facilities and the support of rural enterprises.

The key residual risks are those which will remain despite the mitigating policies already developed, amendments to policies as a result of the SA recommendations and standard controls which are likely to be enforced. The key residual risks and also the opportunities are summarised below.

- Appropriate allocation of land including provision of infrastructure to meet the needs of employers including larger businesses and small scale employees;
- New employment opportunities through the provision of new development;
- Improved transport linkages between areas of Carmarthenshire and beyond, encouraging an efficient, effective, safe and sustainable integrated transport system can potentially attract new businesses and employees;
- Potential to address pockets of high unemployment rates in Carmarthenshire including Llanelli which has the worst unemployment rates. The proposed Strategic Sites allocated to this area can help alleviate these issues;
- Recognition of the need to sustain rural economies, including agriculture and provide for self-sufficiency;
- Supports the development of a resilient economy and facilitates future growth within high value and green sectors such as tourism and renewable energy production.
- Provision of sufficient and affordable housing to meet the needs of Carmarthenshire’s population can help to retain young people and has the possibility to attract new people to the area;
- Risks to viability of settlements through out-of-town retail provision.

Combining the above, it is considered likely that the LDP could lead to slightly beneficial effects cumulatively in the short to medium term, and moderately beneficial effects by the long term.

Management of out-of-town retail provision is covered by Policy RT9 (as well as somewhat addressed by others), and it is assumed that this policy will strictly ensure the protection of the viability of town centres..

18 Social Fabric

Topic Definition and Approach

The social fabric SA topic looks at issues such as deprivation, crime, affordable housing and accessibility. Deprivation is measured by the government using the Index of Multiple Deprivation (IMD). This is based on 37 indicators split into seven domains of deprivation: income; employment; health and disability; education, skills & training; barriers to housing and services; living environment; and crime. The indices are used to help target policies and funding, and reinforce a common goal to improve the quality of life in disadvantaged communities.

The table below sets out the SA Objectives and decision-making criteria for Carmarthenshire’s social fabric which have been utilised to develop the baseline and guide the assessment process.

Table 18-1: SA Framework for Social Fabric

SA Objectives	Decision-Making Criteria
14 - Social Fabric	
14-1 Improve safety and security for people and property.	Will the LDP contribute to making housing more affordable?
14-2 Promote the design of settlements that improve social fabric by removing barriers and creating opportunities for positive interactions.	Will the LDP contribute to creating settlements that are safe and of a high quality urban fabric?
14-3 Promote the delivery of affordable housing.	Will the LDP contribute to creating healthier homes?
14-4 Improve accessibility to services, particularly for disadvantaged sections of society.	Will the LDP maximise access to services and facilities for all members of the community by different modes of transport?

Social fabric encompasses a wide range of parameters. For the purposes of this SA, we have focused upon the issues identified in Table 14-1 as these are considered to be of most relevance to the LDP.

Which Policies are Relevant to this Topic?

Several of the LDP strategic policies have the potential for a positive or negative effect on conditions or features considered under this topic. Table 14-2 below describes the strategic policies of relevance to the social fabric of Carmarthenshire.

Table 18-2: LDP Policies and Relevance to Social Fabric

Policies in the LDP	Relevant Association of Policies with SA Objectives
SP9 Transportation SP11 Renewable Energy and Energy Efficiency	<u>Risks to social fabric and local communities:</u> as well as protecting local communities, this also has the potential to increase risks if new roads dissect

Policies in the LDP	Relevant Association of Policies with SA Objectives
<p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>MPP1 Mineral Proposals</p> <p>MPP5 Aggregate Alternatives</p> <p>WPP2 Waste Management Facilities Outside Development Limits</p> <p>RE1 Large Scale Wind Power</p> <p>RE2 Local, Community and Small Wind Farms</p> <p>RE3 Non-wind Renewable Energy Installations</p>	<p>communities.</p> <p>Renewable energy developments close to local communities can create conflict such as wind farms and energy from waste plants unless sensitively located</p> <p>Minerals and Waste Developments also have the potential to create conflict.</p>
<p>SP5 Housing</p> <p>SP6 Affordable Housing</p> <p>GP1 Sustainability and High Quality Design</p> <p>H1 Housing Allocations</p> <p>H2 Housing within Development Limits</p> <p>H5 Adaptation and Reuse of Rural buildings for Residential Use</p> <p>H7 Gypsy and Traveller Sites</p> <p>AH1 Affordable Housing</p> <p>AH2 Affordable Housing – Exceptions Sites</p> <p>AH3 Affordable Housing – Minor Settlement in the Open Countryside</p> <p>SP9 Transportation</p> <p>TR1 Primary and Core Road Networks</p> <p>TR2 Location of Development – Transport Considerations</p> <p>TR3 Highways in Development – Design Considerations</p> <p>TR4 Cycling and Walking</p> <p>TR6 Redundant Rail Corridors</p> <p>SP16 Community Facilities</p> <p>GP3 Planning Obligations</p> <p>GP5 Advertisements</p>	<p><u>Protection of the social fabric and local communities:</u> allows for provision of sufficient and affordable housing in addition to protection of community facilities within the plan area.</p> <p>SP9 transportation promotes several new roads which can alleviate congestion on certain routes particularly where towns are bypasses therefore reducing severance. Specific transport policies promote new transport infrastructure.</p> <p>SP18 can help improve community cohesion and identity.</p> <p>GP1 aims to achieve attractive and safe areas.</p> <p>Policy H7 includes for avoidance of noise impacts on neighbouring land uses, which (if a significant issue) can include a variety of community uses (such as educational facilities).</p>

Policies in the LDP	Relevant Association of Policies with SA Objectives
SP18 The Welsh Language	
SP1 Sustainable Places and Spaces SP2 Sustainable Distribution – Settlement Framework SP4 Strategic Sites SP9 Transportation TR1 Primary and Core Road Networks TR2 Location of Development – Transport Considerations TR3 Highways in Development – Design Considerations SP16 Community Facilities GP1 Sustainability and High Quality Design GP2 Development Limits GP3 Planning Obligations GP4 Infrastructure and New Development GP5 Advertisements H1 Housing Allocations H2 Housing within Development Limits TR2 Location of Development – Transport Considerations EMP1 Employment – Safeguarding Employment Sites EMP2 New Employment Proposals EMP5 Mixed Use Sites RT1 Retailing Hierarchy	<p><u>Enhancement of the social fabric and local communities:</u> promotes sustainable development to create safe and accessible environments for people and promotes integration with the local community, potentially removing barriers and creating opportunities for positive interactions.</p>

Other policies within the LDP and which are not listed above have been reviewed for their relevance, but have been considered to have a negligible influence on ‘the topic’, or no association at all.

SA Baseline for Social Fabric

Per 1,000 population, the number of rough sleepers rests at 3.9 and is above the national average of 3.4. The Carmarthenshire Housing Strategy 2007 – 2010 (Carmarthenshire Country Council 2006b) states that the number of households applying as homeless has dropped significantly, as well as the numbers accepted as homeless and the number of households moving through temporary accommodation.

Rates of household burglary per 1,000 population fall quite significantly below the national average. Similarly, rates of violent crime, vehicle theft and theft from motor vehicles in Carmarthenshire also fall some way below the national average. Although between 2002 and 2006, vehicle theft reduced significantly, the burglary and theft from motor vehicles have seen an increase in rates. For Wales as a whole, rates of crime in the aforementioned categories have decreased.

In Wales, rates of fear of crime with respect to car theft, burglary and physical attack, are typically lower than in England, particularly in terms of violent crime.

The WIMD 2005 indicates that out of a total of 112 Lower Super Output Areas (LSOAs) in Carmarthenshire, 7 were in the most deprived 10% of LSOAs in Wales. Based on the IMD, the three most deprived LSOAs in Carmarthenshire are:-

- Bigyn - ranked as the 45th most deprived LSOA out of 1896 LSOAs in Wales;
- Tyisha – ranked as the 55th most deprived LSOA out of 1896 LSOAs in Wales; and
- Glanymor - ranked as the 84th most deprived LSOA out of 1896 LSOAs in Wales.

The LSOAs in Carmarthenshire that are the most deprived are typically located in the south of the county. 6% of Carmarthenshire's LSOAs fall within the 10% most deprived LSOAs in Wales. 60% of its LSOAs fall within the 50% most deprived LSOAs in Wales. This indicates that 60% of the LSOAs in Carmarthenshire are more deprived than the Wales average.

In the top 10% most deprived LSOAs for Wales, there is an above average number of LSOAs in Carmarthenshire that score unfavourably against the domains of Geographical Access to Services and Employment. For the Environment, Overall Deprivation, Income, Health, Education and Housing domains, there is a below average of number of LSOAs in Carmarthenshire that are in the top 10% most deprived LSOAs in Wales.

The Wales IMD data 2007 indicates that in Carmarthenshire, levels of deprivation when compared to overall patterns in Wales are highest with respect to Geographical Access to Services and Employment and lowest for Environment and Housing.

Household tenure in Carmarthenshire is dominated by owner occupation (72.4%); however the proportion of social rented accommodation (17.2%) is more than double that of private rented accommodation (6.6%).

The cost of housing in Wales, as in the rest of the UK has risen considerably over the last decade. The average house price in Carmarthenshire in April 2007 was £138,525. In comparison for England and Wales in April 2007, the average house price was £179,935. The average price/earning ratio indicates that the price of housing is 8 times the average income.

According to the Carmarthenshire Housing Strategy (2007 – 2010) (Carmarthenshire County Council 2006b), affordability is a significant issue and there is a shortfall of affordable homes. The greatest housing need in the County is in the rural Tywi, Taf and Teifi Community Network areas. Demand for social housing is high and exceeds supply. Carmarthenshire's Strategy for Prosperity (2007 – 2015) states that levels of exclusion are highest in Community First areas, namely Glanymor, Tyisha, Felinfoel, Llwynhendy, Pantyffynnon and Brynamman.

In Carmarthenshire, there are two areas of allotments in Carmarthen (c. 110 plots), three sites in Llanelli (c. 45 plots) and one in Pontwelly (c. X plots – 01267 228892). In each case, the plots are fully allocated.

Assessment: Risks and Opportunities

18.1.1 Effects within Carmarthenshire

A number of policies that promote new development have the potential to result in risks to the social fabric of Carmarthenshire. Policy SP9 and TR1 promotes the development of new roads which could dissect smaller communities leading to long term risks. SP1 can mitigate this by only supporting proposals which create safe, attractive and accessible environments, improving social well-being. Conversely SP9 could reduce severance through alleviating congestion particularly within towns.

Policy SP9 also promotes an efficient, effective, safe and sustainable integrated transport system which addresses social inclusion through increased accessibility to employment, services and facilities. It also promotes development which considered accessibility by non-car modes of transport. This presents opportunities to enhance the social fabric of Carmarthenshire and helps reduce inequalities. Specific transport policies support SP1 including TR1, TR2, TR3, TR4 and TR6, these policies all aim to improve accessibility and ensure new development is accessible, particularly by non-car modes (TR2).

A further risk is presented within SP10, MPP1 and MPP5, as new mineral extraction sites close to local communities could result in noise, visual and vibration impacts, particularly as a result of transportation of minerals which could be along small rural roads passing by villages.

Policies SP11, RE1, RE2 and RE3 promote renewable energy development. Whilst these policies do aim to avoid unreasonable risk, nuisance or impact on the amenity of nearby residents or the public, conflict can still occur within and between communities where new renewable energy developments are proposed, particularly those such as wind farms and energy from waste plants. New developments such as those promoted through Policy MPP1 also have the potential for conflict. Many people do not wish to have these developments in their 'backyard' due to perceived negative impacts and lack of awareness of potential benefits.

There will however be many opportunities created through the LDP policies. Provision of sufficient and affordable housing, particularly in more deprived areas, will help to retain people in communities and protect their sense of community. In addition to this, several policies such as SP1, SP3, SP4 and GP1 look to direct development to the most sustainable locations taking into account the potential to create safe and accessible environments for people and promote integration with the local community, potentially removing barriers and creating opportunities for positive interactions. GP1 in particular seeks to promote safe spaces, ensuring security through natural surveillance.

SP16 provides opportunities to protect and improve community facilities which can contribute significantly to the quality of life, enjoyment and inclusivity of settlements and communities within the county. It states that the protection and retention of community facilities should wherever feasible be considered and accessibility to formal and informal recreation and leisure promoted. GP3 also promotes seeks to

ensure that contributions are sought to ensure that there is adequate provision of community and other facilities.

Finally, the Welsh language policy can help to promote community cohesion and identity thereby benefiting social well-being. Policy SP18 looks to minimise the erosion of the Welsh language through new development.

Table 18-3: Risks and Opportunities Summary

Key

	Risk of a Negative Effect
	Opportunity

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
SP9 Transportation TR1 Primary and Core Road Networks	Potential to dissect communities if new roads are constructed.	SP1 Sustainable Places and Spaces	SP1 can help mitigate against this risk by ensuring development creates safe, attractive and accessible environments improving social well-being.
SP10 Sustainable Mineral Development MPP1 Mineral Proposals MPP5 Aggregate Alternatives	Transportation of minerals using heavy vehicles can disrupt communities through noise, visual and vibration impacts.	SP1 Sustainable Places and Spaces	SP1 can help mitigate against this risk by ensuring development creates safe, attractive and accessible environments improving social well-being.
SP11 Renewable Energy and Energy Efficiency RE1 Large Scale Wind Power RE2 Local, Community and Small Wind Farms RE3 Non-wind Renewable Energy Installations MPP1 Mineral Proposals MPP5 Aggregate Alternatives WPP2 Waste Management Facilities Outside Development Limits	Renewable energy developments and other technologies such as windfarms, energy from waste plants and unconventional oil and gas extraction can cause conflict within and between communities.	N/A	Conflict can occur between and within communities due to proposed developments such as windfarms, energy from waste plants and minerals/oil/gas extraction. This may be due to NIMBY syndrome.
GP1 Sustainability and High Quality	Opportunities to improve		This policy aims to promote safety and ensure security.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
Design	safety.		
SP5 Housing SP6 Affordable Housing H1 Housing Allocations H2 Housing within Development Limits H5 Adaptation and Reuse of Rural buildings for Residential Use AH1 Affordable Housing AH2 Affordable Housing – Exceptions Sites AH3 Affordable Housing – Minor Settlement in the Open Countryside	Provides for sufficient and affordable housing for local communities.	N/A	Helps to retain the local population and protect local communities.
SP9 Transportation TR1 Primary and Core Road Networks TR2 Location of Development – Transport Considerations TR3 Highways in Development – Design Considerations TR4 Cycling and Walking TR6 Redundant Rail Corridors	Improves accessibility to services and removes traffic from congested roads thereby reducing barriers.	N/A	Can reduce current barriers which may be in place within communities due to congested and high speed roads. Furthermore, the policy promotes social inclusion through increased accessibility by a variety of different transport modes.
SP16 Community Facilities GP3 Planning Obligations	Protects and enhances community facilities.	SP9 Transportation TR1 Primary and Core Road Networks TR2 Location of Development – Transport Considerations TR3 Highways in Development –	SP9 and associated specific transport policies further improves access to facilities and services through improvements to the transport network.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
		Design Considerations TR4 Cycling and Walking TR6 Redundant Rail Corridors	
SP18 The Welsh Language GP5 Advertisements	Promotes community cohesion and improvements to social well-being.	N/A	SP18 safeguards and promotes the Welsh language which plays an important role in the social and cultural life of Carmarthenshire's residents and visitors.
SP1 Sustainable Places and Spaces SP3 Sustainable Distribution – Settlement Framework SP4 Strategic Sites GP1 Sustainability and High Quality Design GP2 Development Limits GP3 Planning Obligations GP4 Infrastructure and New Development H1 Housing Allocations H2 Housing within Development Limits H7 Gypsy and Traveller Sites TR2 Location of Development – Transport Considerations EMP1 Employment – Safeguarding Employment Sites EMP2 New Employment Proposals	Situates development in sustainable locations to improve the community environment.	N/A	The policies promote sustainable development to create safe and accessible environments for people and promote integration with the local community, potentially removing barriers and creating opportunities for positive interactions. Policy H7 includes for avoidance of noise impacts on neighbouring land uses, which (if a significant issue) can include community services and facilities.

Policy/ies	Risk or Opportunity	Mitigating or Enhancing Policy/ies	Relationship
EMP5 Mixed Use Sites RT1 Retailing Hierarchy			

18.1.2 Regional, National and Global Effects

There are potential benefits to be gained to the Welsh society through the promotion of the Welsh language which can lead to a greater sense of identity and community cohesion.

As the local impacts identified above regard not only citizens of Carmarthenshire, but citizens of Wales as a whole, and as people do tend to migrate, there will be regional and national impacts emerging from the local impacts (only lesser in magnitude).

SA Recommendations

18.1.3 Mitigation to Reduce Risk or Enhance Opportunities

All previously recommended mitigation has been considered, and there are no further recommendations this stage. Table 18-4 sets out improvements made to the LDP policies as a result of the assessment.

Table 18-4: Improvements Made to LDP Policies as a Result of SA Work

Issue	Policy	Improvement
Provision of a stronger sustainable transport element within policy wording. Prior to introducing road development proposals, it should elaborate on what reflecting sustainable transport principles should mean to developers. This may include planning to eliminate unnecessary car journeys, and maximising rail, bus, cycling and walking opportunities, prior to reliance on the road network for access to surrounding employment, retail, leisure and community facilities.	SP9	Recommendations integrated into SP9 and detailed transport policies.

18.1.4 Key Residual Risks and Opportunities

Recommendations and associated improvements to the LDP policies are set out above in Table 18-4. SA recommendations have enabled Strategic Policy SP9 and associated detailed transport policies to be enhanced through the expansion of policy wording to include an emphasis on sustainable transport access. Despite mitigating policies and SA recommendations there are still a number of risks that remain, due to the nature of new development.

The key residual risks are those which will remain despite the mitigating policies already developed, amendments to policies as a result of the SA recommendations

and standard controls which are likely to be enforced. The key residual risks and also the opportunities are summarised below.

- New mineral extraction sites close to local communities could result in noise, visual and vibration impacts, particularly as a result of transportation of minerals which could be along small rural roads passing by villages;
- The transportation policies are likely to overall promote opportunities for communities through social inclusions by improving accessibility to services and facilities and promoting travel by a variety of different modes. Sustainable transport options are supported;
- Many people do not wish to have renewable energy developments in proximity to their homes due to perceived negative impacts and lack of awareness of potential benefits;
- Provision of sufficient and affordable housing, particularly in more deprived areas, which will help to retain people in communities and protect their sense of community;
- SP16 provides opportunities to protect and improve community facilities which can contribute significantly to the quality of life, enjoyment and inclusivity of settlements and communities within the county; and
- Promotion of the Welsh language will benefit local communities and the Welsh population as a whole.

Combining the above, it is considered likely that the LDP could lead to slightly beneficial effects cumulatively in the short to medium term, and moderately beneficial effects by the long term.

Regarding minerals (or any) developments at settlement edges which could threaten social fabric, it is expected that the range of policies in the LDP will be employed to achieve the most sustainable development possible, including accessibility, amenity and townscape / landscape considerations.

19 Summary, Conclusions and Recommended Monitoring

19.1 Summary of the Assessment

The assessments of Chapters 6 to 18 have concluded that all of the SA’s recommendations have been in some way incorporated into the LDP at this stage. However, even the most sustainable of plans will have ‘trade-offs’ to consider with each planning application, and therefore there are residual risks of negative impacts (as identified). There are also a number of opportunities, and for most SA topics, a beneficial effect can be achieved in the long term if good design principles and mitigation from the LDP policies are implemented.

Table 19-1 below summarises the assessment results. It provides the SA’s ‘most likely’ case, as well as an optimistic case, which assumes that the scale of local environmental enhancement and developer contributions will be consistently beneficial compared to the existing situation.

Given assumptions as discussed in Section 3.5, the ‘likely’ significant effects are overall considered to be positive in the long term, but the assessment recognises the risks of negative effects whilst developer contributions and other ancillary measures require time to be fully implemented. Habitats and landscape improvements may take time to mature, and it may take time for sustainable energy and waste management developments to accumulate such that performance outstrips the rate of housing growth. Sustainable transport opportunities may also take time to gain in popularity and be coupled with culture / behavioural change. However, the table below provides an outline summary of potential impacts, as each individual development site and location will have its own sensitivities, risks and opportunities. Given the consideration of the Matters Arising Changes, this table has not change since the previous revision.

Table 19-1: Summary of ‘Likely Significant Effects’ of the LDP

SA Topic	Scenario	Short-to Medium-Term Effect (Temporary)	Long-Term Effect (Semi-Permanent or Permanent)	Comments (in brief)
1 – Sustainable Development	N/A – this topic is considered to be a summary outcome of all other topics, and so was not assessed individually			
2 – Biodiversity	SA most likely	–	0	Cumulative loss of greenfield land alongside other cumulative impacts. Compensated for, but probably not eliminated.
	Optimistic	0	+	Requires high-quality net enhancements delivered from most developments. Pre-construction mitigation may be needed to prevent temporary negative effects.
3 – Air Quality	SA most likely	–	–	Against a ‘no growth’ scenario, growth will lead to greater emissions into the indeterminate future, but minimised by increased sustainable transport usage.

SA Topic	Scenario	Short-to Medium-Term Effect (Temporary)	Long-Term Effect (Semi-Permanent or Permanent)	Comments (in brief)
	Optimistic	-	0	Requires that developers (and partners) make sustainable transport surpass the growth in housing and economic activity, and/or culture change.
4 – Climatic Factors	SA most likely	-	+	Over the next few decades, renewable energy and landfill reduction targets (etc.) are likely to make full use of LDP policies to achieve net benefits.
	Optimistic	-	++	Further benefits are plausible, particularly of sustainable transport uptake is high.
5 – Water	SA most likely	0	0	Statutory controls combined with LDP policies are expected to protect the water environment fully.
	Optimistic	0	+	LDP actions can only do so much, however SUDS measures and habitat enhancement could improve the water environment significantly if enough developments concentrate on improving water bodies (habitat and geomorphology).
6 - Material Assets	SA most likely, overall	-	+	Over the next few decades, renewable energy, minerals recycling and landfill reduction targets (etc.) are likely to make full use of LDP policies to achieve net benefits.
	SA most likely, transport	-	-	Against a baseline of car ownership increases, more housing places a challenge to the efficiency of the road network. Other plans and strategies external to the LDP (e.g. by SWWITCH) may neutralise these impacts, but the LDP impact is likely to be slightly negative.
	Optimistic	-	++	Further benefits are plausible, particularly from technologies (e.g. renewable energy, waste management, transport) improve with time.
7 – Soil	SA most likely	-	-	Whilst soils can be translocated and reused to a limited degree, the cumulative effect of soil/land loss from new greenfield development will be likely to remain negative.
8 - Cultural Heritage	SA most likely	-	-	New development is likely to encounter historic environment features, including buried archaeology. It is largely unpredictable, and the 'worst case' is that the net effect is negative.
	Optimistic	++	++	Policies could lead to the renovation and identification of a use for any derelict or 'at risk' historic structures of national importance.
9 - Landscape	SA most likely	-	+	The LDP strongly supports habitat creation and landscape improvement. A mix of positive and negative effects is likely, but net benefits can be achieved.

SA Topic	Scenario	Short-to-Medium-Term Effect (Temporary)	Long-Term Effect (Semi-Permanent or Permanent)	Comments (in brief)
	Optimistic	-	++	Landscape improvement may occur within or near to designated or even nationally significant features.
10 - Population	SA most likely	+	++	A combination of policies is expected to help integrate new development with existing, and improve social cohesion.
	Optimistic	++	+++	Benefits could be more significant near the deprived areas of south Llanelli, and if key deficiencies (e.g. in shops or facilities, as may be appropriate) are addressed.
11 - Health and Well-Being	SA most likely	+	++	The LDP policies require the infrastructure needed for healthy and active lifestyles.
	Optimistic	++	+++	Benefits could be more significant depending upon how existing local needs are considered and addressed / integrated.
12 - Education and Skills	SA most likely	0	+	LDP actions can only do so much for educational performance, but cumulatively policies are expected to lead to significant benefits by the long term.
13 - Economy	SA most likely	+	++	The wide range of LDP policies is expected to help create a more sustainable economy with good residential access to jobs.
	Optimistic	++	+++	Benefits could be more significant near the deprived areas of south Llanelli, particularly if transport connections are taken full advantage of.
14 - Social Fabric	SA most likely	+	++	Accessible housing and services, and safe places are central themes of the LDP.

19.2 Summary of Recommendations

Some of the key recommendations of the SA which have been incorporated into the LDP include:

- Strengthening of Policy SP9: Transportation to include for the provision of an efficient, effective, safe and sustainable integrated transport system to be delivered through a variety of sustainable measures;
- Policy RE3: Non-wind Renewable Energy installations has had its supporting text updated to include that the source of fuel used will not have an unacceptable ecological impact, domestically or elsewhere. It also states that proposals for biomass facilities will not adversely impact upon water resources, and developers should ensure there is a sufficient source of local fuel;
- Policies WPP1:Nantycaws Waste Management Facility and WPP2: Waste Management Facilities Outside Development Limits have been clarified to emphasise the Council’s commitment to driving waste up the waste hierarchy,

and that proposals should, wherever possible, encourage the driving of waste up the waste hierarchy;

- Policy GP4 was amended to state that access to, and availability of appropriate waste management should also be considered an important element in infrastructure provision for new development;
- Policy SP12: Waste Management was updated to include that proposals for new development should have regard to the location of waste management facilities (and their capacity) in formulating proposals;
- A recommendation was made to re-phrase supporting text to Policy MPP1, which was adopted, and now states that there should be no unacceptable impact of minerals development to groundwater, water resources and the quality of drinking water;
- Policy wording has been updated to include requirements that the integrity and setting of the historic environment is protected, including policies GP5 Advertisements , GP6 Extensions, RE1, RE2, RE3, H5, H6, H7, H8, AH2, AH3, EMP2, EP5, EP5, TSM1, TSM3, TSM4 and MPP6;
- Policy SP13 was amended to include the preservation and enhancement of townscape;
- Policy EQ1 has been enhanced to state that the LDP will only permit new development where the distinctiveness, integrity or setting of the feature, landscape, townscape or building are not adversely affected;
- In Policies TR2, TR3 and TR4, text has been included that requires infrastructure and spaces to be designed to be ‘disability-friendly’, allowing for easy and safe access by people with mobility difficulties; and
- Policy SP16 has been expanded to include support for the provision of new educational and training-related development.

The SA has influenced the LDP in other ways, as well. Issues identified at the early evidence-gathering stages informed the first policies developed, and assessments of strategic policies informed the content of the detailed policies. A fuller description of how the SA has influenced the LDP will be presented in a future post-adoption ‘SEA Statement’ (or document fulfilling this purpose).

19.3 Indicators for Statutory SEA Monitoring

The scoping stage led to the development and production of a list of indicators for monitoring the movement of the baseline, or in other words, the general status of environment and society. However, some of these have since been considered to be less appropriate to monitoring the baseline, and more appropriate to monitor the significant effects of the LDP.

Consultation at the scoping stage also led to recommendations for monitoring. Many of these recommendations were appropriate to the monitoring for uncertain or potentially significant negative effects. They have therefore been incorporated into Table 19-1 below.

Table 19-2: Recommendations for SA Monitoring

SA Topic	Baseline Indicators	Additional Indicators to Monitor Significant Risks and Opportunities
1 - Sustainable Development	<p>Carmarthenshire’s ecological footprint in area units per person</p> <p>Achievement of the top ten commitments set out in the WAG Sustainable Development Action Plan 2004-2007 and One Wales</p> <p>GVA and GVA per head</p> <p>Percentage of Carmarthenshire population in low income households</p>	<p>(See other topics.)</p>
2 - Biodiversity	<p>Status of BAP priority species</p> <p>Status of BAP priority habitats</p> <p>% BAP habitats and species as stable or increasing</p> <p>Achievement against national and local BAP targets</p> <p>Area of urban parks and green spaces provided by the LDP</p> <p>% of SAC, SPA and SSSI sites and their features in favourable condition</p> <p>Status of species and habitats pursuant to the NERC Act 1996</p> <p>Number of designated SINC</p> <p>Proportion of land managed as areas for carbon sequestration (e.g. peatland and woodland management)</p>	<p>Number of development schemes which design in urban biodiversity areas</p> <p>Number of developments with adverse effects on designated sites</p> <p>Number of developments in designated sites</p> <p>Proportion of new habitats created by the LDP</p> <p>Proportion of development on greenfield sites</p> <p>Proportion of development on brownfield sites</p> <p>Proportion of new development in wildlife corridors</p>
3 - Air Quality	<p>Number and extent of AQMAs in Carmarthenshire</p> <p>Air quality monitoring in Llandeilo (potentially future AQMA monitoring)</p> <p>National Atmospheric Emissions Inventory (NAEI) levels of key air pollutants (e.g. Benzene, 1,3-Butadiene, Lead, NO₂, PM10, SO₂)</p> <p>Area of sensitive habitats exceeding critical loads for acidification and eutrophication measured as (i) acidity and (ii) nutrient nitrogen</p> <p>Levels of ground level ozone</p>	<p>Number of developments within 1 km of motorway / trunk road junctions</p> <p>Number of developments sited so as to reduce the need to travel (proximity to services and facilities)</p> <p>Number of developments supported by high-quality inter-settlement bus, train or other public transport routes</p> <p>Number of developments in areas of poor air quality</p> <p>Number of developments likely to contribute to increased levels of UK national Air quality pollutants (other than transport)</p>

SA Topic	Baseline Indicators	Additional Indicators to Monitor Significant Risks and Opportunities
4 - Climatic Factors	<p>Annual emissions of greenhouse gases (by sector)</p> <p>Carmarthenshire's domestic energy consumption</p> <p>Proportion of alternatively fuelled vehicles in the county</p> <p>Percentage of companies with a Level 5 Standard Green Dragon EMS</p> <p>Proportion of transport network able to cope with the predicted temperature increases associated with climate changes</p> <p>Number of sites being used to assist in climate mitigation and adaptation, e.g. soft flood defences</p> <p>Number of homes applying for planning permission for microgeneration</p> <p>Homes installing microrenewables</p> <p>Average Standard Assessment Procedure energy rating of housing</p> <p>Number of town/community based carbon reduction projects</p>	<p>Number of developments that respect existing natural habitats and green corridors</p> <p>No. planning applications for renewable micro-renewables and successful installations</p> <p>Average SAP rating of housing</p> <p>No of town/community based carbon reduction projects</p> <p>Number of installed megawatts of renewable energy capacity in Carmarthenshire</p> <p>Number of wind turbines</p> <p>% developments with Sustainable Urban Drainage Systems (SUDS)</p> <p>Percentage of housing stock meeting particular CfSH and BREEAM standards</p> <p>Percentage of offices, retail and industrial buildings meeting BREEAM standards</p> <p>Number of new developments built to achieve carbon neutrality</p>
5 - Water	<p>Number of incidents of homes flooding by coastal, fluvial and drainage sources</p> <p>The percentage of river lengths of good chemical or biological quality</p> <p>Percentage of waters restored to Good Ecological Status</p> <p>Number of substantiated water pollution incidents</p> <p>Percentage of developments in Carmarthenshire with Sustainable Urban Drainage Systems (SUDS)</p> <p>Number of properties with water meters</p> <p>Area where there is an unsustainable abstraction from surface waters</p> <p>Area where there is an unsustainable abstraction from groundwater</p> <p>Proportion of transport network protected against future flood risk</p> <p>Per capita consumption of water</p> <p>Percentage of bathing waters which meet the EC mandatory standards</p> <p>The number of beaches which meet the requirements of the Green Sea Partnership for both beach and water quality</p>	<p>Percentage of new development permitted in floodplains</p> <p>Number of developments built contrary to EA advice</p> <p>Households registered for flood warnings as a percentage of total number of households at risk of flooding</p> <p>Number of grey water recycling schemes</p>

SA Topic	Baseline Indicators	Additional Indicators to Monitor Significant Risks and Opportunities
6 - Material Assets	<p>In 2009/10 Carmarthenshire should achieve at least 40% recycling/composting with a minimum of 15% composting and 15% recycling</p> <p>Waste arisings by sector</p> <p>Waste arisings by disposal</p> <p>Total (i) household waste and (ii) household waste recycled or composted per person per year (kg)</p> <p>Proportion of construction and demolition waste that is re-used and recycled</p> <p>Proportion of households within 30, 60 and 90 minute travel time thresholds of amenities, including (i) corner shop and/or supermarket, (ii) post office and (iii) doctor and/or hospital</p>	<p>Number of buildings meeting particular CfSH and BREEAM standards</p> <p>Percentage of new houses built on previously developed land per year</p> <p>Proportion of aggregates used from secondary and recycled aggregates</p> <p>Location of jobs in proximity to residents</p> <p>Proportion of journeys on foot or by cycle</p>
7 - Soil	<p>Area of ALC Grade 1, 2 and 3 land in Carmarthenshire</p> <p>Area of ALC Grade 4 and 5 land in Carmarthenshire</p> <p>Number and extent of RIGS sites in Carmarthenshire</p> <p>Exceedance of nitrogen and acid critical loads</p>	<p>Area of soil lost to impermeable surfaces</p> <p>Area of contaminated land remediated</p> <p>Area of proposed new development on greenfield sites</p> <p>Number of developments approved within or adjacent to RIGS sites</p>
8 - Cultural Heritage	<p>Number of monuments/archaeological sites adversely affected by the plan proposals</p> <p>Improvement/deterioration in the condition of monuments and historic buildings in the ownership of Carmarthenshire County Council</p> <p>Percentage of land designated for a particular quality of amenity value - landscape or historic landscape</p>	<p>Number of designated sites on the 'buildings at risk' register which are at risk of harm from air pollution</p> <p>Number of Conservation Areas adversely affected by plan proposals</p> <p>Number of listed buildings adversely affected by plan proposals</p> <p>Number of historic parks and gardens adversely affected by plan proposals</p>
9 - Landscape	<p>Hectares of land given over to development each year</p> <p>The extent and quality of public open space</p> <p>Number of park and green space management plans produced</p> <p>The number of derelict sites regenerated</p> <p>Area of Carmarthenshire designated as open access land</p> <p>Area of derelict land returned to open space</p>	<p>Number of developments approved without landscape / townscape conditions</p> <p>Number of developments built contrary to CCW advice</p> <p>Number of development schemes accompanied by detailed townscape design</p>

SA Topic	Baseline Indicators	Additional Indicators to Monitor Significant Risks and Opportunities
10 - Population	<p>Percentage of young people (i) remaining or (ii) returning to Carmarthenshire to live and work</p> <p>Number of complaints about poor access to services and facilities</p> <p>Number of complaints about highway (e.g. footpath) accessibility from disabled persons</p> <p>Percentage of people in Carmarthenshire who are Welsh speakers (i) all aged 3 or over, and (ii) children aged 3 to 15</p> <p>Population and population of working age</p> <p>Population age profile</p> <p>Ethnic diversity</p>	<p>Number of accessibility complaints pertaining to new developments</p>
11 - Health and Well-Being	<p>Proportion of households not living within 300m of their nearest natural green space</p> <p>Proportion of households within agreed walking/cycling distance of key health services</p> <p>Life expectancy at birth for (i) men and (ii) women</p> <p>Life expectancy and healthy life expectancy for (i) men and (ii) women</p> <p>Death rates from (a) circulatory disease and (b) cancer (i) for people under 75 years</p> <p>Prevalence of obesity in 2-10 year olds</p> <p>How children get to school (i) walking and cycling, (ii) private motor vehicles and (iii) public transport and taxis</p>	<p>Number of trips per person by transport mode (i) walking and cycling, (ii) private motor vehicles, and (iii) public transport and taxis</p>
12 - Education and Skills	<p>Percentage of people aged 19-21 with at least an NVQ level 2 qualification or equivalent</p> <p>Percentage of adults engaged in adult education activities</p> <p>Level of literacy in adult population</p> <p>Level of numeracy in adult population</p> <p>Number of adults completing courses at adult education centres in Carmarthenshire</p>	<p>Proportion of people aged 16-74 within 30, 60 and 90 minute travel time thresholds of education /further education facilities by (i) public transport and (ii) car</p> <p>Percentage of schools which are over-capacity</p>
13 - Economy	<p>Number of companies in Carmarthenshire with a Green Dragon Environmental Management System</p> <p>Gross Value Added (GVA) and GVA per head</p> <p>Percentage of people of working age in work</p> <p>Percentage of (i) children and (ii) all working age people living in workless households</p> <p>Investment relative to GDP (i) total investment and (ii) social investment</p> <p>Diversity of economic sectors represented</p>	<p>Number of vacant businesses in town and local centres</p> <p>Number of new retail and other commercial developments approved</p>

SA Topic	Baseline Indicators	Additional Indicators to Monitor Significant Risks and Opportunities
14 - Social Fabric	Ratio of average house pricing to average earnings Percentage component of IMD scores by LSOA for the Access and Employment domains Percentage of unfit dwellings Homes below the decent homes standard for (i) social sector homes and (ii) vulnerable households in the private sector Number of rough sleepers Recorded crime figures of (i) theft of or from vehicles, (ii) burglary in dwellings and (iii) violent crime Index of multiple deprivation	Proportion of affordable homes as a percentage of new homes delivered Access to GP or primary care professional Access for disabled people Access in rural areas

19.4 Next Steps

After adoption of the LDP, an SEA Statement must be produced in order to document how the SA / SEA and consultation on the SA have influenced the development of the LDP. It will also set out the final SEA monitoring commitments. This will be done at the earliest practicable opportunity upon adoption of the LDP.

20 References

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Appendix A LDP Policy Assessment Screening Map

As discussed in the main body of this SA Report, the policies of the LDP were ‘screened’, or reviewed and filtered, for their potential relevance to each of the sustainability topics. This involved consideration of their potential to lead to negative impacts, as well as positive ones.

The tables that follow summarise the screening process, identifying which policies were considered relevant. Blank cells mean that the policy was not considered relevant. Where considered relevant, an abbreviation is used for the justification as to why. These abbreviations are provided below for reference.

ND	New Development	- the policy will lead to new development which has influence on the topic, and may be in locations in proximity to features which may be affected. New development may include noisy land uses, light pollution or industrial / commercial emissions
RD	Re-Development	- the policy promotes the renovation or re-development of existing buildings
CM	Changed Management	- the policy will change the way in which land is used and managed, but not through new development
IRT	Increased Recreation and Transport	- the policy may lead to greater volumes of transport (including travel by pedestrians and recreation), whether overall or in specific locations
WK	Wildlife Kills	- the policy could lead to a development which involves moving plant or vehicles that may collide with wildlife
MD	Minimise Development	- the policy may reduce the need for future development of a certain type, such as by recycling minerals or using renewable energy
P	Protection	- the policy is for no net loss of features or reduction in performance or quality
E	Enhancement	- the policy is for improvement or enhancement of features, or improvement in performance (including reducing existing impacts)

SA Topic	AREA-WIDE POLICIES																																					
	Economy and Employment					Retailing								Transport and Accessibility						Environmental Qualities						Renewable energy			Environmental Protection									
	EMP1 Employment- Safeguarding of Employment Sites	EMP2 New Employment Proposals		EMP3 Employment – Extensions and Intensification	EMP4 Farm Diversification	EMP5 Mixed Use Sites	RT1 Retailing Hierarchy	RT2 Principal Centres (Growth Areas): Primary Retail Frontage	RT3 Principal Centres (Growth Areas): Secondary Retail Frontage	RT4 Principal Centres (Growth Areas): Town Centre Zone	RT5 Town Centres (Service Centres)	RT6 Town Centres (Service Centres): Convenience Stores	RT7 District Centres (Local Service Centres)	RT8 Local Shops and Facilities	RT9 Regional Centres (Retail Parks)	TR1 Primary and Core Road Networks	TR2 Location of Development-Transport Considerations	TR3 Highways in Developments-Design Considerations	TR4 Cycling and Walking	TR5 Gwili Railway	TR6 Redundant Rail Corridors	EQ1 Protection of Buildings, Landscapes and Features of Historic Importance	EQ2 Enabling Development	EQ3 Regional and Local Designations	EQ4 Biodiversity	EQ5 Corridors, Networks and Features of Distinctiveness	EQ6 Special Landscape Areas	EQ7 Development within the Caeau Mynydd Mawr SPG Area	RE1 Large Scale Wind Power	RE2 Local, Community and Small Wind Farms	RE3 Non-Wind Renewable Energy Installations	EP1 Water Quality and Resources	EP2 Pollution	EP3 Sustainable Drainage	EP4 Coastal Management	EP5 Coastal Development	EP6 Unstable Land	
1 - Sustainable Development	N/A – this topic is considered to be a summary outcome of all other topics, and so was not assessed individually																																					
2 - Biodiversity	ND, IRT	ND, IRT		ND, IRT	CM	ND, IRT	E				E	ND, IRT, E	ND, IRT, E	ND, IRT, E	ND, IRT		E	E	E		P						P, E	ND, IRT, MD, P	ND, IRT, MD, P	ND, IRT, MD	P	P	E					
3 - Air Quality	ND, IRT	ND, IRT		ND, IRT	ND, IRT	ND, IRT								ND, IRT														P, E	P, E	ND, IRT, P, E		P, E						
4 - Climatic Factors	ND, IRT	ND, IRT		ND, IRT	CM, IRT	ND, IRT	ND, IRT, E				E	E	E	E	ND, IRT		E	E	E		E								E	E	E	P			P	P		
5 - Water	ND, IRT	ND, IRT		ND, IRT	CM, IRT	ND, IRT								ND, IRT																	P, E	P, E	P, E	P	P			
6 - Material Assets	ND, IRT	ND, IRT		ND, IRT	ND, IRT	ND, IRT	ND, IRT							ND, IRT	MD, P	MD, P	P	P										P, E	P, E	P, E								
7 - Soil	ND, IRT	ND, IRT		ND, IRT		ND, IRT								ND, IRT											P		ND, IRT, MD	ND, IRT, MD	ND, IRT, MD		P, E		P	P	P			
8 - Cultural Heritage	ND, IRT	ND, IRT, E		CM, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	IRT	IRT	IRT				P, E	ND, IRT					ND, IRT, MD, P	P	P		P				P			
9 - Landscape	ND, IRT,	ND, IRT		CM, IRT,	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	IRT	IRT	IRT		IRT	IRT	P, E	ND, IRT			P, E	P, E	ND, IRT, MD, P	ND, IRT, MD, P	ND, IRT, MD, P					P				
10 - Population	ND, E	ND, E		ND, E		ND, E									ND, E	ND, E	ND, E	ND, E			ND, E							ND, E	ND, E	ND, E								
11 - Health and Well-Being	ND	ND				ND	ND						ND, IRT, E	ND	ND, IRT, E	ND, IRT, E	ND, IRT, E	ND, IRT, E			ND, IRT, E							ND, IRT, E	ND	ND	E	E						
12 - Education and Skills						ND, IRT, E										IRT, E	IRT, E											ND										
13 - Economy	ND, E	ND, P, E		ND, P, E	ND, P, E	ND, E	ND, E	ND, E	ND, E	ND, E	ND, E	ND, E	ND, E	ND, E	E, ND, IRT	E, ND, IRT	E, ND, IRT											ND, E	ND, E	ND, E					ND	E, ND		
14 - Social Fabric	E	E				E	E								ND, IRT, E	IRT, E	IRT, E	IRT, E		IRT, E								ND	ND	ND								

SA Topic	AREA-WIDE POLICIES																
	Recreation and Leisure			Tourism					Minerals						Waste Management		
	REC1 Protection of Open Space	REC2 Open Space Provision and New Developments	REC3 Proposed New Open Space	TSM1 Static Caravan and Chalet Sites	TSM2 Touring Caravan and Tent Sites	TSM3 Small Scale Tourism Development in the Open Countryside	TSM4 Visitor Accommodation	TSM5 Major Tourism proposals in the Open Countryside	MPP1 Mineral Proposals	MPP2 Mineral Buffer Zones	MPP3 Mineral Safeguarding	MPP4 Coal Extraction Operations	MPP5 Aggregate Alternatives	MPP6 Restoration and Aftercare of Mineral Sites	WPP1 Nantycaws Waste Management Facility	WPP2 Waste Management Facilities Outside Development Limits	
1 - Sustainable Development			N/A – this topic is considered to be a summary outcome of all other topics, and so was not assessed individually														
2 - Biodiversity	P		E	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT, P			ND, P	MD		E	E	
3 - Air Quality									ND, IRT				E		ND, IRT	ND, IRT	
4 - Climatic Factors															P	P	
5 - Water				ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT	ND, IRT, P				MD		E		
6 - Material Assets										P, E	P	ND	MD, P, E		ND, IRT, P	P	
7 - Soil						ND, IRT	ND, IRT	ND, IRT	ND, P						E	ND, IRT	ND, IRT
8 - Cultural Heritage				ND, IRT	ND, IRT	ND, IRT, P	ND, IRT, P	ND, IRT, P	ND, IRT, P			ND, P	MD		ND, IRT	ND, IRT	
9 - Landscape	ND, P			ND, IRT	ND, IRT	ND, IRT, P	ND, IRT, P	ND, IRT, P	ND, IRT, P				MD, P		E	ND, IRT	ND, IRT
10 - Population									ND, E								
11 - Health and Well-Being	ND, IRT, E	ND, IRT, E	ND	ND	ND	ND	ND	ND	ND			ND, P	ND		ND	ND	
12 - Education and Skills																	
13 - Economy				E	E	ND, E	ND, E		ND, E				E		ND	ND, E	
14 - Social Fabric									ND, IRT				ND, IRT			ND	

Appendix B SEA Regulations Compliance Checklist

SEA Regulations Requirement	Where Found in This Report															
Regulation																
12-(2) The report shall identify, describe and evaluate the likely significant effects on the environment of—																
(a) implementing the plan or programme; and	Chapters 6 – 18															
(b) reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme.	Chapter 5															
12-(3) The report shall include such of the information referred to in Schedule 2 to these Regulations as may reasonably be required																
Information referred to in Schedule 2, as required through Regulation 12-(3)																
1. An outline of the contents and main objectives of the plan or programme and of its relationship with other relevant plans and programmes.	Chapter 2															
2. The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.	Section 2.4 Chapters 8 – 18 Baseline sections															
3. The environmental characteristics of areas likely to be significantly affected.																
4. Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds(a) and the Habitats Directive.																
5. The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.	Chapter 4															
6. The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as—	Chapters 6 – 18															
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">(a) biodiversity;</td> <td style="width: 50%;">(i) climatic factors;</td> </tr> <tr> <td>(b) population;</td> <td>(j) material assets;</td> </tr> <tr> <td>(c) human health;</td> <td>(k) cultural heritage, including architectural and archaeological heritage;</td> </tr> <tr> <td>(d) fauna;</td> <td>(l) landscape; and</td> </tr> <tr> <td>(e) flora;</td> <td>(m) the inter-relationship between the issues referred to in sub-paragraphs (a) to (l).</td> </tr> <tr> <td>(f) soil;</td> <td></td> </tr> <tr> <td>(g) water;</td> <td></td> </tr> <tr> <td>(h) air;</td> <td></td> </tr> </table>		(a) biodiversity;	(i) climatic factors;	(b) population;	(j) material assets;	(c) human health;	(k) cultural heritage, including architectural and archaeological heritage;	(d) fauna;	(l) landscape; and	(e) flora;	(m) the inter-relationship between the issues referred to in sub-paragraphs (a) to (l).	(f) soil;		(g) water;		(h) air;
(a) biodiversity;	(i) climatic factors;															
(b) population;	(j) material assets;															
(c) human health;	(k) cultural heritage, including architectural and archaeological heritage;															
(d) fauna;	(l) landscape; and															
(e) flora;	(m) the inter-relationship between the issues referred to in sub-paragraphs (a) to (l).															
(f) soil;																
(g) water;																
(h) air;																
7. The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	Chapters 6 – 18, Chapter 19															
8. An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	Chapter 5															
9. A description of the measures envisaged concerning monitoring in accordance with regulation 17 ^[1] .	Chapter 19															
10. A non-technical summary of the information provided under paragraphs 1 to 9.	Separate Document															

¹ “The responsible authority shall monitor the significant environmental effects of the implementation of each plan or programme with the purpose of identifying unforeseen adverse effects at an early stage and being able to undertake appropriate remedial action” (Regulation 17-(1)).

Appendix C Scoping Stage Consultation Responses

Doc Code	Respondent	Comment	Action Required in SA/SEA	Incorporation of comments into SA Report	Commentary/Justification
1	CCC Biodiversity Officer	Document should list how biodiversity could be impacted by various types of development. Consider direct and indirect impacts.	N	N/A to Scoping Report	SA Environmental Report (ER) will assess the effects of the LDP.
		Include a section on the NERC Act 2006 and the duties it imposes on Local Authorities.	Y	NERC Act 2006 has been reviewed and included in the PPP review	
		Assess the plan under the Habitats Regulations 1994 in parallel with SA/SEA	Y	A Habitats Regulations Assessment (HRA) has been completed	
		<i>Specific Comments</i> A number of suggested wording/grammatical changes were described.	Y	Identified typographical errors, grammatical changes incorporated into SA Report	
		Addition of Cors Goch to list of NNRs. Changes to list of habitats and species in the Local BAP.	Y	Baseline information amended.	
		Expansion of PPP review documents	Y	Ramsar Convention 1971 added to PPP review	Decision taken to include International level legislation only. Considered that national regulations need not be reviewed in detail given level of coverage in higher-level legislation and plans.
		SA Objective 2-2 to be changed to ' <i>To protect, enhance and create wildlife habitats and wildlife corridors in urban and rural areas</i> '.	Y	Objective updated	
		Indicator: change to ' <i>% of SAC and SSSI sites and their features in favourable condition</i> '	Y	Indicator updated	

Doc Code	Respondent	Comment	Action Required in SA/SEA	Incorporation of comments into SA Report	Commentary/Justification
		Decision Making Criteria: Add 'Are there any BAP/Section 42 habitats/species that may be affected by the LDP?'	Y	Decision-making criteria updated	
2	Cadw	Include Historic Parks and Gardens into Decision Making Criteria. 'Are there any historic landscapes or historic parks and gardens that can be affected by the LDP?'	Y	Decision-making criteria updated	
		Include number of Listed Buildings in Carmarthenshire and the number of non-scheduled known archaeological resources.	Y	Baseline data updated	
3	Planning Liaison – Environment Agency	Refer to Planning Policy Wales Add surface water flooding to Key issues Refer to previously used land for development Need to address cockle decimation issue in the Burry Inlet/Estuary	Y	All items taken into account as recommended.	The SA Report does not take the same format as the scoping report, and some detail is not presented in the same way.
4	RSPB Cymru	Identify areas of concern in the baseline information for all topics to improve consistency.	N	Areas of concern were drawn out in the Key Issues and Challenges section	At this time, the key issues section was used to inform subsequent stage of LDP development.
		Amend baseline information to reflect the reason for the lack of designation of SINC and to include UKBAP and species under S42 of NERC Act 1996	N	No change made.	This information is quite detailed, and this SA Report has consolidated the baseline as it is.
		Amend species listed in the LBAP and include reference to RSPB Key Areas for Birds	Y	Baseline data updated	
		Describe settlement pattern in Carmarthenshire and its relationship to climatic factors	Y	Baseline data updated	
		Refer to WAGs 'aspirations' for the generation of renewable energy as 'binding targets'	Y	Baseline data updated	
		Expand the information provided in the Key Issues and Challenges table for biodiversity and climate change.	Y	Table amended	
		Make amendments to Objectives 4-3, 4-4 and 4-5.	Y	Objectives amended	
		Expand indicators to include:- Status of habitats and species listed on the NERC Act and SINC	Y	Indicators amended	

Doc Code	Respondent	Comment	Action Required in SA/SEA	Incorporation of comments into SA Report	Commentary/Justification
		Reference to SPAs in indicator 6 An indicator the captures the need to maximise opportunities to manage land for biodiversity and climate change (e.g. upland peatland management)			
		Change objective 4-1 to ' <i>to deliver a significant reduction in greenhouse gases</i> '.	Y	Objective amended, although this phrasing was not chosen	
5	Wales ECO Centre	Include the following documents in the PPP review :- Welsh Commitment to Climate Change Further Consultation on the draft MIPPS on Planning for Climate Change Upcoming Energy efficiency and Savings Plan (end 2008) One Wales Zero Carbon new Build for Wales by 2011 Code for Sustainable Homes EU Directive in the promotion of combined heat and power	Y	PPP Review updated where necessary, however not all documents included.	Climate change agenda considered to be adequately covered by the PPP review
		Baseline – include Defra 2006 values of carbon dioxide emissions Include information on current public and private housing stock condition and energy performance Include statistics on fuel poverty	Y	Baseline information expanded.	
		Sustainability Issues – put more emphasis on energy, building local resilience and carbon neutrality.	Y	Information amended	
		Include the concept of 'peak oil' and the urgency of reducing the demand for energy.	Y	Information amended	
		Sustainability Objectives – refer to the Code for Sustainable Homes not ECO Homes.	Y	Information amended	
		Seek to reduce carbon emissions from the existing building stock through the LDP.	N	N/A	Comment forwarded to CCC for consideration for including such intentions as a policy in the LDP
		Indicators - Expand indicators relating to climate change to include:-	Y	Indicators expanded	

Doc Code	Respondent	Comment	Action Required in SA/SEA	Incorporation of comments into SA Report	Commentary/Justification
		<ul style="list-style-type: none"> Homes applying for planning permission for renewable microrenewables Homes installing microrenewables Average SAP rating of housing No of town/community based carbon reduction projects 			
6	CCW	Baseline Include maps to illustrate the environmental setting of Carmarthenshire	N		Baseline maps are provided in the HRA and LDP, but not as part of the SA.
		Full SEA Scoping Document is effectively the same document as the non-technical summary.	N	N/A	SEA Scoping Document is considerably longer than the NTS. The Scoping document includes the NTS.
		Include reference to the Habitats Regulations Assessment	Y	This has been done.	
		Expand the PPP review; particularly draft CFMPs, Carmarthen Bay SMP and Western District RBMP	Y	Amendments to PPP review	The PPP review was expanded to include new/emerging documents and to supplement sustainability issues that may be under-represented in the PPP review. It is not feasible for all plans, policies and programmes to be included.
		Consider the importance of biodiversity in areas that are not protected and wildlife corridors	Y	Information amended	
		The condition of the Carmarthen Bay and Estuaries SAC and Burry Inlet SPA are being reassessed and are likely to be classified as being in unfavourable status	Y	Baseline information amended.	
		Include areas under direct and indirect management schemes including agri-environment schemes, TPOs and hedgerow preservation orders	N	N/A	This level of detail is considered too fine a scale to be included at the strategic level
		Make a stronger link between climate change and effects on biodiversity.	Y	Baseline information amended.	
		Air Quality – consider effect of ground level ozone	N	N/A	It is considered that this is already covered in the Scoping Report.

Doc Code	Respondent	Comment	Action Required in SA/SEA	Incorporation of comments into SA Report	Commentary/Justification
		Climatic Factors – include flood maps	Y	Baseline information amended.	
		Water – refer to forecasts on supply and demand of water and include additional information on water quality with respect to specific areas with water quality issues	Y	Baseline information amended	
		Include further information on the locations of assets such as coal reserves, minerals, aggregates, energy and water infrastructure.	Y	Baseline information amended	
		Include additional information on recycling targets and trends for waste.	N	N/A	Sufficient information is considered to be included given the content/likely impacts of the LDP.
		Include reference to alluvium gravel deposits in the Tywi floodplain.	Y	Baseline information amended	
		Consider using Landmap, Seascape Assessment and Landscape Characterisation maps to determine visual quality and condition in Carmarthenshire. Devise objectives to maintain and enhance the character and distinctiveness of protected and unprotected landscapes.	Y	Objectives and baseline information amended.	
		Refer to Conservation Areas identified in the UDP and Tranquillity Maps for Wales.	Y	Baseline information amended	
		Key Issues and Challenges Consider biodiversity in the round, i.e. the needs of wider biodiversity and wildlife species and connectivity between protected sites etc.	Y	Information amended	
		Include the aim to climate proof existing development.	~		This has been considered and incorporated into LDP policy.
		Amend objective 4.1 to read ' <i>to reduce the need for energy whilst encouraging and increasing the use of renewable energy sources.</i> '	N	Objective not amended	An objective looking solely at reducing greenhouse gases is relevant. Objectives have already been specified to increase the use of renewable energy sources.
		Consider the role of soil further in flooding and carbon sequestration.	~		This issue has been raised as a key issue in the SA particularly in relation to carbon sequestration.
		Refer to the need to control/remediate diffuse air	~		Diffuse air pollution is typically not a

Doc Code	Respondent	Comment	Action Required in SA/SEA	Incorporation of comments into SA Report	Commentary/Justification
		pollution not just diffuse agricultural pollution.			significant issue in the county, however this has been taken into account by the SA.
		Clarify the term 'sites of landscape value.'	Y	Term clarified	
		Sustainability Appraisal Framework Review the suite of indicators and ensure that they are relevant to the plan under scrutiny and capable of measurement. Suggest inclusion of the following indicator:- 'Number of homes/roads/development approved within floodplain areas or coastal flood zones.' Strengthen the objectives and indicators in respect of seeking to protect and enhance the character and distinctiveness of the Carmarthenshire landscape.	Y	SA indicators amended accordingly.	Two suites of indicators are being developed; those that monitor the environmental baseline and those that are intended to monitor the effects of the plan.
7	CCC SA Officer	No major comments. Consider adding neighbouring authorities' LDPs into the PPP review.	N	N/A	This has not yet been done, and should be considered for future iterations of the LDP and SA.
8	Wildlife Trust of South and West Wales Welsh Wildlife Centre	Expand the PPP review, particularly the Nature Environment and Rural Communities (NERC) Act 2006.	Y	Amendments to PPP review	The PPP review was expanded to include new/emerging documents and to supplement sustainability issues that may be under-represented in the review. It is not feasible for all plans, policies and programmes to be included.
		Baseline Include Cors Goch (Llanllwch) NNR	Y	Amendments to baseline	
		Sustainability Issues and Problems Reference the NERC Act. Consider including the objective 'to improve access and hence allow the county's population to access, enjoy and understand the local natural heritage.'	Y	Information amended	
		Include more positive wording within the objectives; 'An increase in the climate resilience of new developments'. Include an objective such as 'to reduce or eliminate further loss of high-carbon soils such as peat to development'.	Y	Objectives amended	
		Include an objective of 'Delivering a robust	~		The delivery if ICT has become a

Doc Code	Respondent	Comment	Action Required in SA/SEA	Incorporation of comments into SA Report	Commentary/Justification
		<i>ICT/broadband system to reduce travel, meet local needs and reduce resource use.'</i>			component of the LDP objectives, and is referred to in infrastructure policy supporting text.
		SA/SEA Framework Consider using the status of SAC and SSSI Include all greenhouse gases in the decision making criteria for climatic factors, not just carbon dioxide	Y	SA/SEA Framework updated	Status of SACs and SSSIs apply to the baseline, including monitoring of the baseline.
9	Llanelli Town Council	Key Issues – Water Make reference to the serious problem posed by an inadequate sewerage system and sewerage disposal system in Llanelli and other parts of the county which has resulted in the regular discharging of sewerage into the Loughor Estuary and the Towy River which is now prejudicing present and future development in Llanelli.	Y	Key issues updated	
		Key Issues – Education and Skills The influx of a large foreign migrant population into the county should be acknowledged and the implication that this has on education skills and requirements.	Y	Baseline information updated	
10	Cllr Sian Caiach	Key Issues Omission of mention of nutrient enrichment in Loughor /Burry Inlet/Carmarthen Bay from the discharge of storm sewerage drainage and the effect this has on cockle mortality and associated implications for species such as oystercatcher that feed on them.	Y	Included as a key issue.	
11	SWWITCH	Air Quality – the SA/SEA should note that there are some areas in the county where air quality is becoming an issues with the potential for standards to be breached in the next 5 years in relation to road and transport emissions. Material Assets SA Objective – replace the word 'promote' with 'encourage'	Y	Identified issues and recommended changes incorporated into the SA Report.	

Doc Code	Respondent	Comment	Action Required in SA/SEA	Incorporation of comments into SA Report	Commentary/Justification
		Economy – refer to the inability of non car owners to access jobs and training by sustainable means in decision-making criteria			
12	White Young Green on behalf of National Grid	No specific representation at this time, although NG wish to consult on all future planning policy documents.	N/A	N/A	N/A
13	Equality and Human Rights Commission	Unable to respond.	N/A	N/A	N/A
14	NPower Renewables	Sustainability Appraisal Framework Include an indicator relating to the number of installed mega watts of renewable energy capacity within Carmarthenshire	Y	Suite of indicators updated accordingly.	
15 & 16	Kathy Start	Include provision within the LDP and SA/SEA to ensure that households have the means to grow their own food within walking or cycling distance from their home. Amend issues/challenges and objectives accordingly	~		Policy REC 1 of the LDP recognises the key role of Allotments.
		Include a discussion of the extent of home-grown food in the environmental baseline.	Y	Baseline information amended	
17	Peter Protheroe and Robin Cammish, Bont Farm	Recognise agriculture as having an important economic value in the county	Y	Baseline information amended accordingly.	The additional comments raised by the respondents have been considered, but are not directly relevant to the SA/SEA.
18	David Foot	PPP Review Include the work of the Local Access Forum and the Rights of Way Improvement Plan. Include the European Landscape Convention	Y	Amendments to PPP review	The PPP review was expanded to include new/emerging documents and to supplement sustainability issues that may be under-represented. It is not feasible for all plans, policies and programmes to be included.
19	City and County of Swansea; Bryan Graham, Head of Planning Services	PPP Review Include a review of the development plans of neighbouring authorities to assess the environmental significance of any potential transboundary issues and in-combination effects.	N	N/A	This has not yet been done, and should be considered for future iterations of the LDP and SA.
		Baseline	Y	Baseline information	

Doc Code	Respondent	Comment	Action Required in SA/SEA	Incorporation of comments into SA Report	Commentary/Justification
		Focus more data on Carmarthenshire and the Carmarthenshire BAP. Identify any links between elevated levels of ground-level ozone and health and well-being. Include bathing water quality including the number of blue flag beaches and level of compliance with EC Bathing Water Directive.		amended accordingly.	
		SA Objectives Ensure that the SA Objectives reflect the land use nature of the document and that the indicators can be used in monitoring the effects of the plan. Replace Objective 13-3 with ' <i>Promote sustainable business in Carmarthenshire</i> '	Y	SA Objectives and indicators amended accordingly.	Two suites of indicators will be developed; those that monitor the environmental baseline and those that are intended to monitor the effects of the plan.
20	Mrs L. Dalton	Key Issues Given the identified issue that the population structure of the county is becoming skewed towards the older age groups, affordable, purpose-built, single storey dwellings should be included on planning applications with 10 or more dwellings, especially in small communities. Consider new housing developments to be built with a mixture of housing types to foster a more integrated community. The location of local employment opportunities would enable young people to buy affordable dwellings.	~		This issue has been considered and addressed within the LDP.
21	Mrs A. Jones	Other comments Use the LDP to restore empty and dilapidated houses.	~		This issue has been considered and addressed within the LDP. The additional comments raised by Mrs Jones have been considered, but are not directly relevant to the SA.
22	Mr G. Williams	PPP Review Include the Carmarthenshire Rights of Way Improvement Plan	Y	Amendments to PPP review	The PPP review was expanded to include new/emerging documents and to supplement sustainability issues that may be under-

Doc Code	Respondent	Comment	Action Required in SA/SEA	Incorporation of comments into SA Report	Commentary/Justification
					represented in the PPP review. It is not feasible for all plans, policies and programmes to be included.

Appendix D Assumptions About Construction of Projects – Hazards and Controls

SA Topic	Hazards	Standard Controls	Residual Probability
Population	Construction traffic or disturbance affecting a facility of particular importance to one of the equality groups (e.g. a place of worship)	Planning permission will require that transport conditions are met and otherwise take such considerations into account	Moderate
Human Health (see also hazards of other topics, e.g. air quality)	Construction traffic or works presenting a danger to the public	Planning permission will require that transport conditions are met, including safety considerations	Low
		Legal and Health & Safety Executive requirements will apply - ensure a safe-working construction site	Low
	Construction noise or vibration exceeding statutory limits and causing disturbance	Regulatory framework and legal enforcement by the Council	Low
Social Fabric	Construction traffic affecting a recreational or tourist destination, formal or informal community meeting place, open space or other important local facility (e.g. doctor's surgery, post office, etc.)	Planning permission will require that transport conditions are met	Low
	Construction requiring temporary closure or diversion of a PROW or footpath	Planning permission will take such considerations into account	Moderate – temporary closures and diversions often permitted, but sites are mostly brownfield
	Construction disturbance affecting a recreational or tourist destination, formal or informal community meeting place, open space or other important local facility (e.g. doctor's surgery, post office, etc.)	Planning permission will take such considerations into account	Moderate
Climatic factors	Emissions from vehicles and embodied carbon from materials and equipment / tools.	N/A	High
Economy	Construction traffic affecting a business, school or similar	Planning permission will require that transport conditions are met	Low
	Construction noise or vibration affecting a sensitive business or an educational / training facility	Planning permission will take such considerations into account	Moderate
Biodiversity	Harm to priority species or habitats	Regulatory framework and legal enforcement by CCW and the Council	Low
	Harm to other habitat or wildlife	Planning permission will take such considerations into account	High - can minimise harm, but it will still occur. Highest value habitat and wildlife will be most protected.
Water	Putting construction vehicles, chemicals and plant in the floodplain, and thus exacerbating the impact of flooding	Planning permission will take such considerations into account	Moderate - depends upon the baseline & construction site, but highest risks will be

SA Topic	Hazards	Standard Controls	Residual Probability
			averted by controls
	Increasing flood risk during construction through removal of soil & construction of project	Planning permission will require application of PPS25 and creation of appropriate measures in advance of works	Low
	Site clearance and exposure of soil and dust from debris to rainwater, then runoff to water bodies	Regulatory framework and legal enforcement (e.g. by the Environment Agency)	Low
	Chemicals, including those stored and used on-site and diesel fuel combustion	Regulatory framework and legal enforcement (e.g. by the Environment Agency)	Low
Soil	Harm to protected geological sites	Regulatory framework and legal enforcement by CCW and the Council	Low
	Loss of soil surface area in the footprint of the scheme	None.	High
	Loss of soil quality where temporarily stripped and stored (e.g. for site compounds & haul routes).	Planning permission will take such considerations into account	High - can store using 'best practice' but some quality is normally lost
	Disturbance, exposure and spread of contaminated land	Regulatory framework and legal enforcement (e.g. by the Environment Agency)	Low
Landscape	Harm to views / landscape due to presence of construction compounds, plant etc.	Planning permission will take such considerations into account	High - depends on the baseline as what the likely impact will be
Cultural Heritage	Destruction of below-ground archaeology	Planning permission will be subject to archaeological evaluation in accordance with PPG16.	High - varies site-by-site
	Noise, vibration, air quality or other indirect impact to designated historic structures	Regulatory framework and legal enforcement by the Council and CADW	Low – presume construction methods will be conditioned to protect designated sites
Air Quality	Construction traffic leading to reductions in air quality	Planning permission will require that transport conditions are met	High - can avoid AQMAs in some instances, but pollution will still occur
	Site clearance and exposure of soil and dust from debris to the air	Planning permission will require measures to suppress dust (Environmental Protection Act 1990)	Moderate - can minimise dust, but will still occur, particularly within and adjacent to a site
	Chemicals, including those stored and used on-site and diesel fuel combustion	Regulatory framework and legal enforcement (e.g. by the Environment Agency)	Low
Material Assets	Construction traffic affecting the road network	Planning permission will require that transport conditions are met	Low
	Construction causing damage to other infrastructure (including pavements or street furniture) or causing disruption in their use	Planning permission will require that essential infrastructure is not disrupted	Moderate

Appendix E Initial SA Report Consultation Responses

Reference	SAP001
Respondent	Ms Louise Edwards
Organisation	Environment Agency Wales
Response	The layout is not really helpful as the LDP objectives on the A3 pages do not continue over the page. There should be page numbers and paragraph references.
How Addressed	This SA Report has been better formatted.
Reference	SAP002
Respondent	Ms Louise Edwards
Organisation	Environment Agency Wales
Response	As stated in our previous response of 09 October 2008, sustainability objective 5.5 must also include surface water flooding.
How Addressed	This SA Report addresses surface water flooding as a key issue and SAO 5.5 has been updated.
Reference	SAP003
Respondent	Ms Louise Edwards
Organisation	Environment Agency Wales
Response	Chapter 2, the 2nd draft strategic objectives include some positive changes. We are happy that 2b includes "land which has been suitably remediated".
How Addressed	No action required.
Reference	SAP004
Respondent	Ms Louise Edwards
Organisation	Environment Agency Wales
Response	Sustainability objective 4 also now includes that species and habitats are protected and sustainability 11 includes foul and surface water infrastructural requirements.
How Addressed	No recommendation required.
Reference	SAP005
Respondent	Ms Louise Edwards
Organisation	Environment Agency Wales
Response	Section 4.1 SA/SEA sustainability objective 4 - Climatic Factors, under the section entitled "other sources of policy controls (internal & external)" there should be reference to the surface water flooding maps.
How Addressed	This reference is no longer required.
Reference	SAP006
Respondent	Ms Louise Edwards

Organisation	Environment Agency Wales
Response	Chapter 4.2, Summary of Assessment - we are concerned that there are potential tensions with the SA/SEA objectives intended to protect or enhance the natural environment, your Authority must ensure that there are stringent polices within the LDP to overcome any issues.
How Addressed	This has been noted, and LDP policies developed accordingly. The SA Report sets out any additional mitigation measures and monitoring framework.
Reference	SAP007
Respondent	Ms Louise Edwards
Organisation	Environment Agency Wales
Response	Chapter 4.2, paragraph 4.3.4 Water - you refer to a "water cycle study" we were unaware that your Authority was undertaking this study, we therefore request to see details of the study and the intended outcomes, as the Water Framework Directive should play a big part in this process.
How Addressed	Response noted. CCC is to update the EA on progress on the SFCA and Water Cycle Study.
Reference	SAP008
Respondent	Mr Bryan Graham
Organisation	City & County of Swansea
Response	The assessment fails to examine cross-boundary effects of the proposed policies. No mention is made of the City and County of Swansea Unitary Development Plan, the Pembrokeshire Joint Unitary Development Plan nor the Powys Unitary Development Plan. The assessment also fails to discuss the probability, duration, magnitude and spatial extent of the effects. It is acknowledged that the degree of assessment is limited due to the strategic nature of this stage of the LDP, but some recognition of the potential effects is expected, in order to ensure that Schedule 1.2 of the SEA Regs are met.
How Addressed	Response noted. The SA includes an assessment of cross-boundary effects and ensures compliance with the SEA Regulations.
Reference	SAP009
Respondent	Mr Bryan Graham
Organisation	City & County of Swansea
Response	Support the SA/SEA Initial Report, however the document was not easy to navigate around and it would be beneficial to have an index. Additionally the tables could be numbered and given headings and the sections/paragraphs could be formatted consistently, including numbering.
How Addressed	This SA Report has been better formatted.
Reference	SAP010
Respondent	Mr Bryan Graham
Organisation	City & County of Swansea
Response	However, clarification is sought in relation to assessment option 1, on the use and meaning of the word 'greenbelt' (Objective 2, Biodiversity).
How Addressed	Amendment and clarification has been made regarding 'previously undeveloped

	sites/greenfield sites' rather than 'greenbelt' specifically.
Reference	SAP011
Respondent	Mr Bryan Graham
Organisation	City & County of Swansea
Response	Support, however would recommend that the following are added under 1 Sustainable Development 'Other sources of policy controls': SP10 - MTAN2 Coal and the Regional Technical Statement for South Wales Aggregates Working Party and SP12: The South West Wales Regional Waste Plan First Review.
How Addressed	Although they do not explicitly appear in the context review, these documents have been taken into account during the SA. They should be added for any future rounds of LDP development and SA.
Reference	SAP012
Respondent	Mark Newey
Organisation	Welsh Assembly Government
Response	<p>We note that the Preferred Strategy has been subject to SA/SEA: supporting documentation (Jacobs) 'Sustainability Appraisal/ SEA Initial Report' (Nov09) (ISAR) – includes the environmental report - subject of current consultation. (+ SA/SEA Scoping Report Sep08). Strategic objectives, options and policies have been assessed.</p> <p>It is vital that the authority is able to demonstrate that it has followed the correct procedure outlined in the SEA Regulations, the Habitats Regulations, has had regard to European Priority species and that the deposit plan has had regard to the findings.</p> <p>Correct reference should be made to the Wales SEA Regulations and to the Habitats Regulations which transpose the requirements of the SEA Directive and the Habitats Directive respectively</p>
How Addressed	This SA Report has been updated in order to better demonstrate full compliance with the SEA Regulations. A separate Habitats Regulations Assessment has been conducted.
Reference	SAP013
Respondent	James Green
Organisation	Not specified.
Response	<p>Rural acknowledgement, throughout the pre-deposit strategy plan there is no real knowledge or understanding of the rural communities. They are mentioned more as an after thought and to be kept static as some 19th Century folly for visiting tourist. Carmarthenshire is approximately 70% rural with 40% of the population, but the sustainable principles set forward in the document negates these facts. The rural community is dying due the lack of new quality affordable homes, for generations local families have live and worked within a small clustered areas, as Carmarthenshire population is now ageing and living longer, there is a clear lack of additional houses, which is forcing younger generations to leave and move away to what is seemed more sustainable settlements. The now negated rural communities were once until very recently thriving sustainable communities. Once the younger generation move away there is the inevitable closures to school, post offices, and shops, all due to recent misunderstanding and misguidance in local planning policies, doing nothing is not sustainability.</p> <p>Current policies and potential strategies do not really address the rural communities, there needs to be a separate and clearly defined section specifically dealing with regenerating and sustaining rural communities, not in terms of</p>

	business or tourism but for residential. Yes there should be a priority with settlement with greater transport links, but not at the expense and neglect of other communities. Reading through the documents, there is overall soundness and progressive thinking, with great buzz words, but it all comes down to interpretation and follow-through. Current development standards in the County are very poor and non constant. There needs to be progression not 19th Century ideologies.
How Addressed	Rural issues have been incorporated into the LDP. The SA has accounted for these key issues, including in the assessment work.
Reference	SAP014 to SAP026 inclusive
Respondent	Mrs Suzanne Davies
Organisation	Whitland Town Council
Response	<p>Whitland Town Council have reservation about site allocations with reference to the following issues:</p> <ul style="list-style-type: none"> • Floodplain • Sewerage capacity • Disposal of water including flood • Infrastructure • Employment/Industry • Amenities • Road access • Disability access • Outside the present JUDP
How Addressed	The responses are all in relation to proposed candidate sites and are not specific to the SA/SEA initial report.
Reference	SAP027
Respondent	Mr Del Phillips
Organisation	Not specified.
Response	<p>Whilst I acknowledge that the SA produced in advance of this LDP has been published, the SEA is conspicuous by its absence. Any responsible forward planning should have looked at all aspects of infrastructure provision and at the pace of development required within Carmarthenshire.</p> <p>I have a copy of the published report from CCC Forward Planning where it stated that once the relevant sites had been identified each one would undergo a SEA. I was taken aback as the SEA is required as a guide to the formulation of the Plan and an EIA for each individual site, if appropriate. Therefore, the LDP process has been compromised.</p> <p>In addition to the above, if a proper assessment of infrastructure had been carried out, deficiencies in transport and sewage disposal would have been readily identified.</p> <p>It is also noteworthy that a large percentage of the candidate sites for the LDP are on GREEN FIELD sites and do not accord with WAG or CCC policy.</p> <p>As the UDP requirement for housing to the year 2016 was exceeded during 2007-8, it appears that the Local Planning Authority has ignored the requirement for 'phasing' of development over the plan period. As such this has exacerbated</p>

	<p>the infrastructure deficiencies which continue to cause such controversy.</p> <p>As an example of the failure to provide the necessary infrastructure I attach for your information an extract from a report by Dr Keil Lewis of DCWW in their submission to OFWAT. The graph depicts the likely timescale for the legally necessary treatment of sewage to start to improve.</p> <p>I could go on but I will save further comment for a future date.</p>
How Addressed	Response noted. SEA is incorporated into SA, and the SA/SEA has assessed strategic site allocations, as appropriate. EIA occurs at the detailed project design stage. The phasing of development has been considered within the LDP.
Reference	SAP028
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	<p>The local authority must satisfy itself that it has adequately addressed the issue of alternatives, particularly given the potential implications of the Plan, as highlighted in the HRA, in relation to possible impacts on the Burry inlet SPA, Carmarthen Bay SAC etc. Alternatives must be realistic and reflect the range of alternative scenarios that could effectively deliver the plan. It is not necessary that all growth scenarios are presented or assessed but where only one growth expression has been put forward for assessment (even with low/high margins of error) then care must be taken to ensure that a firm justification is given why alternative growth levels have not been considered. It may not be acceptable to assume that because national policy advocates a particular level of housing growth that alternative lower (or even higher) growth scenarios should not be considered if only to identify where significant environmental effects are likely to manifest themselves and highlight potential mitigation measures.</p>
How Addressed	A separate HRA has been conducted and the alternative growth scenarios behind the preferred Strategic Option (Sustainable Distribution) have been assessed in as much detail as is possible for an SA. We have worked with CCW to understand the concerns regarding growth levels and any capacity constraints (e.g. abstraction, sewage treatment), and dealt with them appropriately. This will be confirmed through further consultation.
Reference	SAP029
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	<p>Given the issues in the Llanelli and Cross Hands area with regard to water quality and biodiversity, respectively, we wish to see more evidence of critical consideration of the effectiveness of implementing the preferred strategy. The levels of growth proposed in these two areas is high and while it may be possible to phase development over the lifespan of the LDP, we are aware that current discussions, particularly around sewage infrastructure in Llanelli, are only concerned with the level of housing growth as documented in the UDP. Therefore, we believe that further consideration of the impacts of the additional approximately 2000 houses proposed in the LDP is required to fully assess the impacts of the plan through the SEA process. We also strongly advise you to cross reference this section with the findings of the Habitats Regulations Assessment in relation to likely significant effects on the Burry Inlet SPA and Carmarthen Bay SAC and potentially other European and international sites.</p> <p>We note that comments are made in respect to the impacts on the water environment, specifically on page 14 that 'it is assumed that provisions will be implemented to ensure that adequate water supplies and sewage disposal capacities are available, that new development is water neutral and that development avoids flood risk zones as part of normal planning procedures'. We</p>

	would like to see more detail on these provisions or clearer indications that these mitigation measures will be incorporated into the Plan before we can be confident that the assessment of a minor positive effect is a reasonable one.
How Addressed	HRA has been conducted and has concluded that specific policy mechanisms were required, which have already been incorporated into the LDP. The need to assess and provide sewage infrastructure has been a key component of this work.
Reference	SAP030
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	We have some concerns that this document does not include all of the sections required of the Environment Report, as listed in the Regulations. We appreciate that this document is intended to sit alongside the Scoping Report (Stage A - September 2008) and will include additional elements in it's final form but this is not made clear and the two documents together do not constitute a full Environment Report (for example there is no consideration of the monitoring framework). We would welcome clarification as to why this is the case, and look forward to being consulted on the complete report, including an assessment of the deposit plan policies and a monitoring strategy at the appropriate time.
How Addressed	Response noted. CCC provided the Scoping Report and SAR on the same webpage and made it clear that this is the baseline used to inform the assessment. CCW have since confirmed that they would not have expected to see a full SA/SEA report at this stage in the LDP development. A full SA Report has now been prepared.
Reference	SAP031
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	Incorporation of assessment recommendations into the LDP preferred strategy. We believe that there are many aspects of the SEA assessment that should be incorporated into the preferred strategy. In particular, there are many valid and valuable recommendations to enhance the wording of the Strategic Policies (SP), such as inclusion of a minimum compensatory habitat requirement into SP1, and including reference to habitat corridors into SP14. We are therefore disappointed that the preferred strategy consultation document has not included these suggestions and, instead, quotes the original SP as it was before the assessment. As you are aware, the SEA process is designed to be iterative and to 'contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development'. We would therefore expect to see several, if not all, of the wording changes included in the consultation document on the preferred strategy, or if not, some explanation as to why these recommendations have not been taken up. In addition, it is our view that the assessment of the spatial options does not show that the preferred option will be particularly positive in terms of sustainable development, with most of the assessment concluding a minor positive effect at best. Therefore, we would encourage you to include recommendations for further enhancement in the SP to improve the overall assessment of the preferred strategy and make it more compliant with the spirit of the SEA Directive. Without consideration of the recommendations, we have serious concerns about the adequacy of this element of the assessment. The Local Authority must satisfy itself that it has fully considered the significant environmental effects of the

	preferred spatial options and strategic policies and adequately covered the range of mitigation measures needed to avoid, cancel and/or reduce these effects. It must also ensure that the measures identified are incorporated into the Plan itself.
How Addressed	The SA has informed the LDP to secure additional mitigation or control measures to try to secure improvements to the natural environment through development.
Reference	SAP032
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	<p>Studies to inform the assessment</p> <p>We strongly support the efforts of the local authority to undertake Strategic Flood Consequence Assessments and Water Cycle studies (WCS). Even though we understand these are limited in spatial scope at the moment, we commend the Council on using these tools to plan appropriately for proposed future development.</p> <p>Similarly, we are strongly in favour of the work the Council is undertaking on assessing and documenting ecological connectivity within the settlements in the county. We feel that this is a key element of the Plan's baseline research which will give future development a firm ecological basis and are therefore both surprised and disappointed not to see this concept explained in the SP on natural environment (SP14).</p> <p>Proposed inclusions of this work into SP14 as detailed in table 2.1 (page 25) are recommended in the assessment and we strongly supported this. We suggest use of the term 'connections' in preference of 'corridors' as this can be used to represent a variety of habitat features.</p>
How Addressed	Response noted. The SfCA was not well-developed at the time of undertaking the Initial SA Report assessment work. Consideration is being given as to the most appropriate approach for taking forward a WCS. It may be more appropriate to undertake any WCS work at a cross border level via a collaborative approach with neighbouring Authorities.
Reference	SAP033
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	<p>Previous comments made on the scoping document. We are disappointed that our comments on the previous consultation (Scoping Report October 2008) have not been included into a revised scoping report, and that the response document merely states that the Council's response is 'that the response be forwarded to JACOBS in order to inform Stage B of the SA/SEA process'. Consultations and their responses take time to undertake, as we are sure you will appreciate, and it is come to be normal practice to either address our comments in a revised scoping report, or to document why comments have not been incorporated. We therefore assume that this will be addressed in future iterations of the SEA and incorporated in the final Environment Report, as per Annex 1 of the SEA Directive.</p>
How Addressed	The comments raised by CCW have been taken into consideration – see Appendix C.
Reference	SAP034
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales

Response	<p>Sustainability Appraisals of related plans and strategies</p> <p>We note within the preferred strategy document that reference is made to a number of other plans and strategies that will have an impact on the LDP. While we commend this inclusive approach, we raise a note of caution that any specific policies or actions adopted from these plans and strategies, need to be considered as part of this SA/SEA. It should not be taken for granted that these policies or actions have been independently assessed as part of their own SA/SEA, and we can highlight the Rural Development Plan and Tourism Vision for Carmarthenshire as two examples where SEA has not been undertaken. Even if this is the case, the SEA of the other plan may not have considered any 'in combination', cumulative or synergistic effects in relation to the Carmarthenshire LDP. It is worth identifying clearly within the LDP documents which elements of the preferred strategy are derived from these other plans and strategies so that these can be clearly cross-referenced to the SA/SEA assessment.</p>
How Addressed	Response noted. The SA has been proportionate to the policies and proposals put forward by the LDP, including whilst taking account of cumulative effects.
Reference	SAP035
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	<p>We are pleased to see the proposal to limit the use of finite resources in the implementation of the LDP (see SEA objective 6 on material assets). In furthering this aim, we would draw your attention to a study looking at the long term sustainability of licensed gravel extraction practices in the Tywi valley, commissioned by CCW and carried out by the University of Wales Aberystwyth, which is due to be published shortly. This information will help to inform both the Habitats Regulations Assessment and the rationale for the use of extracted materials from this source within the LDP.</p>
How Addressed	Response noted and taken into consideration by the HRA.
Reference	SAP036
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	<p>Air quality assessment</p> <p>We understand that air quality is a real and current issue around Cross Hands. This is referred to in the SEA for the Regional Transport Plan prepared by SWWITCH, which states that 'building new road infrastructure is likely to result in an increase in vehicle traffic with associated negative environmental effects'. This issue is also alluded to in section 4.3.2 of this report in reference to a potential breach of standards due to traffic emissions in the next five years. While this does not presume a definite breach in the national air quality objectives, it is a worrying trend and raises issues about the impacts of proposals to develop Cross Hands, particularly in relation to increased traffic loads given the lack of public transport provision in the area. We would therefore recommend that you to look again at the assessment for air quality within this report (page 13) and cross-reference to the accompanying HRA report. The conclusion of a positive effect on air quality resulting from the preferred strategy may need to be reconsidered in the light of these studies.</p>
How Addressed	Response noted. The likely cumulative negative effects to air quality from development growth are recognised, and the SA has influenced the LDP's policies on transport and accessibility accordingly to minimise such impacts.
Reference	SAP037

Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	<p>Water quality/resources. Please note our above comments in relation to our concerns on the practicalities of implementing the preferred strategy within the context of ongoing discussions about sewerage infrastructure capacity affecting the Burry Inlet SAC.</p> <p>On the basis of ongoing development proposals, Carmarthenshire County Council is already aware that a clear understanding is required of the relationship between water treatment works, drainage area networks and international or European sites. Specific local issues should be considered through the LDP process, particularly within this SA/SEA, but "in combination" issues should be considered at the Regional/National Level as well.</p> <p>The Authority should link delivery of all new development (housing and employment) with a review of the capacity of Sewage Treatment Works (STWs) and sewerage infrastructure and work with the water companies to identify improvements to these to ensure water quality in the European or international sites is not compromised. This should be based on the increased growth figures set out in the LDP preferred strategy and not on the figures set out in the UDP.</p> <p>In relation to water resources, Carmarthenshire should continue to engage in consultation with water companies, the</p> <p>Environment Agency and CCW on proposed allocations to enable development to be appropriately located and phased, for example within Water Resource Zones where a sustainable water supply is available and can be secured without adverse effects upon a European site. Development should be avoided where a water deficit has been identified, particularly where there are potential likely significant effects on a European site(s).</p> <p>If this information is not currently available, we would encourage the local authority to consider expanding there existing Water Cycle Study baseline work by carrying out an investigation appropriate to the issues raised in the Water Resources Management Plan and LDP. The information that such a study could provide should also enable consideration of alternative distributions and phasing of development to ensure that the Plan will not be proposing development of such a scale or in a location that will result in adverse effects on the environment and once again, particularly any European sites.</p>
How Addressed	The HRA has now been conducted, and policy mitigation mechanisms incorporated into the LDP which are considered appropriate to avoid any significant impact. This is now the subject of consultation and agreement with CCW.
Reference	SAP038
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	<p>If adverse effects cannot be prevented through avoidance, then the Carmarthenshire County council would need to show how it might mitigate any potential impacts so that no adverse effect on the integrity of any European site will occur (alone or in combination with other plans and projects). This may require policy wording similar to that set out in the EIP Report on the West Midlands RSS Phase 2, where the Inspector suggested that; in exceptional circumstances, actual housing allocations may need to be adjusted to fit the available resources.</p> <p>It there is sufficient confidence that the proposed growth in the initial period of the Plan can be accommodated without any significant environmental effects (or likely significant effects in relation to European sites), then it may be possible to carry out this work as part of a wider study including neighbouring authorities over</p>

	<p>the first review period of the Plan. Detailed monitoring of both of the performance of relevant water conservation policies and the delivery of development will need to be included as part of the monitoring framework.</p> <p>Where there is any doubt, the Plan should contain suitable policies, caveats and conditions to ensure that any development is conditional on adequate water treatment infrastructure and assured and sustainable water supplies from sources that proposed development will not have any adverse effects on European sites.</p>
How Addressed	<p>The HRA has now been conducted, and policy mitigation mechanisms incorporated into the LDP which are considered appropriate to avoid any significant impact. This is now the subject of consultation and agreement with CCW.</p>
Reference	SAP039
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	<p>You should also be aware that ongoing Environment Agency Review of Consents (RoC) work on the abstraction licences on the river Tywi are very likely to result in amendments to licences, in terms of the amount and frequency of abstraction.</p> <p>We suggest that once this information is confirmed, further discussions take place with the Environment Agency and Dwr Cymru about likely implications for the delivery of the LDP.</p>
How Addressed	<p>This has been noted and is incorporated into the SA. The Council will need to continue to discuss these implications with the Environment Agency and Dwr Cymru. It is felt that the key concern is cumulative regional water supply and demand, rather than lack of available water within the county.</p>
Reference	SAP040
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	<p>Section 4.3.4 We welcome the suggestions to improve SP14 and SP17, but it appears that the final sentence of the second paragraph is incomplete.</p>
How Addressed	This has been amended.
Reference	SAP041
Respondent	Rhian Jardine
Organisation	Countryside Council for Wales
Response	<p>Overall ratings</p> <p>As is common practice, a concluding mark is given to represent a 'score' for the individual Strategic Policies against each of the SA/SEA objectives. In many cases, this mark is a question mark '?', which the text states denotes a lack of certainty about the additive nature of positive and negative effects. We do not feel that this is wholly adequate and could lead to the reader misinterpreting the assessment, either by judging the assessment to be inconclusive or incomplete. It is not adequate to assume an additive nature to positive and negative effects, as quite rightly pointed out in the report, but the use of a question mark is not adequate either. Given the frequent occasions that this mark is used within the assessment, we expect some attempt to qualify the negative and positive aspects of each type of effect, or to use a different method of summarising the effects. We suggest that changes to the objectives may be one way to deal with this issue, but understand that this may not be possible given the current stage of the Plan and look forward to discussing alternatives approaches to address these</p>

	concerns.
How Addressed	Jacobs is no longer applying a matrix-based or policy-by-policy approach to assessment. The current 'risk-based' method will hopefully clarify where it is not possible to eliminate risk of negative impacts completely, and also how it is being managed or controlled by the LDP.