Environmental Report

Perth & Kinross Local Development Plan

Main Issues Report

October 2010

PERTH & KINROSS COUNCIL

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GLOSSARY

Allocation	Land identified as appropriate for a specific land use.
Alternatives	These are different ways of achieving the objectives of the plan. Alternatives are also referred to as options. “Alternative” is the term used in this document.
Baseline	Data that describe issues and conditions at the inception of the SEA. Serves as the starting point for measuring impacts, performance, etc., and is an important reference for evaluations.
Biodiversity	The variety of life on Earth at all its levels, from genes to ecosystems, and the ecological and evolutionary processes that sustain it
Blue Infrastructure	This term is sometimes used to describe riverine and coastal environments with a green infrastructure network.
Brownfield land	Land which has previously been developed. The term may cover vacant or derelict land, land occupied by redundant or unused building and developed land within the settlement boundary where further intensification of use is considered acceptable
Consultation Authorities	Organisations with a particular status for involvement in the SEA under the Regulations. In Scotland these are the Scottish Natural Heritage, Scottish Environment Protection Agency, Scottish Ministers (Historic Scotland).
Compatibility appraisal	Ensures that a strategic action is internally coherent and consistent with other strategic actions. This is not strictly an SEA function, more one associated with good planning. Normally two types of matrices are used: An **internal compatibility matrix** plots different components/statements of the strategic action on both axes, with compatibility/incompatibility between the actions marked in the cells with a tick or cross. An **external compatibility matrix** plots the strategic actions (as a whole) against other relevant (normally higher- and equal-level) strategic actions. Matrix cells are filled by listing those statements of the strategic action that fulfil the requirements of the other strategic actions, or explaining how the evolving strategic action should take the requirements into account. When no statements in the strategic action fulfil the other’s requirements, or where they conflict, this may need to be addressed. (*Source:* Therivel, 2004.)
Climate Change	A change in the "average weather" that a given region experiences. Average weather includes all the features we associate with the weather such as temperature, wind patterns and precipitation.
Cross-boundary effects	The term "cross-border" effects" means the effects of a PPS on another UK country. See also **Trans-boundary** effects.
Cultural Heritage	Includes scheduled monuments and other significant archaeological sites and landscapes, listed buildings, conservation areas, historic gardens and designed landscapes included in the published inventory and any others of national and Corporate importance which are likely to be included.
Cumulative effects	The effects that result from changes caused by a project, plan, programme or policy in association with other past, present or reasonably foreseeable future plans and actions. Cumulative impact can result from individually minor but collectively significant actions taking place over a period of time. Cumulative effects are specifically noted in the SEA Directive in order to emphasise the need for broad and comprehensive information regarding the effects.
Density	The intensity of development in a given area. Usually measured as net dwelling density, calculated by including only those site areas which will be developed for housing and directly associated uses, including access roads within the site, private garden space, car parking areas, incidental open space and landscaping and children’s play areas, where these are provided.
Effective housing land supply	Effective housing land supply is the part of the established housing land supply which is free or expected to be free of development constraints in the period under consideration, and will therefore be available for the construction of housing
Enhancement	Measures envisaged to maximise the benefits of the positive actions of implementing the plan
Environment	Mostly used in an ecological sense to cover natural resources and the relationships between them. But, social aspects (including human health) are also considered part of the environment. Issues relating to aesthetic properties as well as cultural and historical heritage (often in built environment) are also included.
Environmental assessment	A tool for integrating environmental considerations into decision making by assessing the significant environmental effects. In the SEA Directive, an environmental assessment means "the preparation of an Environmental Report, the carrying out of consultations, the taking into account of the Environmental Report and the results of the consultations in decision-making and the provision of information on the decision", in accordance with the Directive's requirements.
Environmental justice	It has at its heart the notion of righting a wrong; correcting an unjustly imposed burden whereas environmental equity typically focuses on sharing burdens. It is about those who are deprived their environmental rights because they are poor, women, children or because of their race.
Environmental Report	Document required by the Environment Act/SEA Directive as part of an environmental assessment, which identifies, describes and evaluates the likely significant effects on the environment of implementing a plan or programme.
Flood	The temporary covering by water from any source of land not normally covered by water, but does not include a flood solely from a sewerage system
Flood prevention	Works including walls, new channels, embankments and flood water storage areas

measures	
Flood risk	The combination of the probability of a flood and of the potential adverse consequences, associated with a flood, for human health, the environment, cultural heritage and economic activity
Green Belt	An area of land around a city having five distinct purposes: ▪ to check the unrestricted sprawl of large built up areas; ▪ to prevent neighbouring towns from merging into one another; ▪ to assist in safeguarding the countryside from encroachment; ▪ to preserve the setting and special character of historic towns; and ▪ to assist in urban regeneration by encouraging the recycling of derelict and other urban land.
Green Infrastructure	The network of protected sites, green spaces and linkages which provide which provide for multi-functional uses relating to ecological services, quality of life and economic value.
Green Space	A subset of open space, consisting of any vegetated land or structure, water or geological feature within urban areas.
Impact	A consequence affecting direct beneficiaries following the end of their participation in an intervention or after the completion of public facilities, or else an indirect consequence affecting other beneficiaries who may be winners or losers. Impacts may be positive or negative, expected or unexpected.
Indicator	A means by which change in a system or to an objective can be measured. **Output Indicator:** An indicator that measures the direct output of the PPS. These indicators measure progress in achieving PPS objectives, targets and policies. **Significant Effects Indicator:** An indicator that measures the significant effects of the PPS. **Contextual Indicator:** An indicator used in monitoring, that measures changes in the context within which a PPS is being implemented.
Landscape character	The distinct, recognisable and consistent pattern of elements that occurs consistently in a particular landscape and how these are perceived. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement.
Landscape character areas	Single unique areas that are the discrete geographical area of a particular landscape type.
Landscape character types	Distinct types of landscape that are relatively homogenous in character. They are generic in nature in that they may occur in different areas in different parts of the country, but share broadly similar combinations of geology, topography, drainage patterns, vegetation, historic land use and settlement pattern
Listed Buildings	A building of special architectural or historic interest. Listed buildings are graded A, B or C with grade A being the highest. Listing includes the interior as well as the exterior of the building, and any buildings or permanent structures (e.g. wells within its curtilage). Historic Scotland is responsible for designating buildings for listing in Scotland.
Minimal Effect (on the environment)	Whether environmental effects are considered "minimal" should be seen as a difficult test to meet and should always be assessed in the context of each individual PPS. If the Responsible Authority sees any indication at all that a PPS may have more than minimal environmental affects then the pre-screening provisions will not apply.
Mitigation	Measures to avoid reduce or offset significant adverse effects on the environment.
Monitoring	Activities undertaken after the decision is made to adopt the plan or programme to examine its implementation. For example, monitoring to examine whether the significant environmental effects occur as predicted or to establish whether mitigation and enhancement measures are implemented and are working.
National Planning Framework	It is a strategy for the long-term development of Scotland's towns, cities and countryside. The NPF is about shaping Scotland's future and is concerned with how Scotland develops over the next 20 years and how to make that possible. The NPF identifies key strategic infrastructure needs to ensure that each part of the country can develop to its full potential.
Natura 2000	Under the EU Habitats Directive SPAs and SACs are together intended to form a European-wide network of protected areas designed to maintain or restore the distribution and abundance of species and habitats of EU interest. Many areas qualify for both SPA and SAC designation and as a matter of Government policy sites designated under the Ramsar Convention are afforded the same level of protection.
Network analysis	Also called cause-effect analysis, consequence analysis, or causal chain analysis) explicitly recognises that environmental systems consist of a complex web of relationships, and that many activities' impacts occur at several stages removed from the activity itself. It aims to identify the key cause-effect links describing the causal pathway from initial action to ultimate environmental outcome. It doing so, it can also identify assumptions made in impact predictions, unintended consequences of the strategic action, and possible measures to ensure effective implementation. It is useful for identifying cumulative impacts. The technique involves, through expert judgement, drawing the direct and indirect impacts of an action as a network of boxes (activities, outcomes) and arrows (interactions) (*Source:* Therivel, 2004).
Open Space	Any unbuilt land within the boundary of a village, town or city which provides, or has the potential to provide, environmental, social and/or economic benefits to communities, whether direct or indirect.
Objective	A statement of what is intended, specifying the desired direction of change.
Options	See **alternatives.**
Precautionary Principle	The assumption that an activity or development might be damaging unless it can be proved otherwise.
Prime quality	Prime agricultural land is agricultural land identified as being of Class 1, 2

agricultural land	or 3.1 in the land capability classification for agriculture as developed by the Macaulay Land Use Research Institute
Ramsar site	What does Ramsar stand for? It's actually the name of a town in Iran where the Convention of Wetlands of International Importance was adopted in 1971. The UK Government signed up to the Convention in 1976. All Ramsar sites in Scotland are also either SPAs or SACs (Natura sites), and many are also Sites of Special Scientific Interest (SSSIs), although the boundaries of the different designations are not always exactly the same.
Responsible Authority	Under the Act, the authority by which or on whose behalf the plan is prepared, or its successor.
Scheduled Ancient Monument	A scheduled monument is a monument of national importance that Scottish Ministers have given legal protection under the Ancient Monuments and Archaeological Areas Act 1979. Although the majority are on land, a small number lie under the sea.
Secondary effects	Effects which are attributable to the plan but which may not be obvious or direct. Secondary effects are specifically noted in the SEA Directive in order to emphasise the need for broad and comprehensive information regarding the effects.
Significant environmental effects	A degree of professional judgement is required in assessing significance of environmental effects but to help ensure that determinations are consistent and appropriate Schedule 2 of the Act sets out specific criteria for determining the likely significance of effects on the environment of a PPS.
Soil Sealing	The covering of the soil surface with impervious materials as a result of urban development and infrastructure construction. Sealed areas are lost to uses such as agriculture or forestry while the ecological soil functions are severely impaired or even prevented (e.g. soil working as a buffer and filter system or as a carbon sink). In addition, surrounding soils may be influenced by change in water flow patterns or the fragmentation of habitats.
Strategic Flood Risk Assessment	Assessment used to refine information on areas that may flood, taking into account all sources of flooding and the impacts of climate change. Used to determine the variations in flood risk from all sources of flooding across and from their area. SFRAs should form the basis for preparing appropriate policies for flood risk management.
Significant environmental effects	Effects on the environment which are significant in the context of a plan or programme. Criteria for assessing significance are set out in Annex II of the SEA Directive.
Sustainable development	This concept recognises that achieving economic growth has to be done in such a way that does not harm the environment or squander the natural resources we depend on, whilst at the same time distributing the wealth this creates equally to improve quality of life now and in the future.
Sustainable Drainage Systems (SuDS)	Formerly called Sustainable Urban Drainage Systems. An approach to managing rainfall and run off in developments, with a view to replicating natural drainage. SuDS also aim to control pollution, re charge ground water, control flooding, and often provide landscape and environmental enhancement.
Synergistic effects	A type of **cumulative effect** where two or more impacts combine to produce a complex interaction where the effect may be larger or smaller that component impacts. Synergistic effects are specifically noted in the SEA Directive in order to emphasise the need for broad and comprehensive information regarding the effects.
SEA Act	Environmental Assessment (Scotland) Act 2005
SEA Directive	Directive 2001/42/EC "on the assessment of the effects of certain plans and programmes on the environment".
Tiering	The linking of assessments for policies, plans, programmes and projects to achieve a logical hierarchy and avoid unnecessary duplication of assessment work.
Trans-boundary effects	The term means the effects of a plan, programme or strategy (PPS) on another EU Member State.
Wellbeing	A holistic, subjective state which is present when a range of feelings, among them energy, confidence, openness, enjoyment, happiness, calm, and caring, are combined and balanced.

ACRONYMS

AQMA	**Air Quality Management Area**
AQMP	**Air Quality Management Plan**
GIS	A **geographic information system (GIS)** captures, stores, analyses, manages, and presents data that refers to or is linked to location. In the strictest sense, the term describes any information system that integrates, stores, edits, analyses, shares, and displays geographic information. In a more generic sense, GIS applications are tools that allow users to create interactive queries (user created searches), analyse spatial information, edit data, maps, and present the results of all these operations.
GROS	**General Register Office for Scotland** runs the Census and uses Census and other data to publish information about population and households.
HS	**Historic Scotland** is an executive agency of the Scottish Government and is charged with safeguarding the nation's historic environment and promoting its understanding and enjoyment on behalf of Scottish Ministers.
LDP	**Local Development Plan**
NHS	**National Health Service Scotland** is the publicly funded healthcare system of Scotland. Responsibility for the National Health Services in Scotland is a devolved matter and therefore rests with the Scottish

	Government. Legislation about the NHS is made by the Scottish Parliament. The Cabinet Secretary for Health and Wellbeing has ministerial responsibility in the Scottish Cabinet for the NHS in Scotland.
NNR	**National Nature Reserve** Areas considered to be of national importance for their nature conservation interest which are managed as nature reserves.
NSA	**National Scenic Area** Areas which are nationally important for their scenic quality.
PPS	A plan, programme or strategy
SAC	Special Areas of Conservation Sites designated under the EC Habitats Directive. They are intended to ensure that rare, endangered or vulnerable habitats and species of Community interest are either maintained at or restored to a favourable conservation status.
SAM	**Scheduled Ancient Monument:** Scheduled monuments are not always ancient, or visible above ground. There are over 200 'classes' of monuments from prehistoric standing stones and burial mounds, through the many types of medieval site - castles, monasteries, abandoned farmsteads and villages - to the more recent results of human activity, such as collieries and wartime pillboxes. Scheduling is applied only to sites of national importance, and even then only if it is the best means of protection. Only deliberately created structures, features and remains can be scheduled.
SEA	**Strategic Environmental Assessment** involves the preparation of an environmental report in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme, are identified, described and evaluated
SEPA	**Scottish Environment Protection Agency** is Scotland's environmental regulator. Its main role is to protect and improve the environment. SEPA is a non-departmental public body, accountable through Scottish Ministers to the Scottish Parliament.
SIMD	**Scottish Index of Multiple Deprivation** identifies small area concentrations of multiple-deprivation across all of Scotland in a fair way. It allows effective targeting of policies and funding where the aim is to wholly or partly tackle or take account of area concentrations of multiple- deprivation.
SNH	**Scottish Natural Heritage** Its role is to look after the natural heritage, help people to enjoy and value it, and encourage people to use it sustainably.
SOA	The **Single Outcome Agreement** is between each Council in Scotland and the Scottish Government, based on the 15 national outcomes. The national outcomes reflect the Scottish Government's National Performance Framework but they also reflect established corporate and community plan commitments across Scotland's Councils and Community Planning Partnerships.
SDP	**Strategic Development Plan** Strategic development plans will be prepared by SDPAs and approved by Scottish Ministers. It sets out a clear vision and spatial strategy for the area. Critically it focuses on the key land use and development matters that cross planning authority.
SPA	**Special Protection Areas** Sites designated under the EC Birds Directive. They are intended to protect the habitats of rare, threatened or migratory bird species.
SPP	**Scottish Planning Policy** is a statement of Scottish Government's policy on land use planning and contains: • its view of the purpose of planning, • the core principles for the operation of the system and the objectives for key parts of the system, • statutory guidance on sustainable development and planning under Section 3E of the Planning etc. (Scotland) Act 2006, • subject planning policies, including the implications for development planning and development management, and • Its expectations of the intended outcomes of the planning system.
SRDP	**Scotland Rural Development Programme** It includes measures to address economic and social goals as well as environmental measures. It is outcome-focused and primarily aims to deliver a Greener Scotland and to promote a Wealthier and Fairer rural Scotland. It will contribute to the Government's Healthier and Smarter objectives and will help to strengthen rural communities.
SSSI	**Site of Special Scientific Interest** Areas of land or water which, in the opinion of SNH are of special interest by reason of their flora, fauna or geological or physiographical features.

TABLES AND FIGURES

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1 INTRODUCTION

Requirement for SEA

1.1 The Environmental Assessment (Scotland) Act 2005 requires development plans and programmes produced by public bodies to be subject to Strategic Environmental Assessment (SEA). The Perth & Kinross Local Development Plan (LDP) is an important plan which will guide the use and development of land across the area up to at least 2024. The SEA process has the potential to make a real contribution to the plan preparation process through ensuring that the environmental effects of the LDP's strategy, policies and proposals are fully understood, and that the environment is given the same level of consideration in the LDP as social and economic factors.

Scope of the Environmental Assessment

1.2 The environmental topics that will be included in the environmental assessment and the reasons for their inclusion are set out in Table 1.1 below. The identification of the topics is based upon those specified in the SEA Act, the issues identified in the baseline study carried out for the Scoping Report, and also the range of issues that the LDP is likely to cover.

Table 1.1: Scope of the Environmental Assessment

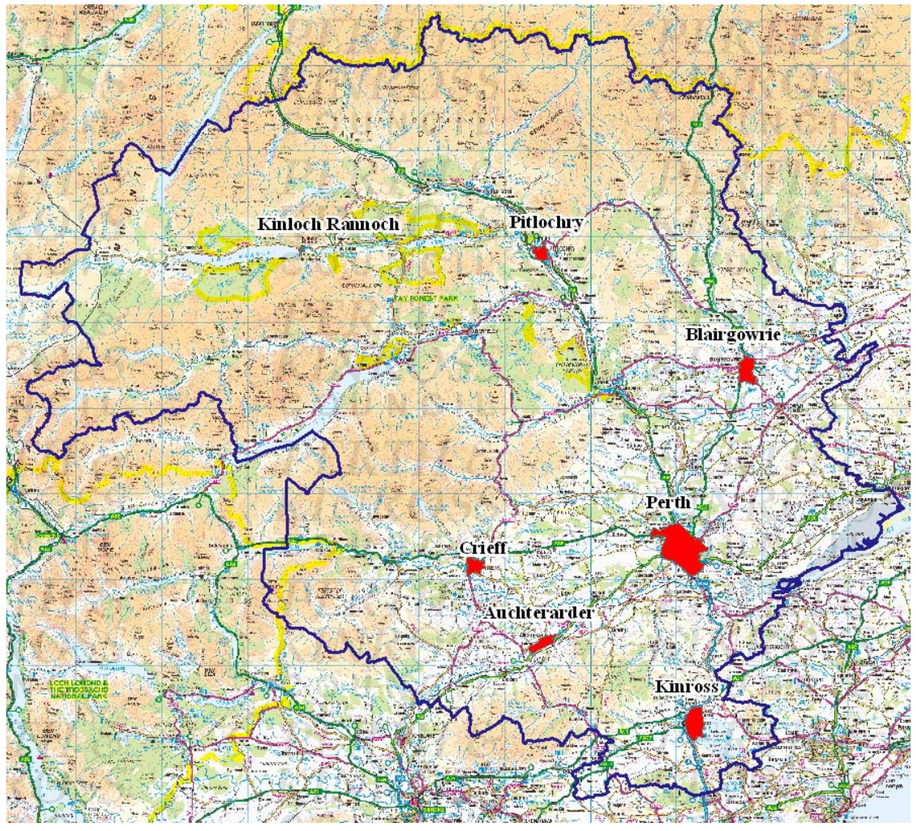
SEA Topic	Reason
Biodiversity, Flora and Fauna	The Plan has the potential to cause significant environmental effects despite mitigation through existing development plan policy protection of internationally and nationally protected sites. The potential also exists to positively enhance positive effects as a result of development.
Population	Potential generation of significant positive and negative effects on communities through development proposals.
Human Health	Potential negative effects on the population's health as a result of emissions from increased road traffic; or potential positive effects through the reduced need to travel, and the creation of quality open spaces.
Soil	Possible significant cumulative effects dependent on the Plan's spatial strategy and land allocations, such as the loss of prime quality agricultural land, sealing as a result of construction, and loss of biodiversity.
Water	Potential for effects on water quality and supplies, drainage, flooding and morphology. Opportunity exists to enhance water quality through infrastructure investment.
Air	Emissions from road transport have the potential to have negative effects; similarly there is also the potential to reduce emissions through reducing the need to travel or distance to be travelled.
Climatic Factors	Potential opportunity to make contributions to climate change mitigation targets through the Plan, and also to the need for long term adaptation to climate change.
Material Assets	The Plan will tackle issues surrounding infrastructure, waste, and vacant and derelict land, and as such the SEA has a role to play in maximising positive effects.
Cultural Heritage	The LDP has the potential to generate both significant negative and potential positive effects on cultural heritage, depending on the scale, design and location of development identified.
Landscape	Potential for significant changes to the landscape as a result of the implementation of a range of elements of the LDP's Spatial Strategy. However, there may also be opportunities for mitigation and enhancement.

2 PLAN CONTEXT

The Perth and Kinross Area

2.1 Perth and Kinross is 5,286km^2 in area and contains both highland and lowland landscapes. The area is characterised by a diverse mix of rural and urban communities, from the main population centre of Perth and towns such as Blairgowrie, Crieff, Kinross, Auchterarder and Pitlochry, to extremely remote communities such as Kinloch Rannoch in the Highland area.

Figure 2.1: Map of the LDP Area Boundary



2.2 The General Register Office for Scotland's (GROS) population estimates for Perth and Kinross from 2001 to 2008 show that the trend is of a steady year on year increase. The 2001 Census recorded a population of 134,950 people and the 2008 based mid-year projections estimate that Perth and Kinross, at 2008 had a population of 144,180. It is further predicted that the area will grow by 5.5% between 2008 and 2013, which is one year before the end of the plan preparation period.

2.3 The Planning etc. (Scotland) Act 2006 requires planning authorities at five yearly intervals to prepare LDP's for all parts of their district and keep those plans under review. Perth & Kinross Council has begun the process of preparing a LDP for its area.

The TAYplan Context

2.4 Angus, Dundee, Fife and Perth & Kinross Councils were designated as Strategic Development Planning Authorities and are jointly preparing the Strategic Development Plan for the area. This is known as TAYplan. To deliver on its vision and aims between 2012 and 2032, objectives for the area have been identified.

2.5 The first step in delivering the Strategic Development Plan (SDP) for the TAYplan area was the publication of the Main Issues Report (MIR) during April 2010. The MIR is strategic in focus and explores what is required at a high level to provide the context within which Local Development Plans in the area will be prepared.

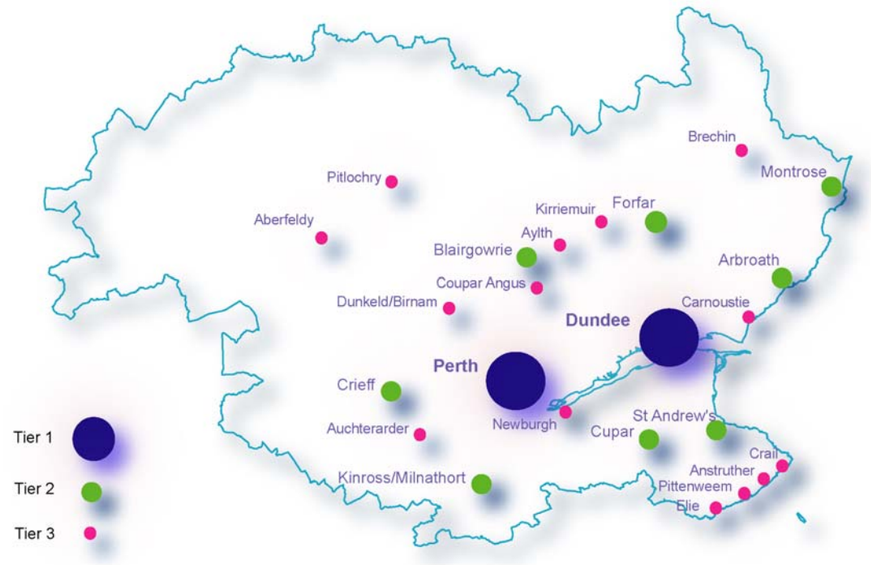
2.6 As well as identifying the main cross-boundary land use planning issues, the MIR presents a vision of how the area should develop over the next 20 years. It also indicates generally where development should and should not take place in Angus, Dundee City, Perth & Kinross and North-east Fife. (If you want to find out more about the TAYplan Main Issues Report you can go to the TAYplan website (http://www.tayplan-sdpa.gov.uk).

2.7 The SDP aims to ensure that the TAYplan area is a sustainable region through the creation of 'Quality Places' and by indicating where the Local Development Plans need to address matters. Delivery will be achieved through actions in 5 key interrelated areas: Environment & Settlements; People; Economy; Consumption and Use of Resources; and Infrastructure. For each of these themes, the main strategic issue has been identified, and a number of objectives have been proposed as a framework for delivering the vision (Figure 2.2). The objectives provide a clear strategic direction and will inform the development of the Local Development Plan.

Figure 2.2: The TAYplan Vision, Main Issues and Objectives

2.8 The preferred Spatial Strategy would see development concentrated mostly in Dundee and Perth Core Areas with the rest accommodated in the other principal settlements. Three of these (Blairgowrie, Crieff, and Kinross) are in Perth and Kinross. Where these settlements cannot accommodate growth there may be a need for settlement extensions or for the creation of a new settlement(s) (see Figure 2.3).

Figure 2.3: TAYplan Preferred Spatial Strategy for Development



2.9 Whilst the Main Issues Report has identified the preferred strategy this may change as a result of the consultation exercise which was recently completed. However, due to the timing of events it is not possible to know how the Proposed Plan may differ from the Main Issues Report and what those implications may be on the Local Development Plan. Nonetheless, it is considered that the potential impacts of development identified in the TAYplan Environmental Report provide a reasonable assessment of its environmental effects unless it changes radically. The following section summarises the potential environmental effects of implementing the TAYplan vision and preferred strategy.

Summary of Potential Impacts from the TAYplan Vision Framework and the Spatial Strategy

2.10 Clearly the Strategic Development Plan will affect, in both a positive and negative way, the environment both within and outside Perth and Kinross. Table 2.1 summarises the possible effects of the preferred strategy for the area. In identifying impacts, the following key is used:

Table 2.1: Summary Assessment of the Preferred Strategy

Topic	Likely situation with TAYplan Preferred Strategy
Biodiversity	Overall, the spatial strategy proposes development that could have potentially significant adverse effects on biodiversity, both protected and non-protected, within the TAYplan area.
Population & Health	Overall, the spatial strategy has a framework that would guide development in a positive manner that would improve the quality of life for the TAYplan population.
Soil	With the exception of Dundee, development will largely have a negative impact on soil and land.
Water	The increased pressure from development could impact on the quality and quantity.
Air	The SDP will have limited direct influence on reducing the level of air pollutants however it can set the agenda for the issue through such indirect measures as stated above.
Climatic factors	The spatial strategy will promote a large amount of development in coastal areas and areas at risk from flooding. The majority of these areas are low-medium risk.
Material assets	There is the potential to have cumulative negative impacts associated with rising sea-levels and infrastructure security, in the Perth Core Area.
Cultural Heritage	Overall, the spatial strategy proposes development that could have negative impacts on the historic environment within the TAYplan area.
Landscape	The proposals under the spatial strategy are likely to have negative impacts on landscape, with the exception of Dundee.

Key:

Significant positive impact	
Positive impact	
Neutral impact, or rough balance between positive and negative impacts	
Unclear impact, or no data available	
Impact could be positive or negative depending on implementation	
Negative impact	
Significant negative impact	

2.11 As is shown in the Table above there are a number of potential negative impacts associated with the proposals for TAYplan's preferred Strategy. Furthermore, the assessment of the Vision Framework highlighted a number of areas of 'uncertainty' in relation to their internal compatibility within the proposed framework, and with the SEA objectives. The relative lack of detail in the SDP made it difficult to determine significance of effect for those issues which require more area specific appraisal. For example, it is very difficult to determine with any accuracy, the effect of 4100 homes in the Perth Core on a particular landscape or historic assets, without greater detail on the location of development.

2.12 Consequently, the Environmental Report for the Local Development Plan considers these issues in more detail and depth and concludes by suggesting ways in which the Local Development Plan could enhance environmental sustainability in Perth and Kinross or mitigate the effects of development in the area.

The Main Issues Report

2.13 The first stage in the Perth & Kinross LDP process is the production of a Main Issues Report (MIR). Scottish Government guidance describes MIR's as important documents that will help facilitate the front-loading of effective engagement on the Plan, and for bringing development planning into line with the SEA process.

2.14 The intention of the MIR is to stimulate discussion through consultation. The report begins by setting out a Vision for the future development of Perth and Kinross over the next 20 years and identifies the key drivers that are expected to influence that change. It continues by looking at the main land use planning issues facing the area which have been identified through the monitoring study and early engagement with the key stakeholders, and finally indicates generally where development should and should not take place across the Council area.

The Vision for Perth and Kinross

2.15 The Local Development Plan Vision provides a local context to the proposed TAYplan area Vision set out in the Strategic Development Plan (TAYplan) MIR and also takes account of the Council's Corporate Plan Vision.

2.16 The Local Development Plan Vision acknowledges the considerable strengths of Perth and Kinross and the many challenges it faces. It recognises that Perth and Kinross has experienced significant population growth in recent years and all indications show that this is likely to continue. There is a need to ensure that the area's prosperity continues and improves, but that the benefits are more widely and equitably shared, and that the environment is protected and improved.

2.17 The Vision is of a Perth & Kinross which is seen as a dynamic, attractive and effective area whilst protecting its best assets and welcoming population and economic growth. The majority of that growth focuses on Perth City and its Core Area, and the growth of the core is matched by sustainable economic growth focused on the burghs of Kinross, Aberfeldy, Pitlochry, Crieff, Auchterarder and Blairgowrie with increased prosperity in the smaller towns, villages and rural communities. The area has a good mix of rural and urban environments and we wish to protect and enhance this variety and also improve the distinctiveness of our towns, villages and neighbourhoods. However, this growth should be carried out in a sensitive manner in keeping with the area's environment whilst providing enough dynamism to keep communities viable and prosperous. The area's rural spaces are regarded as important for food and other raw materials, and also for their role in the tourism industry, various economic enterprises and a wide range of environmental assets. As such a well cared for rural environmental is a social and economic asset crucial to the well-being of the area's

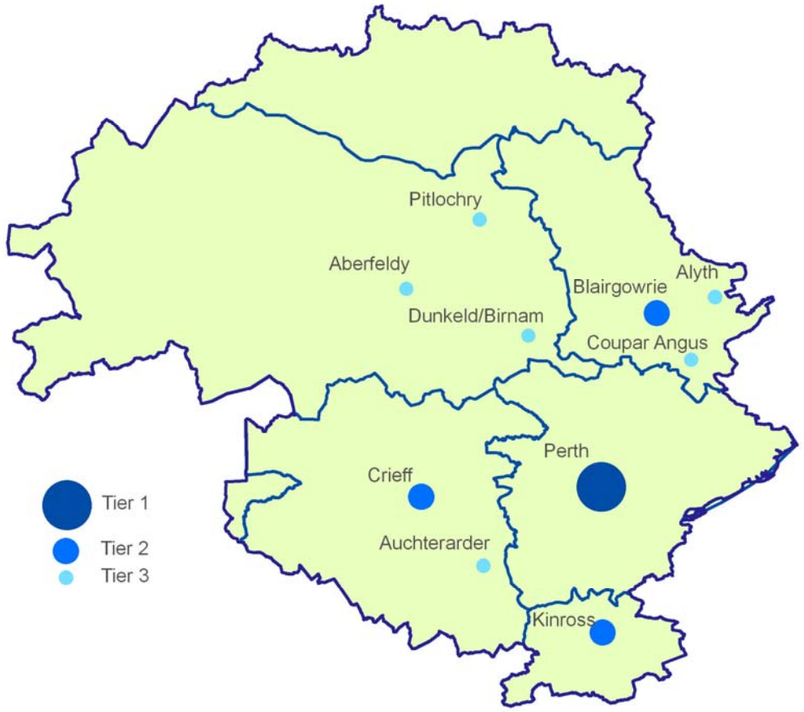
citizens and to its future prosperity. The Vision also recognises the importance of planning for future changes to our climate to allow us to adapt and prepare.

The Spatial Strategy for Perth and Kinross

2.18 The LDP's Spatial Strategy is consistent with that of the Strategic Development Plan (SDP). TAYplan's Main Issues Report indicates the preferred spatial strategy focuses on locating the majority of new development within Principal Settlements and adopts a 3 tier hierarchical approach, which applies to Perth and Kinross as follows:

- Tier 1 Perth Core Area – would accommodate the majority of new development.
- Tier 2 Existing Regional Service Centres i.e. Kinross, Blairgowrie and Crieff - would accommodate a small share of new development
- Tier 3 Existing Local Service Centres – Auchterarder, Aberfeldy, Pitlochry, Dunkeld, Coupar Angus and Alyth- would accommodate a small share of new development to meet local needs

Figure 2.5: TAYplan Hierarchy of Settlements



2.19 The TAYplan MIR is not specific about the percentage of development which should be accommodated in these settlements as it is deemed that this is a more appropriate matter for the Local Development Plan Strategy taking account of local circumstances and the Strategic Environmental Assessment.

2.20 The Spatial Strategy for the Local Development Plan builds upon the TAYplan strategy adding the additional level of detail more appropriate to the Local Development Plan. The LDP MIR concentrates on the main spatial issues of:

- Housing Land Supply and Distribution
- Economic Development Land Supply and Distribution
- Retailing, and
- Key Infrastructure Proposals

2.21 These issues are dealt with at a sub-Perth and Kinross level corresponding with the following Housing Market Areas:

- Perth
- Highland
- Kinross-shire
- Strathearn, and
- Strathmore & The Glens

2.22 The Spatial Strategy builds on the TAYplan hierarchical approach with the highest percentage of development being targeted at the highest tier settlement in each area. The MIR identifies options for each area including a preferred option. Where possible various alternative site options have been identified which have the potential to meet the housing or employment land requirements for each area.

3 ENVIRONMENTAL BASELINE

Introduction

3.1 The identification of the current environmental baseline conditions and their likely evolution is an important part of the SEA process. A knowledge and understanding of existing conditions and the consideration of their significance helps with the identification of those issues which the plan, programme or strategy (PPS), in this case the LDP, should be addressing and allows it to be successfully implemented and subsequently monitored.

3.2 The SEA Directive requires that the likely evolution of the environmental baseline of the area, without the implementation of the PPS to be identified. This is useful in the assessment of the significance of effects, particularly in respect of those conditions which may already be improving or worsening, and the rate of that change. The type of data collected for the Environmental Report will be largely determined by:

- The environmental topic to which it relates
- The SEA objectives
- The aspects of each environmental topic chosen for the basis of the assessment
- The level of assessment proposed
- The environmental data available

Relevant Plans, Programmes and Strategies

3.3 The review of plans, programmes and strategies as part of the SEA process is a useful way of ensuring that the relationship between these documents and the LDP is fully explored, and also that the relevant environmental protection and sustainability objectives are taken into account through the SEA.

3.4 Reviewing plans, programmes and strategies can also provide appropriate information on the baseline for the plan area and the key environmental and/or sustainability issues. The plans and programmes thought to have an influence on or be influenced by the LDP are set out in detail in Appendix A to this document.

3.5 The analysis concentrates on those plans which are considered to be particularly relevant to the LDP. Plans, programmes or strategies above the Scottish level have in most cases been excluded from the analysis. This is mainly because it is assumed that all relevant international, European and UK environmental legislation has been incorporated into regional and local legislation, strategies and guidance. Some of the reviewed documents have been summarised below.

TAYplan

3.6 The Planning etc. (Scotland) Act 2006 requires that within Strategic Development Planning Authority areas the LDP is consistent with the SDP, which in the case of Perth and Kinross is TAYplan. As the Perth and Kinross LDP process is following closely behind that of TAYplan it is only possible at present to review the contents of the SDP Main Issues Report (MIR) rather than the Proposed Plan.

3.7 The TAYplan MIR which was published for consultation alongside its SEA Environmental Report in April 2010 sets out the main issues and options for the future development in the TAYplan area, and gives an indication of the preferred options to be taken forward in the Strategic Development Plan (SDP).

3.8 The Plan's proposed Vision is of a dynamic, sustainable city region, which provides opportunities for everyone to reach their full potential and have a good quality of life; where the growth of the area makes it a place where people choose to live, invest, work, spend time, visit and study, but where the human and natural environments thrive together. The aspiration for the Dundee city region through the implementation of the Plan is for an area in 2032 which has well built safe and healthy neighbourhoods and settlements, where people live much greener and active lives. The area will have stronger, more diverse rural communities and the health benefits of the countryside will be greater recognised.

3.9 In addition, high quality agricultural land and marine life will be protected, green corridors and networks will be developed and biodiversity levels increased. Travel demand in the area will have been reduced and more sustainable travel options such as walking and cycling will be the first choice for most journeys. An important contribution will also be made to reducing greenhouse gas emissions and the impacts of climate change.

3.10 The TAYplan MIR identifies two spatial strategy options for the area; the first option, 'Option A' would see development concentrated mostly in Dundee and the Perth Core

Areas, with the rest accommodated in the other principle settlements across the area. 'Option B' is similar to the first option but would disperse the majority of the Perth Core Area housing development across the Perth Housing Market, particularly eastwards along the Carse of Gowrie. The authority's preferred option is 'Option A'. TAYplan sets the overarching spatial strategy for the distribution of development in the LDP.

National Planning Framework (NPF) 2

3.11 National Planning Framework 2 – *To Guide Scotland's Spatial Development to 2030* was approved by the Scottish Parliament in 2009. The Framework will play a key role in co-ordinating policies with a spatial dimension and integrating and aligning strategic investment priorities. It takes forward the spatial aspects of the Government Economic Strategy, highlighting the importance of place and identifying key priorities for investment to enable each part of the country to play to its strengths in building a Scotland that is wealthier and fairer, greener, safer and stronger, smarter and healthier. It provides the strategic spatial policy context for decisions by the Government and its agencies, complementing the statements of national policy set out in Scottish Planning Policy. The legislation requires planning authorities to take the Framework into account in preparing development plans and it will be a material consideration in determining planning applications. The key aims of the strategy for Scotland's spatial development to 2030 are:

3.12 To contribute to a wealthier and fairer Scotland by supporting sustainable economic growth and improved competitiveness and connectivity;

- To promote a greener Scotland by contributing to the achievement of climate change targets and protecting and enhancing the quality of the natural and built environments;
- To help build safer, stronger and healthier communities, by promoting improved opportunities and a better quality of life; and,
- To contribute to a smarter Scotland by supporting the development of the knowledge economy.

3.13 The Framework highlights the East Coast corridor as boasting much of Scotland's best agricultural land and fine farming landscapes, significant areas of woodland and attractive historic burghs and fishing villages. It is described as having a diverse rural economy which makes an important contribution to Scottish food production. Other environmental assets identified include important coastal and estuarine habitats such as dune systems, tidal mudflats and sea cliffs, with the conservation and sensitive management of these features regarded as being critical to the identity, biodiversity and quality of life of the area. The many opportunities for leisure, recreation and tourism are also highlighted.

3.14 The accessibility of Perth and the quality of environment which it offers is described as making it an attractive location for development. The importance of the links between Perthshire and the Glasgow and Edinburgh city regions are highlighted, as is the interface it provides between Lowland and Highland Scotland also. Eastern Perthshire is also singled out for its strong links to Dundee, and the possible scope to develop complementary roles for Dundee and Perth as the main centres on the Tay is acknowledged.

Scottish Planning Policy

3.15 Scottish Planning Policy (SPP) was published by the Scottish Government in February 2010 and sets out a statement of the Government's policy on nationally important land use planning matters. It is a consolidated policy document which sets out the Government's view on the purpose of planning, which is identified as being essential to achieving its central purpose of increasing sustainable economic growth. The document states that development plans should lead and guide change, and that the statutory requirement to keep plans up to date will ensure that they reflect and respond to emerging pressures and issues.

3.16 The SPP expects development plans to be concerned primarily with land and infrastructure, as the efficient use of land and good infrastructure are seen as being important for the wellbeing of an area. Plans should provide opportunity and stability, and address the spatial implications of economic, social and environmental change.

3.17 The Scottish Government expects development plans to:

- Have a sharp focus on land and infrastructure
- Concentrate on what will happen, where and why
- Make more use of maps and plans to explain and justify the long term settlement strategy, and
- Contain policies and proposals that will achieve predicable outcomes

3.18 In terms of community engagement the SPP states that effective engagement with the public can lead to better plans, better decisions and more satisfactory outcomes,

and also improves confidence in the fairness of the planning system. The Government expects engagement with the public to be meaningful and to take place during the earliest stages in the planning process to enable the views of the community to be reflected in the development plan.

3.19 Sustainable Economic Growth is the overarching purpose of the Government and the SPP highlights that the planning system should proactively support development that will contribute to achieving that growth and to high quality sustainable places. It continues that planning authorities should take a positive approach to development, recognising and responding to economic and financial conditions when considering proposals which could contribute to economic growth.

3.20 The SPP reinforces the introduction by the 2006 Planning Act of the requirement for planning authorities in the carrying out of their development plan preparation functions to do so with the objective of contributing to sustainable development. The document also contains eighteen concise subject policies covering a range of topics.

Single Outcome Agreement for Perth and Kinross 2009/11

3.21 This Single Outcome Agreement (SOA) for 2009-2011 sets out the key local outcomes that the Community Planning Partnership is committed to achieving for the people and communities of Perth and Kinross. It builds on the strategic direction of, and commitments within, the Perth and Kinross Community Plan (2006-2020) and is integral to delivering the priorities for the area.

3.22 The SOA is an agreement for delivery of local and national outcomes and establishes challenging targets that will drive forward significant improvements for the communities within Perth and Kinross.

3.23 The scope of the SOA covers the public services delivered in Perth and Kinross by PKC, NHS Tayside, Tayside Police, Tayside Fire and Rescue, Scottish Enterprise Tayside, Perth and Kinross Association of Voluntary Services and the voluntary sector it represents, UHI Perth College and other agencies and partners, both statutory and non-statutory, to provide high quality public services for local people and communities, whilst at the same time fulfilling duties in relation to Best Value, equalities and sustainable development.

3.24 Fifteen Local Outcomes related to the National Outcomes have been identified in the SOA. These outcomes have been developed in response to identified local improvement needs based on evidence of past trends and comparisons with peer authorities.

3.25 The SOA is the key driver for the Council's planning framework as it provides the rationale for decision making and prioritisation of resources above and beyond the Council's core statutory responsibilities.

Perth & Kinross Council's Corporate Plan 2009-2012: *Securing the Future*

3.26 The Corporate Plan outlines the Council's vision *"of a confident and ambitious Perth and Kinross with a strong identity and clear outcomes that everyone works together to achieve. Our area will be vibrant and successful; a safe, secure and healthy environment; and a place where people and communities are nurtured and supported."* It also sets out objectives, alongside a number of key priorities. These objectives are to:

- Provide a safe, secure and welcoming environment
- Promote healthy, caring communities
- Build a prosperous, sustainable and inclusive economy
- Develop educated, responsible and informed citizens
- Support confident, active and inclusive communities

3.27 The Plan is aimed at improving the lives of the people of Perth and Kinross by:

- Improving services
- Enhancing the quality of life
- Making the best use of public resources

3.28 It sets the Council out on a journey towards excellence which requires it to make changes to the way it works. The Corporate Plan is supported by the Corporate Improvement Plan 2009-2012 (CIP) which sets out all the components needed for the change process. It supports the Council's Vision which it aims to achieve by undertaking a variety of activities and actions which will ensure continuous improvement. The Corporate Plan sets out how the Council proposes to meet its responsibilities to deliver against the outcomes in the SOA.

Community Plan 2006-2010: Working Together for Perth and Kinross

3.29 Perth and Kinross Community Plan 2006 - 2010 sets out the shared vision for Perth and Kinross and sets out how the Council will work with its Community Planning partners to deliver against the shared priorities for the Perth and Kinross area. The Plan's purpose is to provide the strategic direction for Perth and Kinross over the longer term, setting out the vision for the area and how the Community Planning Partnership is going to realise that vision.

3.30 There are a series of key drivers which have been taken into account in preparing the Plan, alongside the strategic context of demographic and economic change in the area.

3.31 Three key aims, linked to the Vision have been agreed for Perth and Kinross. Each of the aims has four associated outcomes.

Table 3.1: Perth and Kinross Community Plan Aims and Outcomes

Aim	Outcomes
Vibrant and successful **AREA**	♦ Our area will have a thriving economy including successful tourism and cultural sectors ♦ Our area will have a positive image locally, nationally and internationally ♦ Our area will have improved infrastructure and transport links ♦ Our area will have a sustainable natural and built environment
Safe, healthy and inclusive **COMMUNITIES**	♦ Our communities will see a reduction in health inequalities between the most affluent and most disadvantaged ♦ Our communities will be safer ♦ Our communities will have better access to services they need ♦ Our communities will have improved quality of life particularly in our priority areas for regeneration
Nurtured and supported **PEOPLE**	♦ Our people will be better informed and educated ♦ Our people will have better access to appropriate and affordable housing of quality ♦ Our people will have improved health and well-being ♦ Our people will have better access to training and well paid employment

3.32 The outcomes of the Plan will be delivered through the strategies and actions plans of the various partnerships and via the core business and service delivery partner organisations, including the Local Development Plan.

Baseline Data

3.33 The identification of the current environmental baseline conditions and their likely evolution is an important part of the SEA process. A knowledge and understanding of existing conditions and the consideration of their significance helps with the identification of those issues which the LDP should be addressing and allows it to be successfully implemented and subsequently monitored.

Relevant Aspects of the Current State of the Environment

3.34 The reason for including data gathered at this stage is to help build a picture of the social, economic and environmental characteristics of the area, and the key environmental issues which it faces. Data were collated for a range of topics likely to be influenced by the Local Development Plan.

3.35 The development of the SEA of the Plan relies upon a comprehensive and up to date environmental baseline. Macaulay Research Consultancy Services produced a State of the Environment Report (SoE) for the Perth & Kinross Council area in October 2007. This Report, which is updated as and when information becomes available, establishes the current environmental state of the Perth and Kinross area. Appendix B to this report details the data which has already been collected, or is in the process of being collected and analysed in order to inform the development of the baseline.

Key Baseline Facts for Perth and Kinross

3.36 The following table provides some key baseline facts for the Perth and Kinross LDP area and Appendix B1 to B10 shows the spatial distribution of the various designations and environmental matters across Perth and Kinross.

Table 3.2: Resource and Associated Key Facts

Resource	Key Facts
Biodiversity	
Biodiversity, Flora and Fauna	♦ Approximately 49% of P&K is designated under national or international legislation to protect the landscape, habitats and species (2010)

Resource	Key Facts
	- 4 National Nature Reserve Areas, covering 1.4% of P&K (7484ha) - 4 Ramsar sites, covering 1.3% of P&K (7252ha) - 18 Special Areas of Conservation, covering 7.3% of P&K (39,272ha) - 5 Special Protection Areas, covering 5.7% of P&K (30,803ha) - 113 SSSIs, covering 12.8% of P&K (69,130ha) - 7 Important Bird Areas (IBAs) covering 36,950ha ♦ Recorded distributions of BAP species indicate presence in 33% of all 1km squares in P&K (2008) ♦ Baseline of 9% priority BAP habitat coverage in P&K (1984-2007) ♦ Overall increase in net coverage of BAP priority habitats, with 47% of habitats showing an increase, 26% remaining stable and 26% declining (1990 to 2007) ♦ The P&K area has the highest number of SSSIs per land mass in Scotland ♦ In 2010 73% of the Biological or Mixed SSSIs are in favourable, recovering or unfavourable condition with management measures in place to bring it into favourable condition ♦ The P&K area contains 93 protected species listed on the Species of Conservation Concern (JNCC) and 1109 Local Biodiversity Action Plan (LBAP) priority species (2009) ♦ 40,500ha of Ancient and Semi Natural Woodland across P&K (2009) ♦ In 2010 62,123ha of productive woodland (70% of total woodland area, excluding ancient and semi natural woodland)
Population	
	♦ 144,180 people (2008 based GROS projections)
Human Health	
Health and Wellbeing	♦ Population density of 27 people/sq km (significantly lower than the Scottish average of 66 people/ sq km (June 2008) ♦ 19.4% of the population over 65 – higher than the national figure (2008 mid-year estimates) ♦ Life expectancy is slightly higher than the Scottish average (2006-2008) ♦ 96% of residents in Perth & Kinross who responded to the Scottish National Household Survey (biannual survey since 1999) rated their neighbourhood as a very good or fairly good place to live. This is consistently higher than the average for Scotland over the same period. ♦ 75% of the data zones in P&K are in the 50% least deprived category (The 2009 Scottish Index of Multiple Deprivation). The most deprived areas of P&K are found in Perth and Crieff, with a small number of data zones in Blairgowrie. ♦ 64% of Perth & Kinross households are within a 200m straight-line distance of an area of open space ♦ 96% of the area's households are within 4km of a 20ha woodland ♦ 49% of the area's households are within 500m of a 2ha woodland ♦ 7,365ha of urban open space in Perth & Kinross (2010)
Soil	
Geology, Soils and Minerals	♦ 93% of Geological SSSIs in P&K were identified as being in favourable condition (2009) ♦ 11% or 57,000ha of prime agricultural land are located in the eastern and south eastern areas of Perth and Kinross ♦ Over the last 6 years, planning applications for the development of high quality agricultural land has risen from 83 to 223 (180% increase)
Vacant, Derelict and Contaminated Land	♦ In 2007 there were approximately 9800 contaminated sites across the area ♦ Relatively small area of the land stock is vacant or derelict – 35ha
Water	
Water Quality and Resources	♦ 52% of the total number of surface waterbodies (non-modified rivers and lochs) in the area were classified as being of good status or better (2009) ♦ Quality of Groundwater - only 11% of the groundwater area fails to meet the good status standard ♦ Quantity of Groundwater - only 7% of the groundwater area fails to meet the good status standard ♦ Only 4% of the total groundwater area is classified as poor according to both parameters
Flooding	♦ In 2009 approximately 32,000ha at risk from flooding (1 in 200 year)
Air	
Air Quality	♦ Generally good air quality in most areas of P&K – meets all of the Government's targets except at a few traffic hotspots in Perth where levels of Nitrogen Dioxide and Particulate Matter in 2010

Resource	Key Facts
	are unlikely to be met based on the annual average. ♦ One Air Quality Management Area in Perth due to road traffic
Climatic Factors	
Climate	♦ Emissions of CO_2 within P&K (2007): - 45% attributed to road transport - 27% attributed to industry (46% in Scotland as a whole) - 28% attributed to domestic sources (per capita greater than the Scottish average) ♦ Annual Precipitation – indicated that there has been 5 to 50% increase in rainfall across the area between 1961 and 2004, with the greatest increases in upland areas ♦ In 2006 the total domestic energy consumption per capita of 9960kWh for the area (trend of steadily decreasing year on year) ♦ In 2008 the total domestic electric and gas consumption per capita for P&K was 16,345 kWh (per meter) ♦ The installed capacity of renewable energy schemes within the area increased steadily by 23% over the last 5 years
Material Assets	
Built Environment	♦ Distinctive local vernacular architecture(s)
Waste	♦ 69 recycling points and 9 recycling centres in the area (2009) ♦ Majority of waste material generated in the area was sent to destinations within the Perth & Kinross Council area ♦ 98,374 tonnes of MSW (2008/09) ♦ 62% of MSW disposed of to landfill (2007/08) ♦ 38% of MSW recycled and composted (2008/09)
Cultural Heritage	
Historic and Cultural Heritage	In 2009: ♦ There were 35 designated conservation areas in P&K covering 1053ha (increase of 107ha over the previous year) ♦ 31% of the designated conservation areas have been appraised in the last 5 years ♦ 748 Scheduled Ancient Monuments ♦ 3592 listed buildings (96 of which are included on the Buildings at Risk register) ♦ 168 applications involving listed building or conservation area consent. The number of approved applications with the potential to impact the historic environment has decreased substantially since a marked peak of 384 in 2006 to 103 in 2009 In 2007: ♦ 42 gardens and designed landscapes covering 11,123 ha
Landscape	
Landscape Character and Trends	♦ 13% of the area is designated as part of 5 National Scenic Areas: - Ben Nevis and Glen Coe[1] (4500ha) - Loch Tummel (9200ha) - Loch Rannoch and Glen Lyon (47,100ha) - River Tay (5600ha) - River Earn (Comrie to St. Fillans – 3000ha) ♦ Land Use/Land Cover in 1988: - Agriculture (33%) - Forestry/Woodland (16%) - Scrub/Heath/Moor (45%) - Water Bodies and Bog (3%) - Urban Industrial/Commercial (2%) - Predominately residential areas (<1%) ♦ Key Landscape Character Areas in 2001: - Mountains of the Highlands and Islands (43%) - Highland and Island Glens (23%) - Agricultural Lowlands of the North East (10%) - Lowland Hills (8%) - Upland Igneous and Volcanic Hills (8%) - Remaining areas comprised of a mix of Lowland Basins and Valley, Peatlands and Inland Lochs ♦ Current driving forces and pressures leading to change in the landscape are: - agricultural change - forestry and woodlands - development pressures - building in the countryside - wind farms - tourism - road development - climate change ♦ Majority of development pressures concentrated in south eastern area

[1] Partly in the Perth & Kinross area

Resource	Key Facts
	♦ 35% of Perth & Kinross is 2000m from public roads (wild land decreases significantly by 13% once all roads are taken into account and the distance is increased to 5000m)

3.37 Those topics covered in Table 3.2, on which data has been gathered are shown below in Table 3.3 with an indication of the strength of their relationship with economic, social and environmental issues.

Table 3.3: SEA topic and associated issue(s), and the strength of the relationship

Topic	Environmental	Social	Economic
Biodiversity			
Biodiversity, Flora and Fauna	❍❍❍	❍❍	❍
Woodland and Forestry	❍❍❍	❍❍	❍❍❍
Population			
Housing	❍❍	❍❍❍	❍
Human Health			
Health and Wellbeing	❍❍	❍❍❍	❍
Soil			
Vacant, Derelict and Contaminated Land	❍❍❍	❍❍	❍❍
Geology, Soils and Minerals	❍❍❍	❍	❍❍
Water			
Water Quality and Resources	❍❍❍	❍❍	❍❍
Flooding	❍❍❍	❍❍	❍❍
Air			
Air Quality	❍❍❍	❍❍	❍❍
Climatic Factors			
Climate	❍❍❍	❍❍	❍❍
Material Assets			
Built Environment	❍❍❍	❍❍	❍❍
Transport	❍❍❍	❍❍❍	❍❍❍
Waste	❍❍❍	❍❍	❍❍❍
Cultural Heritage			
Historic and Cultural Heritage	❍❍❍	❍❍	❍❍
Landscape			
Landscape character and trends	❍❍❍	❍❍	❍❍

Key: ❍❍❍ Major ❍❍ Moderate ❍ Minor

3.38 At present 65% of the land mass area of Perth and Kinross is characterised as sensitive in terms of its natural and/or cultural heritage assets. The main areas of

concern for Perth and Kinross are emissions to the atmosphere, carbon dioxide in relation to climate change, and particulates and nitrogen dioxide in relation to air quality. However, air quality in most areas of Perth and Kinross is generally good. The main factor behind these emissions is transport, and indications are that traffic volumes are increasing. Another key pressure is development activity. A review of recent planning applications identified an increase in demand for development with the potential to impact on the prime agricultural land and its natural heritage.

Summary of Environmental Issues in the Perth and Kinross Area

3.39 Following an evaluation of the baseline data, the environmental problems and issues set out in Table 3.4 below have been identified as being relevant to the LDP.

Table 3.4: SEA Topic and Associated Problems and Issues

SEA Topic	Associated Problems and Issues
Biodiversity, Flora and Fauna	♦ Impact on biodiversity, including habitat networks and wildlife corridors as well as designated sites, of increasing demand for development. ♦ Impact of increased pressure for inappropriate development on designated sites and buildings including ancient and semi natural woodlands. Environmentally sensitive areas with biodiversity interests should be protected.
Population	♦ Increasingly ageing population means there will be a need to take into account the scope for the provision of an increased level of services and facilities for elderly people and the need for new development to be directed to areas which are accessible by a range of modes of transport. ♦ Significant projected population increase across Perth and Kinross
Human Health	♦ Access to good quality recreation and open space ♦ Impact of poor design on wellbeing ♦ Access to facilities and services
Soil	♦ Irreversible loss of soil through development, contamination or erosion – the best quality agricultural land should be protected from development.
Water	♦ Impact of development on quality of watercourses and waterbodies ♦ Eutrophication of lochs and a deterioration in the condition of some lochs including Loch Leven and the Lunan Valley Lochs which are also European wildlife sites. The need to protect such areas from adverse impacts will have a major influence on the ability of some of the Perth and Kinross area to accommodate the housing land requirement arising in these areas in full. ♦ Drainage constraints in some parts of the area and large parts of rural areas without access to a public water supply – potential pollution issues from increased use of private drainage solutions. In reviewing the appropriateness of the settlement strategy the LDP will need to weigh up the need to support development in rural areas in order to maintain the vitality of these areas against the potential adverse environmental impact of a possible proliferation of private septic tanks.
Air	♦ High emissions from road traffic and levels of air pollution in some parts of Perth and Kinross ♦ High dependency on the private car in some areas ♦ Worsening of air quality standards in some locations as a result of increased development ♦ Cross boundary effects
Climatic Factors	♦ Vulnerability of Perth and Kinross to the effects of a changing climate, such as the increased risk of flooding. It is important that the LDP takes into account those areas which are already at risk from the effects of climate change in order to avoid an exacerbation of the problems in these areas. ♦ Potential future northwards migration of the population and planning for that higher growth rate ♦ Cross boundary effects ♦ Consideration given to the need for a managed retreat of development in the Carse of Gowrie area where appropriate. ♦ Potential of renewable energy technologies ♦ Creating sustainable communities ♦ Maximising resource use (including the release of greenfield sites) and energy efficiency ♦ Food security ♦ Identifying appropriate mitigation and adaptation measures
Material Assets	♦ Constraints on infrastructure delivery including the current economic climate ♦ Threats to recreation and open space
Cultural Heritage	♦ Impact of increased pressure for inappropriate development on sites of historical importance, such as battlefields and historic landscapes, and also on listed buildings, conservation areas and

SEA Topic	Associated Problems and Issues
	scheduled ancient monuments
Landscape	♦ Increased pressure for development (including housing in the countryside) resulting in the incremental loss of landscape, both in terms of designated sites and wider landscapes. Resultant effects on health and quality of life. ♦ Significant local landscapes and their characteristics ♦ Balancing the desire to grow the tourism sector and safeguard the special characteristics of landscapes which attract tourists to the area

Evolution of the Environmental Baseline without the LDP

3.40 The SEA Directive requires that the baseline conditions of the plan area that would occur without the implementation of the LDP are identified.

3.41 Without the LDP, Perth & Kinross will continue to be based on the requirements identified in the existing Development Plan and therefore risk being out of date and obviously not in line with any policies or strategies of the new Strategic Development Plan (TAYplan) for the area. The TAYplan MIR was published in April 2010 and the Proposed Plan is expected to be published during Spring 2011. The consequence of not having a LDP following on from the SDP may result in many planning issues not being adequately or appropriately assessed.

3.42 Perth and Kinross is experiencing and anticipating many changes over the coming years such as a significant population increase in many areas, in particular the Perth Core Area and greater impacts of climate change such as flooding in the Carse of Gowrie. Due to the population growth prediction by GROS it is anticipated that in a short space of time the housing land supply in parts of Perth and Kinross will begin to dry up meaning that the Council will fail to meet the requirements of national planning policy to have a continuous five year effective housing land supply. The availability of immediately available employment land has also become an issue and without an up to date LDP sites which are in the most sustainable locations cannot be identified to meet the anticipated demand.

3.43 Overall, the existing Development Plan for Perth and Kinross is likely to be increasingly unable to meet the changing and expanding needs of the region.

Data Gaps and Problems

3.44 It is a requirement of both the Act and the Directive to record any difficulties encountered in compiling the required information for the assessment. This is particularly important as it is necessary to describe those measures envisaged for monitoring the implementation of the plan.

3.45 The following list shows specific areas where problems and data gaps were identified:

- Annual information on the net change in natural and semi natural habitats
- Information on the location and extent of priority species and habitats
- Availability of up to date health and wellbeing data, including mental health data
- Data relating to the quality of soil in the area, and changes to soil carbon levels
- Data relating to the water use by sector in Perth and Kinross and how it has changed
- A lack of information on the current situation and trends in development pressures
- A lack of information to comment on trends relating to land with wild land characteristics
- A lack of landscape capacity information for areas outwith the Perth Core and Kinross-shire
- A lack of data available to indicate the average distance travelled by different transport modes, and the mode of transport used by residents
- Significant data gap for non-municipal waste, including industrial and special waste
- Flooding study of the Carse of Gowrie area is to be undertaken to inform the Proposed Plan

4 SEA METHODOLOGY

4.1 This section sets out the methodology developed to assess the likely effects on the environment, of the Local Development Plan's Vision and Spatial Strategy identified by the MIR. The approach aims to achieve the following:

- Strategically assess the effects (both positive and negative) of development on different aspects of the environment within the Local Development Plan area
- Identify potential mitigation and enhancement measures

4.2 It therefore concentrates on significant effects likely to be generated by the LDP and those that are within the control of planning. It is not possible nor is it necessary for the assessment to consider every conceivable effect. Nonetheless, all potential effects have been assessed through the methodology described below.

4.3 Undoubtedly some may be considered 'significant' to local people and in the context of an individual site and as such will merit careful consideration at the next stage to ascertain whether the site should be allocated, amended or if development should be permitted. These detailed effects cannot always be anticipated or assessed as part of the assessment of the Main Issues Report which is more strategic and in scale and nature than the Plan itself. In assessing the effects of the MIR's Vision and Strategy we ask a series of questions:

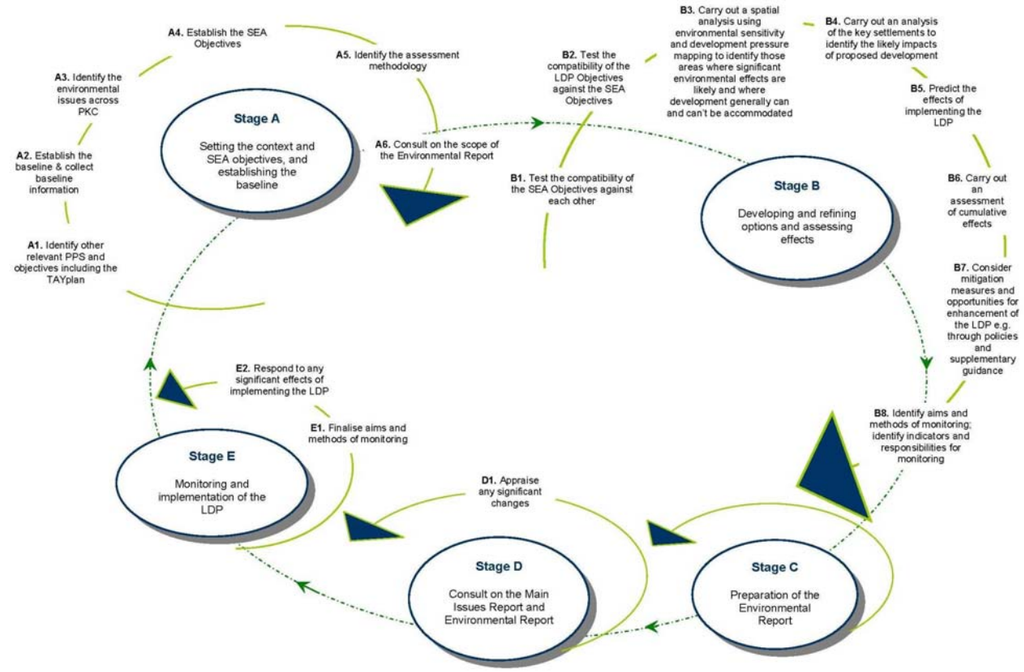
- What's the context?
- What are the key environmental objectives we need to consider?
- What's the situation now?
- What will be the situation without the Local Development Plan?
- What would be the situation under the Local Development Plan?
- How can we mitigate or enhance environmental effects?

These questions correspond to the key requirements of the Environmental Assessment (Scotland) Act and the SEA Directive.

Overall Approach to the Environmental Assessment

4.4 Figure 4.1 sets out the overall approach to the environmental assessment of the Main Issues Report and the relevant assessment techniques used in Stages B1 to B8 of this diagram are set out in the paragraphs which follow.

Figure 4.1: Overall Approach to the Environmental Assessment



Assessment of the Main Issues Report

4.5 The Vision and associated Objectives for the LDP provide the overarching ambitions for the Perth and Kinross area over its lifetime, with the Spatial Strategy as the means by which the desired outcomes are delivered. Consequently, it is necessary to have a methodology that is systematic, transparent and understandable to enable the results of the assessment to be accessible to decision-makers and those who will be affected by the decisions. The assessment is therefore in two parts:

- Level One: Assessment of the Vision
- Level Two: Assessment of the Spatial Strategy

Level One: Assessment of the Vision

4.6 An essential element of the assessment is the application of 'compatibility' matrices to test the 'internal' and 'external' compatibility of the environmental objectives developed through workshops and discussion with stakeholders with the Plan's objectives and overarching Vision. The outcome of this stage is at the core of an 'objective' led approach to assessment. The 'scoring' for both exercises used the grading system shown in Table 4.1.

Table 4.1: Grading scale applied to score compatibility of SEA and Plan Objectives

+ +	Compatible
+	Mostly compatible
~	Unclear relationship
-	Mostly incompatible
- -	Incompatible
?	Uncertain relationship

4.7 Stage B1 tests the compatibility of the 17 SEA Objectives (Table 4.2) against each other to identify any potential conflicts and opportunities for enhancement. In addition, a series of questions were developed to assist in the process of assessing the environmental effects of the Plan.

Table 4.2: SEA Objectives and associated questions to aid the assessment

SEA Objective	Will the Vision and Strategy …
Conserve and enhance the diversity of species and habitats	… protect and enhance valuable wildlife habitats and species…?
Accommodate population and household growth and direct that growth to appropriate locations	…ensure the accessibility of healthcare services, including access to environments that may be beneficial to health…?
Improve the quality of life for communities in Perth and Kinross	
Maximise the health and wellbeing of the population through improved environmental quality	
Maintain, protect and where necessary enhance the fundamental qualities and productive capacities of soils	…minimise the amount of prime agricultural land required to implement the strategy…?
Protect and where possible enhance waterbody status	…reduce the number of properties and infrastructure at risk from flooding…?
Safeguard the functional floodplain	
Protect and enhance air quality	…reduce levels of air pollution in the area…?
Direct development to sustainable locations which help to reduce journey lengths and the need to travel	
Reduce emissions of greenhouse gases	
Reduce the area's vulnerability to the effects of climate change through identifying appropriate mitigation and adaptation measures	…avoid new development in areas at risk from erosion, including coastal erosion…? …reduce the number of properties, and infrastructure, at risk from flooding…?
Minimise waste per head of population	…encourage the safe treatment and disposal of waste…?
Maximise the sustainable use/re-use of material assets (land and buildings)	
Promote and ensure high standards of sustainable design and construction	…ensure high design quality and respect for local character…?
Protect and enhance the historic environment	
Protect and enhance the character, diversity and special qualities of the area's landscapes to ensure new development does not exceed the capacity of the landscape to accommodate it	…respect landscape capacity, visual amenity, and the spatial diversity of communities…?
Protect and enhance townscape character and respect the existing pattern, form and setting of settlements	

4.8 Stage B2 then tests the compatibility of the SEA Objectives against the Local Development Plan's Objectives to highlight any conflicts arising between them, and identifies issues which it will need to address, and again identifies opportunities for enhancement. The development of the objectives together with their associated indicators provides a firm foundation for the long-term monitoring of the effects of the Plan on the environmental baseline.

4.9 The starting point for the next stage of the assessment is the establishment of the environmental baseline and the prediction of changes to it as a result of implementing the LDP and the spatial implications of its Vision.

Level Two: Assessment of the Spatial Strategy

4.10 As the direct effects of the Spatial Strategy outlined in the MIR are targeted at the Settlement Hierarchy[2] provided by the Strategic Development Plan the assessment concentrates on these locations i.e. in the 'expansion' areas around the listed settlements. For the reasons outlined in paragraph 4.1 above the assessment does not fully assess the effects of individual sites. Although the site options identified in the MIR have been assessed, the primary focus of the assessment remains at the landscape scale and the effects on the environment within and surrounding sites, which also provides a better basis for the consideration of cumulative effects. This

[2] Expansion areas are: Perth (Tier 1); Crieff, Blairgowrie, Kinross (Tier 2); and Alyth, Aberfeldy, Auchterarder, Coupar Angus, Dunkeld and Birnam, Pitlochry (Tier 3) as identified in TAYplan MIR

methodology should reduce the need for a further assessment should sites or site boundaries change as the plan evolves, as it enables the assessment of effects both within and surrounding the site, and the cumulative effects of sites within a sensitive sector.

4.11 This approach is supported by PAN 1/2010 Strategic Environmental Assessment of Development Plans where it is stated that *"the SEA should assess high-level and significant effects of the spatial strategy from an area-wide perspective, looking at the impact of different spatial options on the area's key environmental features…"* and *"…to combine or group sites, to provide a settlement or area-wide perspective on their likely significant environmental effects"* as this will better inform the strategy within the plan as a whole. Consequently, the approach adopted in this assessment considers the potential significant effects at a settlement-wide level and cumulatively across Perth and Kinross.

Level of Assessment

4.12 Having established that the assessment will be at a settlement-wide level the pool of sites considered come from three main sources, firstly, those sites being rolled forward from existing Local Plans, secondly, a desk based assessment for other potentially suitable sites, and finally sites suggested by the 'call for sites' consultation. This serves two purposes: a) that all reasonable alternatives have been considered and b) to ensure there will be a sufficient supply of land to meet the allocations to 2024 and in some instances beyond. It has been assumed that sites which already have development consent are included as part of the baseline, but will be taken into account within the assessment of cumulative effects. However, sites which are being 'rolled forward' from the previous plans but without consent are included in the assessment.

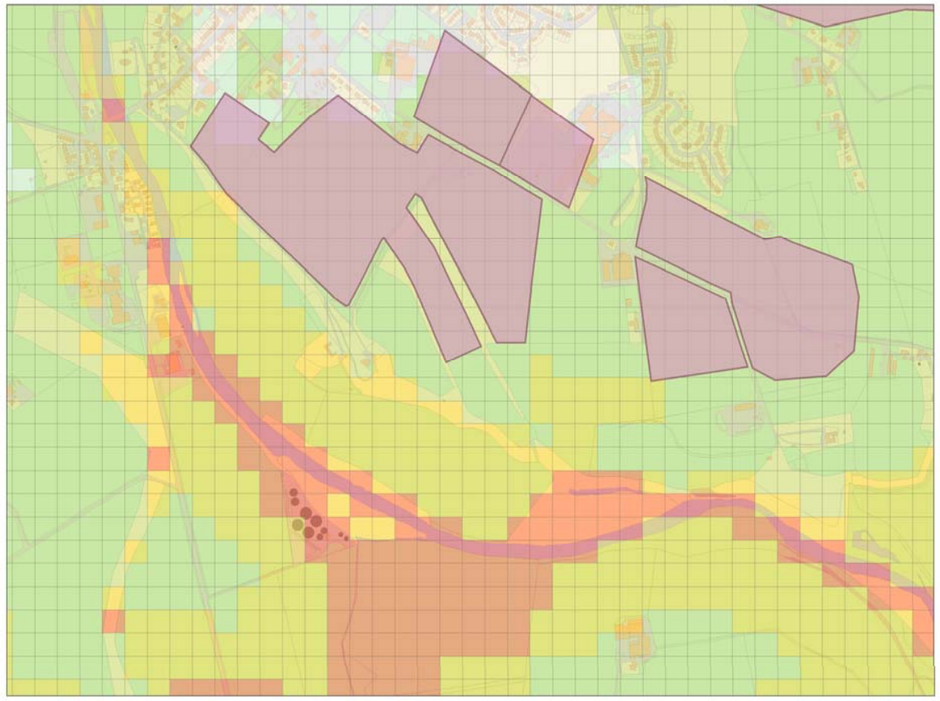
4.13 The process adopted in the assessment will help to avoid inappropriate development in particularly environmentally sensitive areas, by steering growth towards locations where there is more capacity. PAN 01/2010 emphasises that the *"main purpose of the SEA is to provide information on the environmental effects of plan options"* but importantly it *"cannot be expected to decide which one is ultimately adopted into the plan".* It will be for the Plan's developers and the decision-makers to determine which location(s) is chosen for development based on the information contained in the Environmental Report and other factors.

The Map Based Approach

4.14 PAN 01/2010 recognises that *"there is significant … potential for map-based analysis in the SEA of development plans, for example the use of constraints mapping and overlay analysis"*. This map based approach was therefore used to link environmental sensitivities with proposed development sites and potential development locations making use of spatially explicit data. By overlaying environmental sensitivities mapping with proposed development sites it is possible to identify those areas where significant environmental effects are likely to occur and where development generally can and cannot be accommodated across Perth and Kinross. In other words the mapping can direct development to the least damaging areas within the settlement 'buffer'. In order to ensure that there is sufficient land available for development around each settlement, and more importantly to ensure that the effects on the environment are fully considered, a buffer of 8 km was applied around Perth and 2.5 km around the other nine settlements. These buffer areas were considered appropriate as they encompass all potential sites and locations for development.

4.15 The strategic sensitivities map for each settlement area and for the whole of Perth and Kinross was generated on a 50 metre by 50 metre grid to accurately define and delineate areas of acute pressure (i.e. several overlapping sensitivities) in the environment. For each of the settlement areas 7 kilometre polygon sectors were overlaid on the buffer areas to accurately define and 'compartmentalise' areas characterised by similar constraints and facing similar development pressure(s) and to allow for the grouping of potential sites for development.

Figure 4.2: 50m by 50m Assessment Grid showing Cumulative Sensitivities and Proposed Development Sites and Potential Development Locations



Level of Significance

4.16 Identifying significant environmental effects is crucial to the assessment process. In addition, it is important that the focus of the assessment is on the potentially *significant* effects on the environment brought about by actions or proposals in the Plan and that those trivial/inconsequential effects are discounted at least at the settlement level. These are the effects of actual outcomes of the Plan, as opposed to judgements on the alignment between the policies of the Plan and the SEA Objectives. Whether or not an environmental effect is significant will depend on a number of factors.

Defining Significance

4.17 It may be useful at this stage to define what is meant by the term significant in the context of this environmental assessment, as the concept of significance has different meanings at different stages in the SEA process. For example, in screening, it was used to determine whether an SEA was required or not. In the decision-making stage, significance will be used to weigh and rank impacts (positive and negative) and make compromises or trade offs i.e. mitigate potential effects. Consequently, the assessment of impacts and their significance will be based on a consideration of how the options and the Proposed Plan are likely to affect the baseline and whether any anticipated changes to the baseline serve to help or hinder the achievement of the SEA Objectives.

4.18 In this instance significance is determined using a typology suggested by Canter and Canty (1993)[3] as being: codified significance (statutes, plans etc); technical significance (expert judgement of the implications for change on the continued operation of a given system); and community significance (what do local people actually think about a possible change, what values do they invest in a particular part of the environment?) and this will come from the consultation. The approach used to determine whether the effect of the Plan on the 'environment' is 'significant' is shown in Table 4.3.

Table 4.3: Approach used to determine whether environmental effects are adverse, significant and likely

Step	Criteria
Step 1: Deciding whether the environmental effects are adverse	The quality of the existing environment is compared with the predicted quality of the environment once the plan is in place. For example, negative effects on human health, biodiversity or the historic environment.
Step 2: Deciding whether the adverse environmental effects are significant	Criteria used are: ♦ Magnitude ♦ Geographic extent ♦ Duration and frequency ♦ Degree to which the adverse environmental effects are reversible or irreversible ♦ Ecological context
Step 3: Deciding whether the significant adverse environmental effects are likely	Criteria used are: ♦ Probability of occurrence ♦ Scientific uncertainty

Source: Canadian Environmental Assessment Agency (1992)

[3] Canter, LW and Canty GA (1993), Impact significance determination – basic considerations and a sequenced approach, *Environmental Impact Assessment Review*, **13**(5), pp275-297

4.19 As far as possible impact, magnitude and significance has been determined by reference to legal requirements, accepted scientific standards or social acceptability. However, it is acknowledged that except for exceedance of standards set by statute, or from scientific knowledge, the description of significance is largely judgemental and subjective. Consequently the following factors have been used to determine most significant effects for inclusion in the assessment:

- Magnitude and spatial extent of the impact;
- Intensity or severity of the impact;
- Probability of effects; (Defined in terms of known and available information)
- Duration of the impact;
- Degree of certainty;
- Status of the impact; and Legal requirements.

4.20 PAN 01/2010 recognises that *"in practice, combining some or all of these* [significance] *criteria should help to identify the most significant environmental effects of the plan. In some circumstances large-scale effects may not necessarily be significant, whereas some small-scale effects could become a concern if they are impacting on a particularly sensitive environment. Equally, multiple minor negative effects may become much more significant when considered cumulatively within a certain area or in relation to a specific aspect of the environment*."

4.21 It is acknowledged that even where effects are not significant at a settlement level the *cumulative effect* can be significant and that forms part of the overall assessment. Consequently, not only has it been important to define significance but another important stage has been to determine the environmental baseline and its geography as analysis at the wrong scale obscures patterns and as such *"GIS metrics should be relevant to the issues at hand"* (*Noss, R.F. et al. 2000).*

4.22 In terms of cumulative assessment mapping the finer the scale the better; an unnecessarily coarse scale would mean that small but high value areas and relationships in the data could slip through the cracks. For example a small riparian area of a few meters in width can support high biodiversity. However, translating landscape characteristics into GIS metrics requires the ability to not only zoom in on details but at the same time take a step back to consider the larger conceptual framework and the overall intention of the analysis. For strategic sensitivities, the scale should be appropriate to the functioning of the environmental systems that are operating in the locality in order to fully understand the relationships between the sensitivities impacting an area.

Environmental Baseline

4.23 Analysis of the environmental assets and sensitivities helps to identify and quantify land available to accommodate future growth by highlighting constraints to future development. Development constraints are cultural or natural land features that restrict, limit, or modify the occurrence of future development. For example, surface water is a natural feature that restricts future development, i.e. houses for example cannot be built on top of a navigable waterway.

4.24 The environmental assets and sensitivities included in the assessment are broadly grouped into the following categories addressed in SEA.

Table 4.4: Significant Assets and Sensitivities

SEA Topic	Assets and Sensitivities
Biodiversity, Flora and Fauna	Designated Sites, Ancient and Semi-natural Woodland (ANWI, SNWI), Protected and UK Biodiversity Action Plan (BAP) Species and Habitats, RSBP Important Bird Areas
Water	Surface water areas, Riparian Buffers, Water Quality, Flooding
Cultural Heritage	Scheduled Ancient Monuments, Listed Buildings and Gardens and Designed Landscapes
Landscape	Topography (Elevation, Slope)

4.25 To comprehensively address the full range of potential effects the assessment framework has taken a two pronged approach;

- Identifying Significant (Strategic) Environmental Effects
- Identifying Cumulative Environmental Effects

Identifying Significant Strategic Environmental Effects

4.26 An important part of the process is to determine what assets are at risk, where they are located and to what degree they will be affected. This approach follows that suggested in the PAN 01/2010 where it recommends assessments should *"identify whether specific environmental assets (e.g. areas of ancient woodland, specific habitats or certain species, specific soils or landscape character types) that are distributed across the plan area might be affected".* This was done using a geographic map based approach culminating in a series of maps (**Strategic Natural**

and Cultural Sensitivities and Development Pressure) which identify the potential environmental effect of possible development sites and their alternatives for each natural and cultural asset in each of the ten settlement expansion areas and across the local authority area as a whole.

4.27 The analysis was undertaken by overlaying significant strategic and stakeholder identified sensitivities and potential development sites within the 'buffer' in a GIS to produce a *strategic sensitivities map* for each development 'zone' which shows strategic sensitivities and was used in the assessment to:

- Identify the ***nature, location and extent*** of the component strategic natural and cultural sensitivities
- Identify areas that can accommodate new development
- Identify areas that limit or restrict development
- Identify areas for management protection or enhancement

The Thresholds

4.28 The data identified in Table 4.4 were used to analyse the sensitivity of the buffer around settlements to development; this resulted in a range for development potential. No weighting or scoring was used. The result was four thresholds of development potential ranging from absolute environmental sensitivity (red) (for example a site impacting adversely on a European designated area), through to effects that may be mitigated (green and yellow) (although some effects may be more difficult or expensive to address than others), to sites that have no constraints (light grey) or where development may even be encouraged to help resolve particular environmental issues. The maps are colour coded as shown in Table 4.5 to make comparisons between locations and areas easier and also to help identify which locations offer the greatest or least potential for development.

Table 4.5: Thresholds of Potential

No constraints	Potential	Limited potential	No potential

4.29 In addition to the above several issues requiring more detailed assessment at the LDP level were highlighted in the Environmental Assessment of the Strategic Development Plan (TAYplan). Some of these required a different methodological approach to be adopted and this is covered in the following paragraphs.

Flood Risk

4.30 It was suggested by SEPA that a Strategic Flood Risk Assessment (SFRA) should be prepared to inform the Proposed Plan and that it should form part of the baseline in the Environmental Report. The data used in the SFRA has been collated from a variety of sources including the Scottish Environment Protection Agency, the Council, Scottish Hydro-electric, British Geological Survey and Scottish Water. The collected data was integrated within a GIS to allow it to be reviewed. The information/data requested was based on the following categories:

- Terrain Information e.g. OS contours
- Hydrology e.g. the main and ordinary watercourses, location and information on Hydrometric Gauges
- Flood Defence e.g. flood banks, sluices
- Scottish Environment Protection Agency flood information e.g. historic flooding, water levels, photos
- Flood Risk Assessments e.g. on previous development sites
- Scottish Environment Protection Agency Indicative Flood Maps
- Local Authority Information e.g. Local Development Plans, and
- Scottish Water's Drainage Standards.

4.31 The collation and review of these data in a series of GIS layers was produced to aid in the assessment of flood risk within the area. These layers are:

- 1:1000 (Fluvial and Tidal)
- 1:200 (Fluvial and Tidal)
- 1:100 (Fluvial and Tidal)
- BGS drift geology mapping
- Main Rivers
- Flood Defences
- Flooding Incidents

This will allow for a broad-scale assessment of flood risk. For tidal flooding sources, the effect of climate change on the extent of flooding in the Carse of Gowrie will be the subject of a separate study which will inform the Proposed Plan.

Accessibility to Key Services

4.32 To assist in determining the extent of the 'buffer' around settlements, an assessment of accessibility was undertaken by determining residential densities within the walking

catchment area. A walking catchment area of 1 km (the equivalent of a 15 minute walk) was defined by conducting a network analysis of existing routes to generate distance isochrones from key service centres. The resulting GIS layer delineates accessible areas in terms of sustainable walking distances and is used to:

- Identify the *location and extent* of the most accessible areas in the expansion area
- Identify new development areas that are within sustainable access to key services (i.e. sustainable community centre)
- Identify new development areas that limit or restrict sustainable access to key services

Green and Blue Networks

4.33 In order to reduce habitat fragmentation caused by development and to identify possible mitigation or enhancement opportunities GIS was used to show the existing network of natural lands and open spaces in settlement expansion areas and to:

- Identify the *location and extent* of the existing green network
- Identify potential impacts
- Identify new development areas that may limit or enhance the green network
- Identify opportunities to strengthen green networks

Identifying Cumulative Environmental Effects

4.34 A key part of the assessment was to determine the cumulative effects of the LDP. The cumulative assessment organises and analyses data to examine, characterise, and quantify the combined effects of potential development on multiple environmental assets and services. Assessment of constraints was undertaken by overlaying strategic sensitivities in a GIS to produce a cumulative sensitivities map. Strategic sensitivities were combined using an equal weight additive model. The results of the spatial analysis using GIS are displayed at a resolution of 50m by 50m parcels for each of the ten expansion areas and at a Perth and Kinross wide scale to ensure that the difficulty outlined in paragraph 4.21 above was avoided.

4.35 The mapping used a classification scheme based on the following four thresholds of sensitivity (Table 4.6) to development ranging from absolute environmental sensitivity (red) where the site effects multiple, overlapping sensitive aspects of the environment, through to effects that could be mitigated (yellow- green) where minimum sensitivities are present, to sites that have few if any cumulative sensitivities (light grey).

Table 4.6: Thresholds of Cumulative Sensitivity

No sensitivity	No significant sensitivity	Some sensitivity	Significant sensitivity

4.36 From the spatial analysis of the data sets a **Cumulative Sensitivities and Development Pressures** map (an example is shown at Figure 4.2) was produced which delineates the *joint* pressure of landscape sensitivities and is used to:

- Identify the combined impact and extent of cumulative landscape sensitivities
- Identify areas that can accommodate new development
- Identify areas that limit of restrict development
- Identify environmental impacts of growth policies

Model Verification

4.37 In addition to the GIS modelling site assessments and the comments from key stakeholders, including Historic Scotland, Scottish Natural Heritage, and the Scottish Environment Protection Agency were used to verify the model and spatial mapping of sensitivities to identify some area specific sensitivities, for example water catchments of less than 3 km^2 which are not shown on SEPA's Indicative Flood Map. The data were also used to inform and refine the GIS analysis.

Conclusion

4.38 The Environmental Assessment (Scotland) Act 2005 requires an acknowledgement of any difficulties, such as technical deficiencies or lack of know-how encountered in undertaking the assessment and in compiling the required information. In this case the most significant difficulty was experienced in determining the level at which certain matters should most appropriately be assessed i.e. should an assessment be undertaken of individual sites or at the settlement level. The judgement was that the most appropriate approach was to consider the effects at the settlement level, as whilst many sites had come forward for consideration the Council had taken no view on their acceptability or otherwise. Consequently, it is considered that there was no value in carrying out a detailed assessment of sites which may not form part of the

Proposed Plan. In any event the environmental effects of their development cannot be fully established at this stage in the process.

4.39 Nonetheless, the methodology adopted has allowed an assessment to be made of potential environmental effects at both a settlement and a Perth and Kinross level which will help steer development to those locations which can accommodate development without having a significant adverse effect on the environment and thereby influence the development of the Proposed Plan. That said, the underlying GIS data is very finely grained allowing for a detailed assessment of the potential environmental effects, particularly those of a cumulative nature which would not be possible using a more conventional site by site assessment.

4.40 In summary the use of maps such as those in this report make it much easier for the assessor, decision-maker and the general reader to understand how impacts are distributed over the study area compared to a situation where the assessor or decision-maker only has access to data in a tabular or matrix form. In particular it shows exactly where the strategy options have the greatest or least effect.

5 ASSESSMENT OF THE LDP VISION

5.1 The SEA initially considers the Vision in broad terms, and analyses the potential for improvement of environmental considerations within the Strategy. This stage of the assessment is useful in identifying weaknesses in the framework which can then be fed into the spatial assessment to give consideration of cumulative effects with the environmental impacts of the proposed spatial strategies. In doing so this will ensure that proposed mitigation gives full consideration to both aspects of the proposals.

Inter-compatibility of SEA Objectives

5.2 This assessment firstly considered to what extent the SEA Objectives are complimentary to identify any potential conflicts and opportunities for enhancement. The results are presented in the compatibility matrix in Figure 5.1, which shows that the Objectives are largely compatible.

5.3 There is a clear tension identified between SEA 1 ‘Conserve and enhance the diversity of species and habitats’ and SEA 14 ‘Maximise the sustainable use/re-use of material assets (land and buildings). This will mainly arise from the redevelopment of brownfield sites and the likely impacts on biodiversity at those specific locations.

5.4 There is also tension predicted from promoting development under SEA 2 (‘Accommodate population and household growth and direct to appropriate locations’) and the potential impacts on soil (SEA 5), waterbodies (SEA 6), air quality (SEA 8), greenhouse gas emissions (SEA 11), waste generation (SEA 13), landscape character and quality (SEA 16) and townscape character (SEA 17).

5.5 Tension may also arise from the promotion of development, even in sustainable locations under SEA 9 and the impact on soil (SEA 5), especially as some prime quality agricultural land will potentially be lost to development through the release of greenfield land. Consideration needs to be given to this issue to ensure that there is a mechanism put in place to protect areas of prime quality agricultural land.

5.6 There are a number of uncertainties identified in relation to the area’s historic environment and potential impacts on townscape character at settlements as there is a lack of uncertainty as to how such resources will be protected. Such objectives will require additional support to ensure that development does not result in negative impacts.

Compatibility of MIR Objectives with SEA Objectives

5.7 MIR Objectives were assessed against the SEA Objectives to determine their compatibility and highlight areas that may require further consideration. The analysis considered a MIR Objective compatible with an SEA Objective if there was the likelihood that the objective could deliver on the stated criteria. Where it was considered that the objective could deliver but would depend on more detailed or supporting objectives the relationship was marked as uncertain. Figure 5.2 presents the compatibility of the MIR Objectives with environmental objectives.

5.8 Almost all of the MIR’s Objectives are compatible with the SEA Objectives. However the assessment does highlight a few areas that will require some strengthening.

5.9 LDP Objectives 1, 3, 4, 10, 13 and 16 all involve the need for the further development of housing and infrastructure within the region and as a result will not help to ensure that the biodiversity of the region will be maintained or enhanced. Mechanisms will have to be put into pace to ensure future development causes minimal disruption to the biodiversity of the surrounding area and that measures are put in place that will lead to enhancement. Some of the objectives also have the potential to impact on the areas landscape and mitigation of such impacts will be required.

5.10 There are a number of uncertainties identified particularly in relation to biodiversity, water resources and the areas historic environment. There is a lack of certainty how such resources will be protected. Such objectives will require additional support to ensure that negative impacts are not caused by the development proposal.

5.11 'Uncertainties' do not mean that objectives are incompatible, rather this is a reflection of the fact that the relationship will be determined by implementation and/or other factors, e.g. additional guidance, objectives or actions to ensure that the objectives can be fully complimentary. Objectives that offer protection and enhancement to environmental quality should therefore be operational objectives with associated actions to improve their effectiveness. Section 9 of this report proposes a number of enhancements that will reduce the conflicts within the Vision Framework.

5.11 Reduction of Green House Gases (GHGs) and the improvement in air quality is another area that presents 'uncertainties'. The MIR proposes a number of objectives

that promote sustainable development principles, and as a result seeks to reduce emissions. It is difficult for the LDP to ensure reduction of emissions, as this requires both behavioural changes as well as technological changes. The proposals in the LDP however, provide a good foundation from which to indirectly influence the production of GHG emissions.

5.12 The SEA Objective to 'Minimise waste per head of population' is not strongly supported by the LDP Objectives and therefore there is a need to ensure that the production of waste is minimised as further development will undoubtedly result in increased waste levels and place a burden on existing waste facilities.

5.13 There is 'uncertainty' in the compatibility between LDP Objective 14 'Ensure a continuous 7 year supply of developable housing land' and SEA Objective 10 that aims to 'Reduce the areas vulnerability to the effects of climate change…'. This 'uncertainty' is however mitigated by the proposed LDP Objective 6 'To ensure that development and land uses make a positive contribution to helping to minimise the causes of climate change and mitigating its impacts '.

5.14 The main tensions in the Vision Framework lie in ensuring that the natural and built environment, biodiversity and natural resources, including prime agricultural land are protected.

Table 5.1: SEA Objectives

Ref.	Objective
SEA 1	Conserve and enhance the diversity of species and habitats
SEA 2	Accommodate population and household growth and direct that growth to appropriate locations
SEA 3	Improve the quality of life for communities in Perth and Kinross
SEA 4	Maximise the health and wellbeing of the population through improved environmental quality
SEA 5	Maintain, protect and where necessary enhance the fundamental qualities and productive capacities of soils
SEA 6	Protect and where possible enhance waterbody status
SEA 7	Safeguard the functional floodplain
SEA 8	Protect and enhance air quality
SEA 9	Direct development to sustainable locations which help to reduce journey lengths and the need to travel
SEA 10	Reduce emissions of greenhouse gases
SEA 11	Reduce the area's vulnerability to the effects of climate change through identifying appropriate mitigation and adaptation measures
SEA 12	Minimise waste per head of population
SEA 13	Maximise the sustainable use/re-use of material assets (land and buildings)
SEA 14	Promote and ensure high standards of sustainable design and construction
SEA 15	Protect and enhance the historic environment
SEA 16	Protect and enhance the character, diversity and special qualities of the area's landscapes to ensure new development does not exceed the capacity of the landscape to accommodate it
SEA 17	Protect and enhance townscape character and respect the existing pattern, form and setting of settlements

Table 5.2: LDP Objectives

Ref	LDP Objective
LDP 1	Produce a more efficient settlement pattern by ensuring that the location of new development contributes to reducing the need to travel
LDP 2	Protect and enhance the cultural and historic environment
LDP 3	Ensure that new development enhances the environment and embraces the principles of sustainable design and construction
LDP 4	Protect and enhance the character, diversity and special qualities of the area's landscapes to ensure that new development does not exceed the capacity of the landscape to accommodate it
LDP 5	To improve the long term resilience and robustness of the natural environment to climate change.
LDP 6	To ensure that development and land uses make a positive contribution to helping to minimise the causes of climate change and mitigating its impacts
LDP 7	Conserve and enhance habitats and species of international, national and local importance
LDP 8	Identify and promote green networks where this will add value to the provision, protection, enhancement and connectivity of habitats, recreational land and landscape in and around settlements
LDP 9	Provide the framework to increase the economic sustainability of Perth and Kinross by maintaining and providing locally accessible employment opportunities
LDP 10	Ensure a continuous 7 year supply of developable economic development land
LDP 11	Provide a flexible policy framework to respond to changing economic circumstances and developing technology
LDP 12	Promote the vitality and viability of shopping centres and reduce the potential loss of shoppers to retail centres outwith Perth and Kinross
LDP 13	Accommodate population and household growth and direct that growth to appropriate locations
LDP 14	Ensure a continuous 7 year supply of developable housing land
LDP 15	Seek to ensure that the housing land supply accommodates the needs of the various sectors of the market
LDP 16	Identify and provide for new and improved social and physical infrastructure to support an expanding and changing population
LDP 17	Establish clear priorities to ensure stakeholders and agencies work in partnership so that investment is co-ordinated and best use is made of limited resources to enable the delivery of the Strategy
LDP 18	Ensure investment in the renewal and enhancement of existing infrastructure consistent with the Strategy of the Plan in order to make best use of the investment embedded in our existing settlements

Figure 5.1: Compatibility of Strategic Environmental Assessment Objectives

	SEA 1	SEA 2	SEA 3	SEA 4	SEA 5	SEA 6	SEA 7	SEA 8	SEA 9	SEA 10	SEA 11	SEA 12	SEA 13	SEA 14	SEA 15	SEA 16	SEA 17
SEA 1																	
SEA 2	-																
SEA 3	++	++															
SEA 4	++	++	++														
SEA 5	+	-	++	++													
SEA 6	++	-	++	++	++												
SEA 7	++	++	++	++	+	++											
SEA 8	+	-	++	++	++	++	?										
SEA 9	+	++	++	++	-	+	++	++									
SEA 10	++	+	++	++	++	++	++	++	++								
SEA 11	+	-	++	++	++	++	~	++	++	++							
SEA 12	~	++	++	++	~	++	~	++	++	++	++						
SEA 13	?	-	++	++	++	++	~	++	~	++	++	++					
SEA 14	--	++	++	++	+	+	+	+	?	++	+	++	++				
SEA 15	+	-	++	++	~	~	?	~	?	~	~	+	~	+			
SEA 16	++	-	++	++	++	++	++	++	+	++	?	+	~	-	++		
SEA 17	?	+	++	++	?	~	++	+	++	?	+	++	~	+	++	++	

Matrix Key

+ +	Compatible
+	Mostly compatible
~	Unclear relationship
-	Mostly incompatible
- -	Incompatible
?	Uncertain relationship

Figure 5.2: Compatibility of the Strategic Environmental Assessment and the Local Development Plan's Objectives

	SEA 1	SEA 2	SEA 3	SEA 4	SEA 5	SEA 6	SEA 7	SEA 8	SEA 9	SEA 10	SEA 11	SEA 12	SEA 13	SEA 14	SEA 15	SEA 16	SEA 17
LDP 1	--	++	+	+	--	?	?	+	++	+	+	++	~	?	~	--	++
LDP 2	~	+	++	++	~	~	~	~	+	~	~	+	~	?	++	++	++
LDP 3	-	++	+	+	+	++	+	+	+	+	+	++	+	-	-	+	+
LDP 4	-	+	++	++	+	++	++	~	-	++	~	+	~	+	++	++	++
LDP 5	++	++	++	++	++	++	++	++	+	++	++	++	++	++	~	++	~
LDP 6	+	+	++	++	++	++	++	++	+	++	++	++	++	++	~	++	?
LDP 7	++	++	++	++	+	++	++	++	-	++	++	~	?	-	+	++	?
LDP 8	++	-	++	++	+	++	++	++	-	++	++	+	?	-	?	++	++
LDP 9	?	-	++	+	?	?	?	-	++	?	-	-	--	+	?	-	-
LDP 10	-	++	++	+	-	-	-	-	++	-	-	-	--	++	?	?	?
LDP 11	?	++	++	+	?	?	?	?	?	?	?	?	?	?	?	?	?
LDP 12	~	++	++	+	~	~	~	-	++	~	-	~	--	+	--	~	--
LDP 13	-	++	++	++	-	-	+	-	++	+	-	-	--	?	?	--	--
LDP 14	-	++	++	+	-	-	-	-	-	-	?	~	~	++	?	?	?
LDP 15	-	++	++	+	?	?	?	?	?	++	~	~	~	?	?	?	?
LDP 16	-	++	++	+	?	?	?	?	++	+	?	-	?	++	?	?	?
LDP 17	~	++	++	++	~	~	~	~	++	++	~	~	~	~	~	~	~
LDP 18	?	++	++	++	?	+	?	+	++	++	+	-	++	~	~	~	~

Matrix Key

+ +	Compatible
+	Mostly compatible
~	Unclear relationship
-	Mostly incompatible
- -	Incompatible
?	Uncertain relationship

5.15 The proposed Vision provides a good basis from which to give consideration to environmental sustainability in the area. This assessment has identified some areas where additional measures should be incorporated into the Plan that will allow the Vision to be achieved. Achievement of the Vision is also dependant on the spatial allocation of development. Each of the proposed spatial strategies will be assessed in the following sections of this report. The assessment of the Vision will be incorporated into this analysis allowing for the consideration of the implications of cumulative impacts of the Vision and the Spatial Strategy, and also to identify any conflicts that may exist between the two. This process will ensure that mitigation proposals in Section 9 are comprehensive and ensure that the LDP protects and enhances the environment of Perth and Kinross.

Assessment of the Vision – Scenarios for Implementation

5.16 The Vision Statement for Perth and Kinross draws on and complements those of the Council's Corporate Plan and the Strategic Development Plan (TAYplan). It acknowledges the considerable strengths of the area and recognises the many challenges it faces; in particular the significant population growth experienced over recent years and the indication that this trend is likely to continue. The need to embrace this opportunity and ensure that the area's prosperity continues and improves is recognised through the vision, as too is the desire to ensure that any benefits are more widely and equitably shared, and that the environment is protected and enhanced.

Alternatives

5.17 Part 2, Section 14(2) of the Environmental Assessment (Scotland) Act 2005 requires the responsible authority (in this case Perth & Kinross Council) to identify, describe and evaluate within the Environmental Report the likely significant effects on the environment of implementing the LDP and reasonable alternatives to the Plan, taking into account its objectives and geographical scope.

5.18 It was considered that there were no reasonable alternatives to the Vision Statement developed for the Local Development Plan due to the need for it to be consistent with the TAYplan Vision and the desire to complement the Council's Corporate Plan Vision. As such three alternative scenarios for the implementation of the Vision have been assessed to illustrate how there is potential to vary the level and type of impact on the environment through focusing on one agenda (Social, Economic or Environmental) over another.

5.19 Table 5.2 below presents the results of the assessment carried out of the three possible scenarios for implementing the proposed LDP Vision:

- Social
- Economic
- Environmental

5.20 As expected *Scenario 3: Environmental* is likely to overall have the most positive impact on the environment of Perth and Kinross; however in reality the preferred strategy is a combination of all three possible scenarios and their potential effects due to the nature and purpose of the Plan and in order to achieve a balance between social, economic and environmental interests across the area.

Assessment Key

Effect				
++ Major Positive	+ Minor Positive	0 Unknown	- Minor Negative	-- Major Negative

Table 5.3: Assessment of the Environmental Effects of the 3 Alternative Scenarios for the Implementation of the Vision

SEA Objectives	Alternative Scenarios			Comments
	1. Social	2. Economic	3. Environmental	
Biodiversity, Flora and Fauna				
Conserve and enhance the diversity of species and habitats	-	--	++	Scenario 1 is expected to have minor negative effects on biodiversity, flora and fauna due to the desire to balance the drive for more development and greater access to green space to improve the quality of life of citizens and also the support for the protection and enhancement of the special qualities of the area's environment to ensure it is a nice place to live. The regeneration of vacant and/or derelict sites could negatively impact on biodiversity present at those locations. Scenario 2 is likely to have major negative effects on biodiversity due to its strong emphasis on growth and development. However, it does also recognise the value of protecting the special qualities of the area's environment as a means of attracting inward investment. As expected Scenario 3 is likely to significantly support the SEA Objective for the conservation and enhancement of habitats and species.
Population and Human Health				
Accommodate population and household growth and direct that growth to appropriate locations	++	++	-	Overall Scenario 1 is likely to have the most positive effect on the SEA Objectives for Population and Human Health due to its strong emphasis on improving the quality of life for the population of the area through the desire for improved housing, employment and recreation opportunities, and also the provision of facilities and services. It also recognises the role the environment plays in contributing to citizen's quality of life. Scenario 2 is likely to have a positive impact on the objective to accommodate the expanding population due to its strong emphasis on employment opportunities keeping pace with population growth. However, it could also have negative effects depending on the type and design of developments and their locations. Scenario 3 whilst being likely to have positive effects on the objective to maximise the health and well being of the population through improved environmental quality, also has the potential to have negative effects on the Population and Human Health topics due to the conflict between the desire to accommodate population growth and the scenarios emphasis on protecting and enhancing the environment of the area. However, the inclusion of 'appropriate locations' in the objective and the focus of the scenario on ensuring that development does not exceed the capacity of the environment to accommodate it should reduce some of the tension.
Improve the quality of life for communities in Perth and Kinross	++	+/-	+/-	
Maximise the health and wellbeing of the population through improved environmental quality	++	0	++	
Soil				
Maintain, protect and where necessary enhance the fundamental qualities and productive capacities of soils	-	-	++	The potential for development under Scenarios 1 and 2 could lead to the loss of prime agricultural land around settlements and in the wider countryside. Scenario 3 is likely to have a significantly positive effect on this objective as a result of the focus on identifying and retaining valuable ecosystem services.
Water				

Protect and where possible enhance waterbody status	**0**	**0**	**++**	Scenario 1 could have a minor positive effect on the objective to safeguard the functional floodplain as it aims to reduce the vulnerability of the area to flood risk but this will be dependent on the location and design of development. The likely effect of this scenario on waterbody status is unknown as it will depend on the location of development and the availability of appropriate infrastructure. The overall likely effects of implementing Scenario 2 on the water environment is unknown as again it will be dependent on location, type of development, availability of appropriate infrastructure and practices. It is less likely that the flood plain will be protected under this scenario. Scenario 3 is likely to support the SEA Objectives for the Water environment.
Safeguard the functional floodplain	**+/-**	**0**	**++**	
Air				
Protect and enhance air quality	**+/--**	**+/--**	**++**	Scenarios 1 and 2 have the potential to have both positive and negative effects on the objectives for Air. Potential positive effects could be as a result of their aims to improve environmental quality for the residents of the area and to provide locally accessible employment opportunities alongside housing, which depending on their location and the availability of other green travel options/infrastructure should help to reduce journey lengths and the need to travel. However, an increase in population for residential and employment reasons could generate more journeys within the area which has the potential to exacerbate air quality issues, particularly in "hotspot" locations. In addition the effect of new economic development is largely unknown as it will be dependent on the type of business and onsite practices. Scenario 3 is likely to be the most supportive of the three scenarios to the objectives on Air, although some tension exists between them due to the objective's reference to development.
Direct development to sustainable locations which help to reduce journey lengths and the need to travel	**+**	**+**	**+/-**	
Climatic Factors				
Reduce the area's vulnerability to the effects of climate change through identifying appropriate mitigation and adaptation measures	**0/+**	**0**	**++**	Despite Scenario 1 aiming to reduce the vulnerability of the area to flood risk and create locally accessible employment opportunities, the overall effects of this scenario on the Climatic Factors Objectives are unknown as they are dependent on a range of other factors such as location and design and construction of development, identification and application of appropriate mitigation and adaptation measures, and also the availability of green travel infrastructure. Again the overall effect of Scenario 2 on the Climatic Factors Objectives is unknown due to potential positive effects relying on a range of other factors. The creation of locally accessible employment opportunities could contribute to greenhouse gas reduction through reducing journey lengths and the need to travel for work but its success will rely on that development being in appropriate/sustainable locations and also the availability of green travel infrastructure to link residential and employment areas. The types of development and the application of high standards of sustainable design and construction will also influence the degree of the effect. Scenario 3 is likely to have a significantly positive effect on the Climatic Factors Objectives.
Reduce greenhouse gas emissions	**0**	**0**	**++**	
Material Assets				
Promote and ensure high standards of sustainable design and construction	**0**	**0**	**++**	Scenario 1 is likely to have mostly a positive effect on the objectives for Material Assets due to the desire to improve the quality of the public realm and the environment, to create attractive and vibrant communities, and also to regenerate vacant and derelict sites. However, an increase in population is likely to generate more waste within the area and as such has the potential to cause a negative effect. The promotion and application of high standards of sustainable design and construction will rely on policy direction and regulation and therefore any effects are currently unknown. Scenario 2 is likely to have the same overall effect as 1, although it does not place the same explicit emphasis on the desire to regenerate vacant and derelict sites as Scenario 1 does. Scenario 3 is the most supportive scenario in terms of the objectives for Material Assets.
Minimise waste per head of population	**-/+**	**-/+**	**++**	
Maximise the sustainable use/re-use of material assets (land and buildings)	**++**	**+**	**++**	

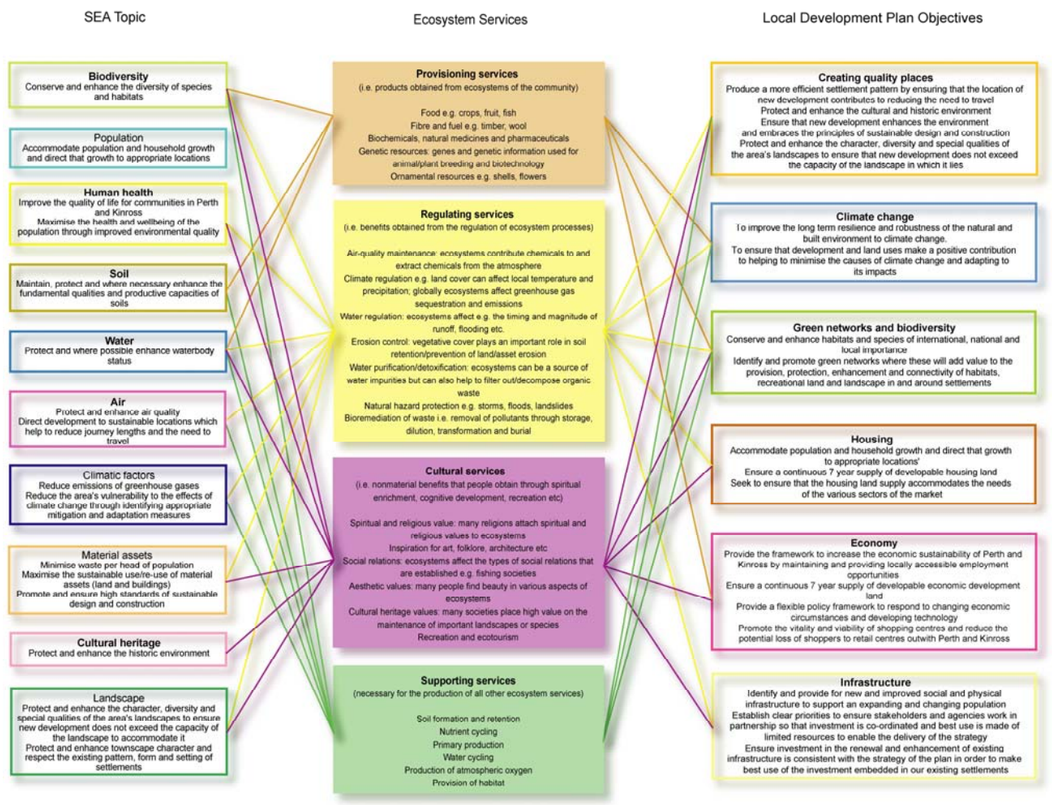
Cultural Heritage				
Protect and where appropriate enhance the historic environment	**+/-**	**+/-**	**++**	Scenario 1 provides some support to the objective for Cultural Heritage through its emphasis on protecting and enhancing the culture and identity of the area. However, the desire for growth under this scenario may also cause conflict which will be dependent on the location and design of development in relation to historic environment features/elements. Scenario 2 also offers some support to this objective through recognising the importance of protecting and enhancing the special qualities of the area which make it an attractive place to live, work and visit. However, tension again exists between the emphasis on growth under this scenario, the effect of which will be dependent on the location and design of that development in relation to features/elements of the historic environment. Scenario 3 is supportive of the objective for Cultural Heritage due to emphasis being placed on protecting the historic environment and the need to ensure that development does not exceed the capacity of the environment to accommodate it.
Landscape				
Protect and enhance the character, diversity and special qualities of the area's landscapes to ensure new development does not exceed the capacity of the landscape to accommodate it	**+/-**	**+/-**	**++**	Scenario 1 and 2 are mostly supportive of the objectives for Landscape due to the emphasis on creating attractive communities, making improvements to the quality of the public realm and also on protecting and enhancing the area's landscapes under Scenario 1 and the recognition of the importance of protecting and enhancing the special qualities of the area due to their value as assets to attract inward investment under Scenario 2. However, conflict does exist due to the desire for development under both scenarios which has the potential to have negative effects on both landscape and townscape. Scenario 3 is supportive of the objectives for Landscape and its implementation is likely to result in positive effects.
Protect and enhance townscape character and respect the existing pattern, form and setting of settlements	**+/-**	**+/-**	**+**	

Ecosystem Services Approach

5.21 Ecosystem Services are defined as services provided by the natural environment that benefit people. They provide outputs that both directly and indirectly affect human well-being. The benefit of valuing ecosystem services is the contribution it can make to better decision making, through ensuring that policy appraisals take full account of the costs and benefits to the natural environment and by clearly highlighting the implications for human well-being whilst providing insightful policy development. Many of these ecosystem services are already well known, including food, fibre and fuel provision, and also cultural services that provide benefits to people for recreational and nature appreciation reasons. Other less known services include climate regulation, air and water purification, flood protection, soil formation and nutrient recycling, which are currently not generally given consideration within policy appraisal.[4]

5.22 Figure 5.3 outlines the important relationship between the SEA Topics, the functions of the different ecosystem services within the environment of Perth and Kinross and the LDP Objectives. This demonstrates the potential impacts the implementation of the Plan could have on those ecosystems and also the opportunities which exist to protect and enhance these services through the development of the Plan's policies.

Figure 5.3: The Relationship between the SEA Topics, Ecosystem Services and the LDP Objectives



[4] Source: DEFRA, An Introductory Guide to Valuing Ecosystem Services, 2007

6 EFFECTS OF THE SPATIAL STRATEGY

Tier 1

Perth Core

Housing and Employment Land Requirement

6.1.1 The Main Issues Report (MIR) considers two options for the distribution of the additional housing land requirement of 4120 units across the Perth Housing Market Area (HMA); both options will depend on 700 units being delivered within Perth City.

- Option 1 – 99.5% (4100 units) to the Perth Core Area and the remaining 0.5% outwith the Core
- Option 2 – 89% (3650 units) to the Perth Core Area and the remaining 11% outwith the Core

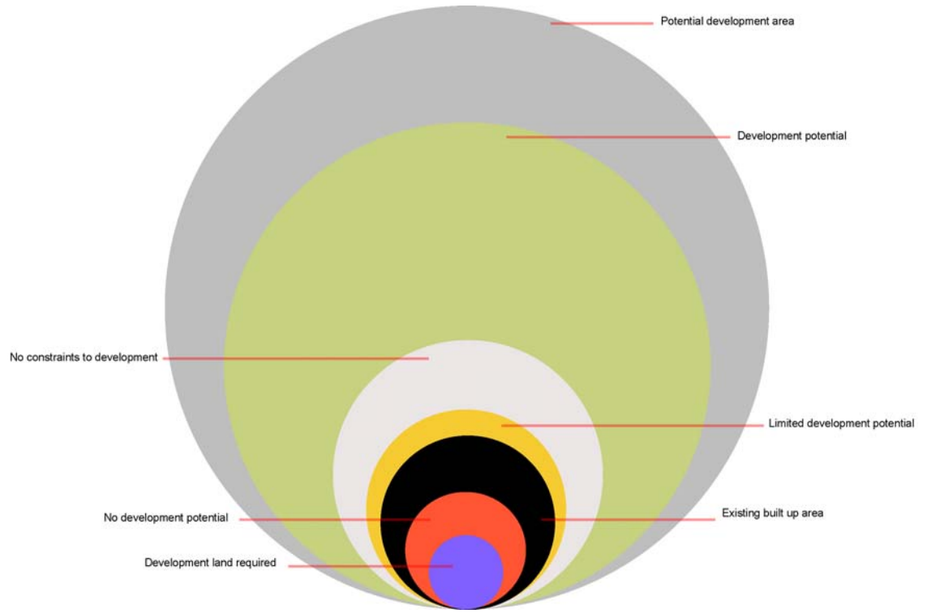
6.1.2 To determine whether the highest possible housing land requirement can be met within the Perth Core Area, the SEA has assessed its environmental capacity to accommodate 100% of the requirement or 4120 units. Applying the density used in the MIR of 20 units per hectare this equates to a total housing land requirement of 206 hectares (ha) to meet the housing land strategy. The MIR also highlights a requirement for an additional 70ha of employment land within the Core Area, bringing the total land requirement to 276ha.

Cumulative Strategic Sensitivities

6.1.3 The assessment of cumulative strategic sensitivities for the Perth Core Area identified that within the 8 km expansion area buffer the majority of the land (87%) is either free of or has limited constraints (i.e. 0-1 sensitivities present). The remaining 13% represents areas where development should be limited (10% with 2-3 sensitivities present) or avoided (3% with 4-10 sensitivities present).

6.1.4 Figure 6.1 below illustrates the total potential development area (i.e. the 8 km expansion area buffer) and the proportion of that buffer made up by land with: no constraints on development, with development potential, and with limited development potential. It also shows the proportion of the buffer which is the existing developed/built up area of the settlements within the Core Area and the land required in order to deliver the 4120 housing units and 70ha of employment land. The diagram demonstrates that the 276ha land requirement can be comfortably be met within the Perth Core expansion area buffer in the no constraints and development potential areas

Figure 6.1: Perth Core Development Potential



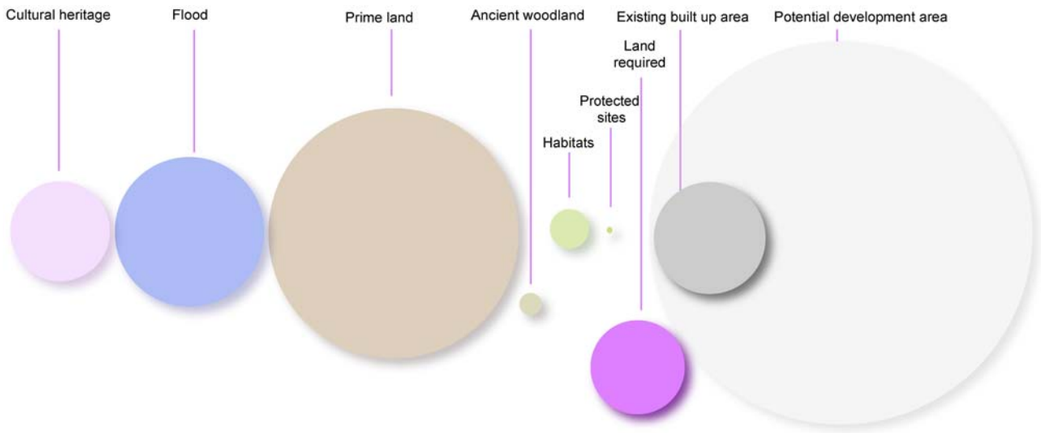
6.1.5 The *Cumulative Strategic Sensitivities and Development Pressures in 2010* map on the following page lends a spatial element to the above information and provides a picture of where development can most readily be accommodated in the buffer area. The map overlays proposed development site options to help make decisions about where areas are most suitable to development and illustrate both the positive and negative affects of the Local Development Plan. The map uses the following key to illustrate where the most sensitive areas can be found.

Key			
Potential Development Area		Development Potential	
No Constraints to Development		No Development Potential	
Limited Development Potential			

Significant Strategic Sensitivities

6.1.6 A further study of the type and extent of those sensitivities highlights that the key issues arising within the buffer include prime quality agricultural land, surface water environments and flooding. Figure 6.2 below provides a breakdown of the proportion of those sensitivities relative to the total expansion area buffer as per the *Strategic Natural and Cultural Sensitivities and Development Pressures in 2010* map on the following page. This map, on the next page, lends a spatial element to the above information and provides a picture of the nature and extent of sensitive areas in the environment within and surrounding the expansion area.

Figure 6.2: Perth Core Development Sensitivities



Summary of Development Potential

6.1.7 In terms of future development in the area, the *Cumulative Strategic Sensitivities and Development Pressures 2010 – Perth Expansion Area* map demonstrates that the potential for expansion within the quadrants A – D is:

- **Area A** (north west of Perth City)**:** potential exists for expansion within this quadrant on no constraints and development potential land. However, that potential becomes reduced to limited and fully constrained in certain locations, particularly along surface water body corridors due to the presence of a range of overlapping sensitivities including: surface waters and their associated riparian areas, areas at potential risk from flooding, protected sites (including part of the River Tay SAC), prime quality agricultural land (Categories 2 and 3.1), features of the historic environment, and ancient and semi-natural woodland inventory sites. Sector 29 within Area A (*Strategic Natural and Cultural Sensitivities and Development Pressures in 2010 – Perth Expansion Area* map) is highlighted as a high risk area as a result of the type and extent of sensitivities present within it. This Sector contains the MIR Perth expansion site options A-D.
- **Area B** (north east of Perth City)**:** expansion potential exists on no constraints and development potential land within this quadrant, but that potential becomes limited or fully constrained in certain locations, mainly along the western edge corresponding with surface waterbody corridors and the Scone Palace garden and designed landscape designation. There are a range of sensitivities located within Area B including: numerous features of the historic environment, ancient and semi-natural woodland inventory sites, prime quality agricultural land (Categories 2 and 3.1), Kinnoull Hill SSSI, surface water and riparian areas and also areas at potential risk from flooding.
- **Area C** (south east of Perth City)**:** there is potential for expansion within the western part of this quadrant following the line of the M90. There are also small areas of potential on no constraints and potential development land to the east of Bridgend at Perth but it becomes limited and fully constrained moving further eastwards due to the presence of Kinnoull Hill SSSI, historic environment features, ancient and semi-natural woodland inventory sites, the River Tay SAC (and its associated riparian and indicative flood risk areas) and prime quality agricultural land (Category 3.1).
- **Area D** (south west of Perth City)**:** shows potential for expansion on both the northern and southern sides of the M90, and as far south as the River Earn, but a closer analysis highlights that the topography of the land could be a potential issue for development in areas immediately bordering the motorway. The presence of listed buildings and ancient and semi-natural woodland inventory sites could also constrain development potential within this location.

6.1.9 Detailed summaries of the individual sensitivities within quadrants A to D and their effects as they relate to the SEA Topics are provided in Tables D1 to D4 in Appendix D to this report. A map showing the *Indicative Green Networks and Development Pressures in 2010* within the Perth Core Area buffer is also included in the Appendix.

Summary of Potential Significant Impacts

6.1.8 Development 'hot spots' are areas where proposed development overlaps areas of high cumulative or strategic sensitivities. Dashboard symbols have been used to summarise the level of perceived risk associated with these areas as they appear in the maps above.

A high risk area is located in **sector 29**. Actions towards mitigating and adapting to climate change may be particularly relevant to the proposed sites in this area where there is potential – but variable - flood risk. Impacts to aesthetic, natural and recreational site features should be considered jointly. A detailed landscape and visual assessment should be carried out to determine the area's visual and landscape sensitivities. Further assessment is required to determine the nature of cumulative impacts across the sector as underlying sensitivities include flood risk, prime agricultural land, ancient woodland and listed buildings.

Moderate risk areas have been identified in **sector 37** where proposed development sites are located within a sector of medium flood risk as identified by SEPA and in the proximity of listed buildings. Stakeholders have identified the potential risk of enclosing the abbey precinct and enfolding it within the townscape as a significant concern for development of the area.

Moderate risk areas have been identified in **sector 34** where proposed development sites overlay various sensitivities including prime agricultural land and a historic garden and designed landscape area. Proposed development also borders ancient woodland.

Moderate risk areas have been identified in **sector** 14 where partial areas of proposed development are located within the 1 in 200 year flood outline

TIER 2 SETTLEMENTS

Crieff

Housing and Employment Land Requirement

6.2.1 The MIR looks at two options for the distribution of the additional housing land requirement of 450 units across the Strathearn HMA:

- Option 1 - 80% (360 units)allocated to Crieff
- Option 2 - 90% (405 units) allocated to Crieff

and the remaining 10 or 20% would be allocated to the landward area.

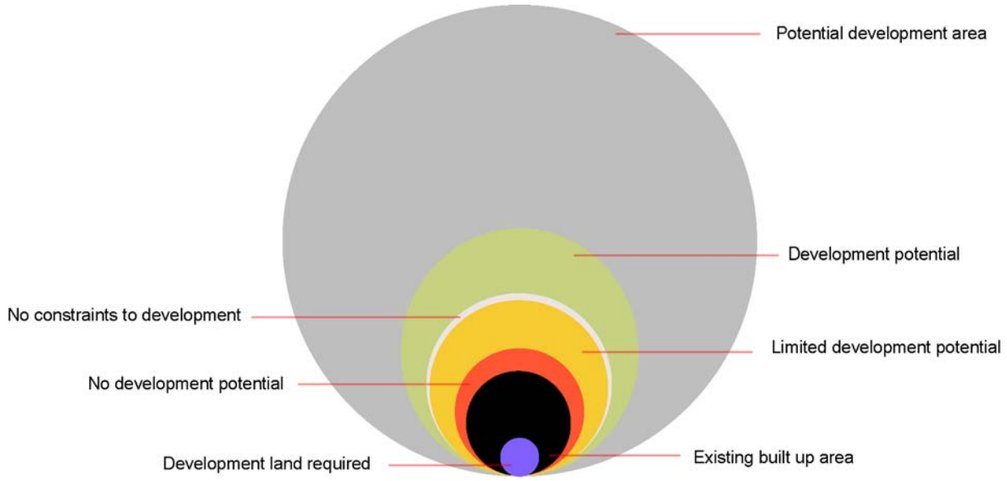
6.2.2 To determine whether the highest possible housing land requirement can be met at Crieff, the SEA has assessed its environmental capacity to accommodate 90% or 405 units. Applying the density used in the MIR of 20 units per hectare this equates to a total housing land requirement of 20ha to meet the housing land strategy. The MIR also highlights a requirement for an additional 5ha of employment land at Crieff, bringing the total land requirement to 25ha.

Cumulative Strategic Sensitivities

6.2.3 The assessment of cumulative strategic sensitivities for the Tier two settlement identified that within the 2.5 km expansion area buffer, over three quarters of the area of land (78%) is either free of or has limited constraints (i.e. 0-1 sensitivities present). The remaining 22% represents areas where development should be limited (14% with 2-3 sensitivities present) or avoided (8% with 4-10 sensitivities present).

6.2.4 Figure 6.3 below illustrates the total potential development area (2.5km expansion area buffer) and the proportion of that buffer made up by land with: no constraints on development, with development potential, and with limited development potential. It also shows the proportion of the buffer which is the existing developed/built up area of the settlement and the land required in order to deliver the 405 housing units and 5ha of employment land. The diagram demonstrates that the 25ha land requirement can be comfortably met at Crieff within the 2.5km expansion area buffer in the no constraints and development potential areas

Figure 6.3: Crieff Development Potential



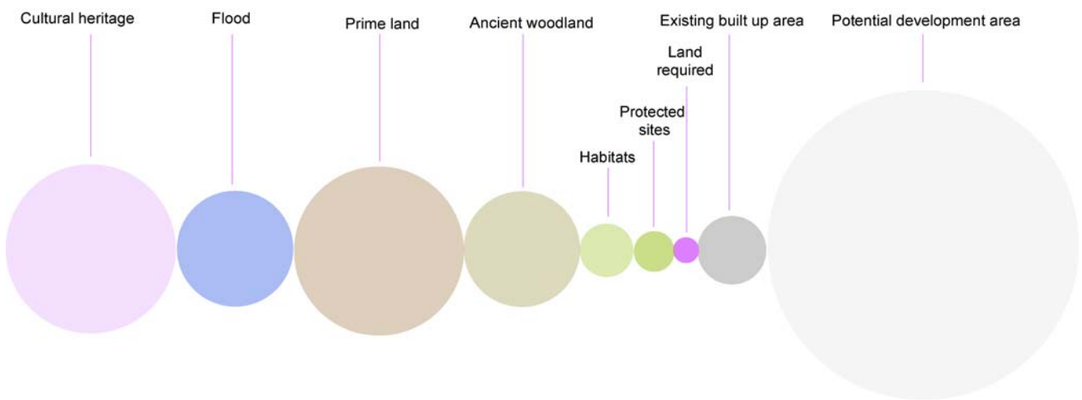
6.2.5 The *Cumulative Strategic Sensitivities and Development Pressures* map on the following page lends a spatial element to the above information and provides a picture of where development can most readily be accommodated within the environment surrounding Crieff. The map overlays proposed development site options to help make decisions about where areas are most suitable to development and illustrate both the positive and negative affects of the Local Development Plan. The map uses the following key to illustrate where the most sensitive areas can be found.

Key			
Potential Development Area		Development Potential	
No Constraints to Development		No Development Potential	
Limited Development Potential			

Significant Strategic Sensitivities

6.2.6 A further study of the type and extent of those sensitivities highlights that the key issues arising within the buffer include surface waters and riparian areas, protected species and the historic environment. Figure 6.4 below provides a breakdown of the proportion of those sensitivities relative to the total expansion area buffer.

Figure 6.4: Crieff Development Sensitivities



6.2.7 The *Strategic Natural and Cultural Sensitivities and Development Pressures* map on the next page provides a spatial element to the above information and provides a picture of the nature and extent of sensitive areas in the environment within and surrounding Crieff.

Summary of Development Potential

6.2.8 The *Cumulative Strategic Sensitivities and Development Pressures 2010 – Crieff Expansion Area* map demonstrates that there is generally good potential for the MIR site options to the east of the existing settlement where there are large areas with limited or no constraints. Other development options adjoin the remaining sensitive areas and should be assessed further to determine appropriate mitigation and enhancement measures. One of these sites contains areas acutely sensitive to development and should be avoided if possible.

6.2.9 The potential for expansion to the north is constrained for topographical reasons; potential exists to the north east, but becomes limited and constrained at certain locations due to the presence of an area of ancient woodland and also the topography of the land, respectively. Sensitivities to the south include Category 3.1 prime quality agricultural land, ancient woodland, a scheduled ancient monument and the 1:200 year probability of flood risk from the River Earn. Most of the area to the east is classified as Categories 2 and 3.1 prime quality agricultural land. The development of agricultural land of classification grades 1, 2, and 3.1 would fail to protect the best and most versatile agricultural land, although individual consideration may be granted if appropriate compensation for any loss of agricultural land is made. The existence ancient woodland and a 1:200 year probability of flood risk in areas along the river and burn, in addition to prime quality agricultural land limits or fully constrains development potential; Drummond Castle garden and designed landscape and also areas of ancient woodland are located in the south eastern segment of the buffer which limits or constrains development. To the west strips along the banks of the River Earn (where it approaches the western edge of the settlement) and the Turret Burn (western bank) are sensitive to development, however potential does still exist to the west of Crieff out with these constrained areas.

Summary of Potential Significant Impacts and Key Issues – Crieff

6.2.10 Development 'hot spots' are areas where proposed development overlaps areas of high cumulative or strategic sensitivities. Dashboard symbols have been used to summarise the level of perceived risk associated with these areas as they appear in the maps above.

High risk areas have been identified in sector 4 where a key historical landscape feature (enclosure of a preserved cropmark in the townscape) has been identified as a significant issue. Other minor issues in this area are linked to flooding where development within the floodplain associated with various small watercourses (below the 3 km catchment) should be avoided. Prime agricultural land comprises 30% of the expansion area and underlies development sites in this sector

Prime agricultural land comprises 30% of the expansion areas and underlies development sites in sector 6 and 7

6.2.11 Detailed summaries of the individual sensitivities within the Crieff expansion buffer and their effects as they related to SEA Topics are provided in Table D5 in Appendix D. Maps of the *Indicative Green Network and Development Pressures* and *Accessibility (walking distance to key services) and Development Pressures* are also included in the appendix.

Kinross/Milnathort

Housing and Employment Land Requirement

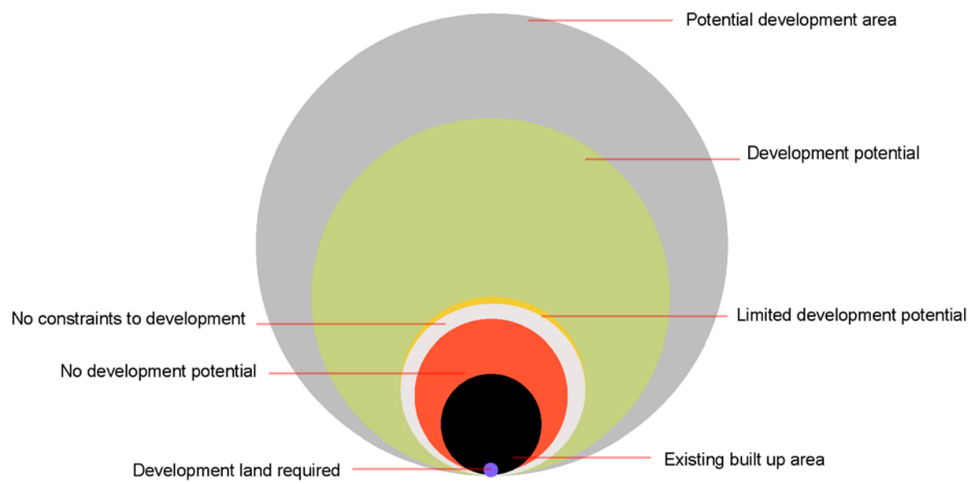
6.3.1 The MIR looks at two options for the distribution of the additional housing land requirement across the Kinross Housing Market Area (HMA); under both options 75% of the 370 additional houses required would be directed to Kinross and Milnathort (278 units), the remaining 25% (92 units) would be allocated to the larger villages in the rural area, outwith the Loch Leven Catchment area. Option 1 for the landward area is to distribute the 92 units between a number of sites within 3 or 4 settlements, and Option 2 would result in the concentration of the total 92 units on one larger site. To determine whether the highest possible housing land requirement can be met at Kinross and Milnathort, the SEA has assessed the settlements environmental capacity to accommodate 75% or 278 units to determine if the requirement can be met there. Applying a density of 20 housing units per hectare, as per the MIR, this equates to a total requirement of 14ha to meet the housing land strategy. The MIR also indicates a need for an additional 5ha of land for employment uses. Therefore there is a total land requirement at Kinross and Milnathort of 19ha.

Cumulative Strategic Sensitivities

6.3.2 The assessment of cumulative strategic sensitivities for the Tier 2 settlements identified that within the 2.5 km expansion area buffer over half of the area of land (53%) is either free of or has limited constraints (i.e. 0-1 sensitivities present). The remaining 47% represents areas where development should be limited (24% with 2-3 sensitivities present) or avoided (23% with 4-10 sensitivities present).

6.3.3 Figure 6.5 below illustrates the total potential development area (2.5km expansion area buffer) and the proportion of that buffer made up by land with: no constraints on development, with development potential, and with limited development potential. It also sets out the proportion of the buffer which makes up the existing built up/developed area at Kinross and Milnathort, and the land required to deliver the additional 278 housing units and 5ha of employment land. The diagram demonstrates that the 19ha land requirement can comfortably be met at Kinross/Milnathort within the 2.5km expansion area buffer in the no constraints and development potential areas.

Figure 6.5: Kinross/Milnathort Development Potential



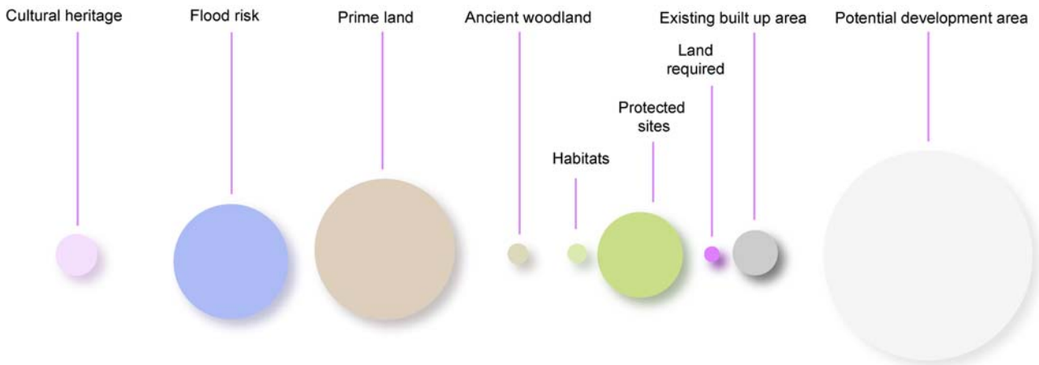
6.3.4 The *Cumulative Strategic Sensitivities and Development Pressures* map on the following page lends a spatial element to the above information and provides a picture of where development can most readily be accommodated in the environment at and surrounding Kinross and Milnathort. The map overlays proposed development site options to help make decisions about where areas are most suitable to development and illustrate both the positive and negative affects of the LDP. The map uses the following key to illustrate where the most sensitive areas can be found.

Key			
Potential Development Area		Development Potential	
No Constraints to Development		No Development Potential	
Limited Development Potential			

Significant Strategic Sensitivities

6.3.5 A further study of the type and extent of those sensitivities highlights that the key issues arising within the buffer include surface waters and flooding, agricultural land and biodiversity, in particular key bird populations. Figure 6.6 below provides a breakdown of the proportion of those sensitivities relative to the total expansion area buffer.

Figure 6.6: Kinross/Milnathort Development Sensitivities



6.3.6 The *Strategic Natural and Cultural Sensitivities* map on the following page lends a spatial element to the above information and provides a picture of the nature and extent of sensitive areas in the environment within and surrounding the settlements.

Summary of Development Potential

6.3.7 The *Cumulative Strategic Sensitivities and Development Pressures* map demonstrates the relatively limited potential for future expansion in Kinross, where less than 14% of the area is free of constraints. Over a quarter of the area (26%) is highly constrained, particularly in the eastern area near Loch Leven. Proposed sites which infill the existing settlement are relatively suitable to development, however on the outskirts sites often adjoin or are partially located in areas of limited development potential or where appropriate mitigation and enhancement measures are required.

6.3.8 The *Strategic Natural and Cultural Sensitivities and Development Pressures* map shows that there is some potential for expansion to the north between Kinross and Milnathort but that potential becomes further limited or fully constrained in locations due to the presence of Category 3.1 prime quality agricultural land and the probability of a 1:200 year risk of flooding from the North Queich River. A number of listed buildings are also present in this area. To the west a strip of land with development potential runs along the western edge of Kinross, following the M90. However, it incorporates areas of prime quality agricultural land at the north and south, and an area to the north is at potential risk from fluvial flooding (1:200 year).

6.3.9 Large areas of land with development potential exist further west across the M90 motorway. In some locations no constraints/sensitivities are shown; in others, development potential becomes limited or in certain locations fully constrained due to the cumulative presence of prime quality agricultural land, risk of fluvial flooding, listed buildings and areas of ancient woodland.

6.3.10 Much of the land to the immediate south of Kinross, on the eastern side of the M90 has either limited development potential or is fully constrained in some locations due to the loch and its designations, and a potential risk from fluvial flooding.

6.3.11 Land to east demonstrates some potential for development but closer analysis shows that a large part of this area of development potential is within the Kinross House garden and designed landscape. Travelling further east this potential becomes limited and then fully constrained due to the presence of the historic garden, ancient woodland, listed buildings and Loch Leven.

6.3.12 At Milnathort land with development potential exists to the north between the settlement and the M90, this potential becomes limited and fully constrained to the north east due to the risk from fluvial flooding and the presence of Category 3.1 prime quality agricultural land. Development potential is shown to the south of Milnathort, but much of this land is at potential risk from flooding.

6.3.13 Some expansion to the east exists but it is limited or fully constrained in locations because of the presence of prime quality agricultural land, recorded habitats and/or species, a Scheduled Ancient Monument, a listed building, the potential risk from fluvial flooding and the Area of Great Landscape Value.

6.3.14 The entire 2.5km expansion area is covered by the Loch Leven Catchment Area.

Summary of Potential Significant Impacts and Key Issues – Kinross/Milnathort

6.3.15 Development 'hot spots' are areas where proposed development overlaps areas of high cumulative or strategic sensitivities. Dashboard symbols have been used to summarise the level of perceived risk associated with these areas as they appear in the maps above.

- Significant flooding risks (large areas of the proposed developments are at risk of fluvial flooding) are located in sector 8.

- Significant flooding risks (large areas of the proposed developments are at risk of fluvial flooding) are located in sector 4. Historical site features are an additional issue in this area.

- Proposed development in sector 11 adjacent to protected sites in the Loch Leven area pose risks to key bird populations, habitats, landscapes and recreational areas. Sensitivities including prime agricultural land, flood risks and riparian areas and listed buildings are located within or adjoining proposed development sites

6.3.16 Detailed summaries of the individual sensitivities at the settlements and their effects as they relate to SEA Topics are provided in Table D6 of Appendix D. Maps showing the Indicative Green Network and Development Pressures and Accessibility (walking distance of key services) and Development Pressures are also providing in the appendix.

Blairgowrie/Rattray

Housing and Employment Land Requirement

6.4.1 The MIR identifies that the largest percentage of the additional housing land requirement (1120 units) for the Strathmore and the Glens Housing Market Area (HMA) will be concentrated within Blairgowrie/Rattray, Alyth and Coupar Angus. It then presents two options for allocating the remaining requirement in the landward area.

- Option 1: allocation of approximately 10% to the landward area and 90% split across Blairgowrie/Rattray (700 units), Alyth (240 units) and Coupar Angus (100 units)
- Option 2: allocation of approximately 20% to the landward area and 80% across the Tier 2 and 3 settlements above

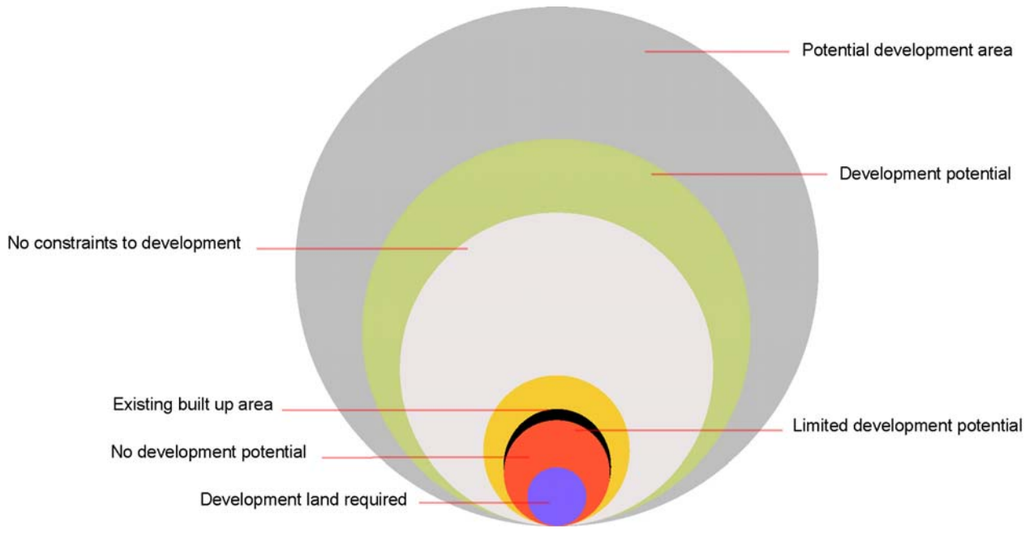
6.4.2 Taking the highest possible percentage of housing land that could be allocated at Blairgowrie/Rattray under Option 1 the SEA has assessed the environmental capacity of the settlements to accommodate 63% or 700 units to establish whether the requirement can be met there. Applying a density of 20 units per hectare, as per the MIR, a total land area of 35ha is necessary to meet the housing land strategy. The MIR has also identified a need for an additional 15ha of employment land at Blairgowrie/Rattray. Therefore the total land requirement at the settlements is 50ha.

Cumulative Strategic Sensitivities

6.4.3 The assessment of cumulative strategic sensitivities for the Tier 2 settlements Blairgowrie/Rattray showed that within the 2.5km expansion buffer 88% of the area is either free of or has limited constraints (i.e. 0-1 sensitivities present). The remaining 12% represents areas where development should be limited (8% with 2-3 sensitivities present) or avoided (4% with 4-10 sensitivities present).

6.4.4 Figure 6.7 below illustrates the total potential development area at the settlements (2.5km expansion area buffer) and the proportion of that buffer composed of land with: no constraints on development, with development potential, and with limited development potential. It also outlines the proportion of the buffer which is the existing built up/developed area of the settlements and the area of land needed to deliver the additional housing units and land for employment uses. The diagram shows that the 50ha of land required can comfortably be accommodated within the no constraints and development potential areas.

Figure 6.7: Blairgowrie/Rattray Development Potential



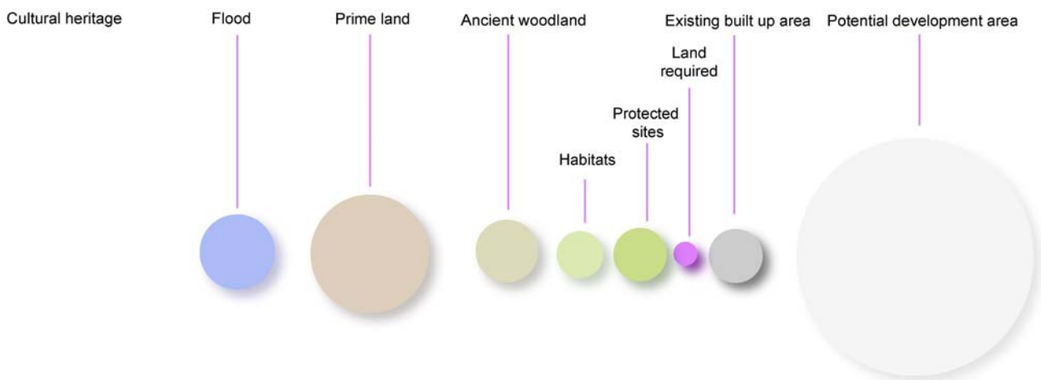
6.4.5 The *Cumulative Strategic Sensitivities and Development Pressures* map lends a spatial element to the above information and provides a picture of where development can most readily be accommodated in the environment at and surrounding the settlements. The map overlays proposed development site options to help make decisions about where areas are most suitable to development and illustrate both the positive and negative effects of the LDP. The map uses the following key to illustrate where the most sensitive areas can be found.

Key			
Potential Development Area		Development Potential	
No Constraints to Development		No Development Potential	
Limited Development Potential			

Significant Strategic Sensitivities

6.4.6 A further study of the type and extent of those sensitivities highlights that the key issues arising within the buffer include surface water areas, flooding and agricultural land. Figure 6.8 below provides a breakdown of the share of those sensitivities in relation to the total expansion area buffer.

Figure 6.8: Blairgowrie/Rattray Development Sensitivities



6.4.7 The *Strategic Natural and Cultural Sensitivities and Development Pressures* map on the following page lends a spatial element to the above information and provides a picture of the nature and extent of sensitive areas in the environment within and surrounding the settlements.

Summary of Development Potential

6.4.8 The *Cumulative Strategic Sensitivities and Development Pressures* map demonstrates that potential exists for future expansion to the north, south, west and south east of Blairgowrie, where in most locations the land is either free of or has limited constraints (i.e. 0-1 sensitivities present). There is possibility for expansion to the north, south and east of Rattray where the majority of the land is also either free of or has limited constraints. However, this potential becomes limited or fully constrained travelling both further north and south towards the river, due to listed buildings and potential risk from flooding from the River Ericht (River Tay SAC) and Lornty Burn to the north and a SSSI and an RSPB Important Bird Area to the south. Small pockets of land to the east also have limited potential due to the number of sensitivities present at those locations including Scheduled Ancient Monuments, an Ancient Woodland Inventory site, Category 3.1 prime quality agricultural land, land at potential risk from fluvial flooding and the River Tay SAC.

6.4.9 There are also a number of lochs to the south, west and south east of Blairgowrie which limit or fully constrain development within the expansion buffer area at those locations.

6.4.10 The sensitivities present to the north of Rattray include Ancient Woodland Inventory sites, a SAC, SSSI, SAMs and the Craighall Rattray garden and designed landscape; to the south and south east: the River Tay SAC, a listed building, SAM, Category 2 prime quality agricultural land, surface water areas and land at risk from fluvial flooding; to the east: SAMs and Category 3.1 prime quality agricultural land.

Summary of Potential Significant Impacts and Key Issues – Blairgowrie/Rattray

6.4.11 Development 'hot spots' are areas where proposed development overlaps areas of high cumulative or strategic sensitivities. Dashboard symbols have been used to summarise the level of perceived risk associated with these areas as they appear in the above maps.

Moderate risk is associated with proposed development in **sector 8,** where there is a minor risk of flooding (below a 3km catchment). This risk could be mitigated through careful site planning. Areas of woodland, including ancient woodland patches, flood risk and the River Tay SAC are other considerations in this sector.

6.4.12 Detailed summaries of the individual sensitivities and their effects as they related to SEA Topics are provided in Table D7 of Appendix D. Maps showing the *Indicative Green Networks and Development Pressures* and *Accessibility (walking distance of key services) and Development Pressures* are also provided in the appendix.

TIER 3 SETTLEMENTS

Auchterarder

Housing and Employment Land Requirement

6.5.1 The MIR acknowledges that over 60% of the Strathearn Housing Market Area's (HMA) effective housing land supply is currently within Auchterarder, which is considered more than adequate to meet demand in the area beyond the plan period. As such the MIR does not consider the allocation of additional housing land requirements to the settlement as a reasonable option.

6.5.2 However, in the event that additional housing land is allocated at Auchterarder during subsequent stages of the LDP process, the SEA has assessed the environmental capacity of the settlement to accommodate 90% of the housing land requirement (405 units) as an alternative to Crieff, in order to remove the potential need for an additional environmental assessment as a result.

6.5.3 Applying the density used in the MIR of 20 units per hectare this equates to a total housing land requirement of 20ha to deliver the additional housing units. Furthermore the MIR highlights a requirement for an additional 6ha of employment land at Auchterarder. Therefore the SEA will assess the capacity of the settlement to accommodate a total land requirement of 26ha.

Cumulative Strategic Sensitivities

6.5.4 The assessment of cumulative strategic sensitivities for the Tier 3 settlement identified that within the 2.5 km expansion area buffer 91% of the area of land is either free of or has limited constraints (i.e. 0-1 sensitivities present). The remaining 9% represents areas where development should be limited (5% with 2-3 sensitivities present) or avoided (4% with 4-10 sensitivities present).

6.5.5 Figure 6.9 below shows the potential development area around Auchterarder (i.e. the 2.5 km expansion area buffer) and the proportion of that buffer composed of land with: no constraints on development, with development potential, with limited development potential, and where development should be avoided. It also sets out the proportion of the buffer which makes up the existing built up/developed area of the settlement, and the land required to deliver the 405 housing units plus 6ha of employment land. The diagram demonstrates that the 26ha of land required for development can comfortably be met within the no constraints and development potential areas at Auchterarder.

Figure 6.9: Auchterarder Development Potential

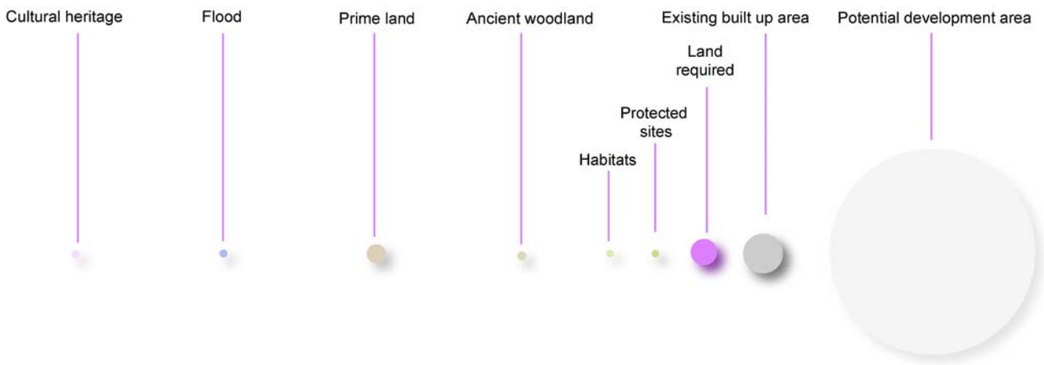
6.5.6 The *Cumulative Strategic Sensitivities and Development Pressures* map on the following page lends a spatial element to the above information and provides a picture of where development can most readily be accommodated in the environment at and surrounding Auchterarder. The map overlays proposed development site options to help make decisions about where areas are most suitable to development and illustrate both the positive and negative affects of the LDP. The map uses the following key to illustrate where the most sensitive areas can be found.

Key			
Potential Development Area		Development Potential	
No Constraints to Development		No Development Potential	
Limited Development Potential			

Significant Strategic Sensitivities

6.5.7 A further study of the type and extent of those sensitivities highlights that the key issues arising within the buffer include surface water areas, flooding and agricultural land. Figure 6.10 below provides a breakdown of the share of those sensitivities in relation to the total expansion area buffer.

Figure 6.10: Auchterarder Development Sensitivities



6.5.8 The *Strategic Natural and Cultural Sensitivities and Development Pressures* map on the next page lends a spatial element to the above information and provides a picture of the nature and extent of sensitive areas in the environment within and surrounding Auchterarder.

Summary of Development Potential

6.5.9 The *Cumulative Strategic Sensitivities and Development Pressures* map demonstrates that there is generally potential for expansion to the north and east (northern side of the A824) of Auchterarder. Some potential exists to the south up to the A9 and there is also possibility to the east (southern side of A824), but this becomes limited or constrained due to potential risk of flooding from the Ruthven Water, the presence of prime agricultural land, surface water areas and the recording of species and/or habitats outwith designated locations. The map also shows development potential to the west of the settlement but closer analysis highlights that most of this area is within the Gleneagles Hotel garden and designed landscape and there are also Ancient Woodland Inventory sites in this locality.

Summary of Potential Significant Impacts and Key Issues - Auchterarder

6.5.10 Development 'hot spots' are areas where proposed development sites overlaps areas of high cumulative or strategic sensitivities. Dashboard symbols have been used to summarise the level of perceived risk associated with these areas as they appear in the above maps.

- Areas highly sensitive to development east of the existing settlement in **sector 7** have overlapping constraints including category 3.1 prime agricultural land, surface waters, and areas at risk from fluvial flooding. Preferred site options in sector 7 overlap areas of flood concern and a Flood Risk Assessment has been recommended for these areas.
- Numerous historical features (listed buildings, Gleneagles Hotel garden and designed landscape and ancient woodland) have been highlighted as a concern in **sector 4 and 8** although there are no preferred development options in these areas. Development options, if pursued, would need to avoid direct impacts on the features and ensure that appropriate settings and views are maintained in these sectors.

6.5.11 Detailed summaries of the individual sensitivities at Auchterarder and their effects as they relate to the SEA Topics are provided in Table D8 of Appendix D. Maps of the *Indicative Green Networks and Development Pressures* and *Accessibility (walking distance to key services) and Development Pressures* are also provided in the appendix.

Aberfeldy

Housing and Employment Land Requirement

6.6.1 The MIR considers two options for the distribution of the additional housing land requirement of 620 units across the Highland Housing Market Area (HMA):

- Option 1: 40% to the Landward Area and 30% each to Aberfeldy and Pitlochry
- Option 2: 30% to the Landward Area and 35% each to Aberfeldy and Pitlochry

6.6.2 To ascertain whether the highest possible housing land requirement can be accommodated at TAYplan Tier 3 settlement Aberfeldy, the SEA has assessed the settlement's environmental capacity to meet 35% or 217 units. Using a density of 20 housing units per hectare in line with the MIR, the total land requirement to meet the housing strategy at this location is 11ha. In addition the MIR has identified a need for 2ha of employment land. The total land requirement for development at Aberfeldy is therefore 13ha.

Cumulative Strategic Sensitivities

6.6.3 The assessment of the cumulative strategic sensitivities at Aberfeldy identified that within the 2.5 km expansion area buffer 88% of the land is either free from or has limited constraints (0-1 sensitivities present). The remaining 12% represents areas where development should be limited (9% - 2-3 sensitivities present) or avoided (3% - 4-10 sensitivities present).

6.6.4 Figure 6.11 below shows the proportion of the potential development area (2.5km buffer area) made up of land with: no constraints on development, with development potential, with limited development potential and where development should be avoided. It also shows the proportion of the buffer that composes the existing built up/developed area at Aberfeldy. The diagram demonstrates that the 13ha of land required for development at the settlement can easily be accommodated within the no constraints and development potential areas.

Figure 6.11: Aberfeldy Development Potential

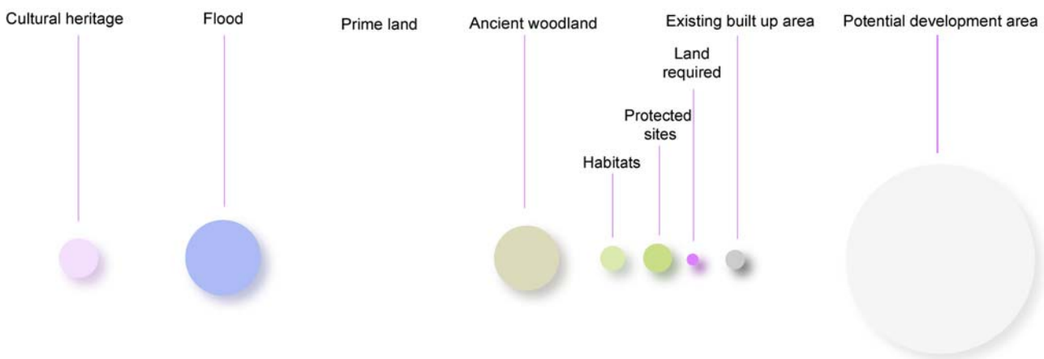
6.6.5 The *Cumulative Strategic Sensitivities and Development Pressures* map on the following page lends a spatial element to the above information and provides a picture of where development can most readily be accommodated in the environment at and surrounding Aberfeldy. The map overlays proposed development site options to help make decisions about where areas are most suitable to development and illustrate both the positive and negative affects of the LDP. The map uses the following key to illustrate where the most sensitive areas can be found.

Key			
Potential Development Area		Development Potential	
No Constraints to Development		No Development Potential	
Limited Development Potential			

Significant Strategic Sensitivities

6.6.6 A further study of the type and extent of those sensitivities highlights that the key issues arising within the buffer include surface water areas, flooding and topography. Figure 6.12 provides a breakdown of the share of those sensitivities in relation to the total expansion area buffer.

Figure 6.12: Aberfeldy Development Sensitivities



6.6.7 The *Strategic Natural and Cultural Sensitivities and Development Pressures* map on the next page lends a spatial element to the above information and provides a picture of the nature and extent of sensitive areas in the environment within and surrounding the Aberfeldy expansion area.

Summary of Development Potential

6.6.8 The *Cumulative Strategic Sensitivities and Development Pressures* map demonstrates that potential exists to the east, south east, west and south west of the settlement where land is either free from constraints or has development potential. The potential for expansion to the south east becomes limited or constrained in some locations due to the presence of a listed building, Ancient Woodland Inventory sites, Birks of Aberfeldy SSSI and surface water areas. There is also potential for expansion to the north across the River Tay but it becomes constrained in locations by the presence of historic environment features, areas at risk from flooding from the river, the River Tay SAC, Castle Menzies garden and designed landscape and Ancient Woodland Inventory sites.

Summary of Potential Significant Impacts and Key Issues - Aberfeldy

6.6.9 Development 'hot spots' are areas where proposed development overlaps areas of high cumulative or strategic sensitivities. Dashboard symbols have been used to summarise the level of perceived risk associated with these areas as they appear in the above maps.

Moderate risk underlies proposed development in **sector 4**. Careful site design will be crucial to ensure proposed development in **sector 4** does not obstruct existing views and to ensure minor flood risk (below 3km catchment) is not an issue a flood risk assessment should be carried out.

6.6.10 Detailed summaries of the individual sensitivities and their effects as they relate to SEA Topics are provided in Table D9 of Appendix D. Maps of the *Indicative Green Networks and Development Pressures* and *Accessibility (walking distance to key services) and Development Pressures* are also provided in the appendix.

Pitlochry

Housing and Employment Land Requirement

6.7.1 The MIR considers two options for the distribution of the additional housing land requirement of 620 units across the Highland Housing Market Area (HMA):

- Option 1: 40% to the Landward Area and 30% each to Aberfeldy and Pitlochry
- Option 2: 30% to the Landward Area and 35% each to Aberfeldy and Pitlochry

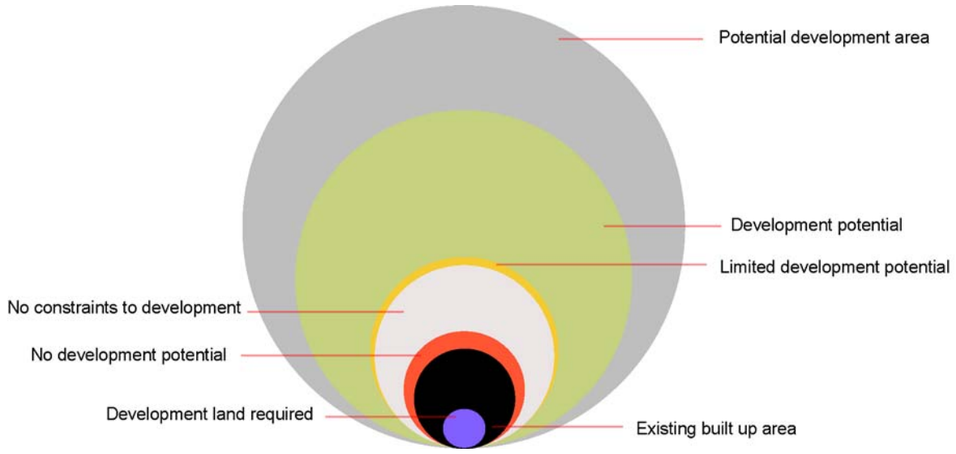
6.7.2 To ascertain whether the highest possible housing land requirement can be accommodated at TAYplan Tier 3 settlement Pitlochry, the SEA has assessed the settlement's environmental capacity to meet 35% or 217 units. Using a density of 20 housing units per hectare in line with the MIR, the total land requirement to meet the housing strategy at this location is 11ha.

Cumulative Strategic Sensitivities

6.7.3 The assessment of the cumulative strategic sensitivities at Pitlochry identified that within the 2.5 km expansion area buffer two thirds (75%) of the land is either free from or has limited constraints on development (0-1 sensitivities present). The remaining 25% represents areas where development should be limited (18% - 2-3 sensitivities present) or avoided (7% - 4-10 sensitivities present).

6.7.4 Figure 6.13 below shows the proportion of the potential development area (2.5 km buffer) made up of land with no constraints on development, with development potential, with limited development potential and where development should be avoided. It also shows the proportion of the buffer that makes up the existing built up/developed area at Pitlochry. The diagram demonstrates that the 11ha of land required for housing development at the settlement can be accommodated within the development potential area.

Figure 6.13: Pitlochry Development Potential



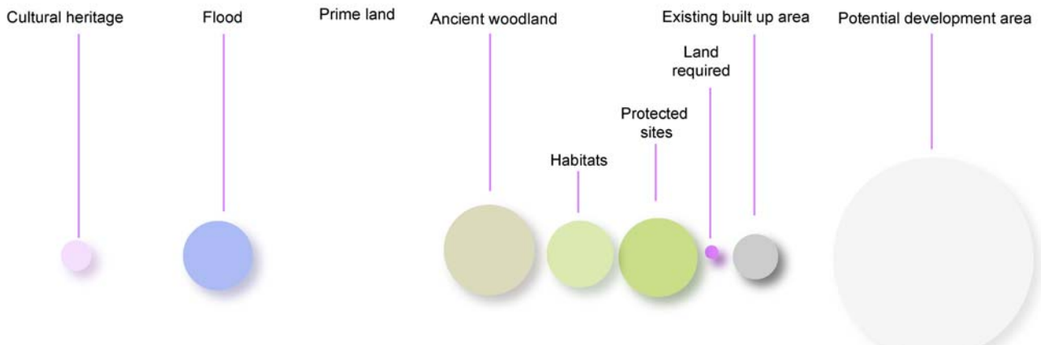
6.7.5 The *Cumulative Strategic Sensitivities and Development Pressures* map on the following page lends a spatial element to the above information and provides a picture of where development can most readily be accommodated in the environment at and surrounding Pitlochry. The map overlays proposed development site options to help make decisions about where areas are most suitable to development and illustrate both the positive and negative affects of the LDP. The map uses the following key to illustrate where the most sensitive areas can be found.

Key			
Potential Development Area		Development Potential	
No Constraints to Development		No Development Potential	
Limited Development Potential			

Significant Strategic Sensitivities

6.7.6 A further study of the type and extent of those sensitivities highlights that the key issues arising within the buffer include protected sites and species, surface waters, the historic environment, woodland and topography constraints. Figure 6.14 provides a breakdown of the share of those sensitivities in relation to the total expansion area buffer.

Figure 6.14: Pitlochry Development Sensitivities



6.7.7 The *Strategic Natural and Cultural Sensitivities and Development Pressures* map on the next page lends a spatial element to the above information and provides a picture of the nature and extent of sensitive areas in the environment within and surrounding the Pitlochry expansion area.

Summary of Development Potential

6.7.8 The *Cumulative Strategic Sensitivities and Development Pressures* map demonstrates that potential exists for expansion to the north, north east and north west of Pitlochry. There is also some potential for development to the south towards the A9. The possibility of development also exists in a large strip to the east of the settlement but it is bordered on both sides by watercourses and the development potential becomes limited or fully constrained at these locations due to the presence of a number of sensitivities including: surface waters, potential risk from flooding, and riparian areas. Land to the north of Croftinloan is free from constraints on development and a small strip to the south along the A9 has development potential.

Summary of Potential Significant Impacts and Key issues – Pitlochry

6.7.9 Development 'hot spots' are areas where proposed development overlaps areas of high cumulative or strategic sensitivities. Dashboard symbols have been used to summarise the level of perceived risk associated with these areas as they appear in the above maps.

- Proposed development in high risk **sector 4** needs to be given very careful consideration as the majority of the site may be at risk of fluvial flooding. Development within the floodplain associated with the River Tummel should be avoided

- High risk proposed development sites in **sector 8** requires further consideration to assess any negative impact on the setting of Black Moulin Castle (scheduled monument).

- High risk proposed development sites in **sector 3** overlay numerous environmental sensitivities including prime agricultural land, ancient woodland and border identified flood risk areas

6.7.10 Detailed summarise of the individual sensitivities at Pitlochry and their effects as they relate to SEA Topics are provided in Table D10 of Appendix D. Maps of the *Indicative Green Networks* and *Development Pressures and Accessibility (walking distance to key services) and Development Pressures* are also provided in the appendix.

Dunkeld/Birnam

Housing and Employment Land Requirement

6.8.1 The MIR considers two options for the distribution of the additional housing land requirement of 620 units across the Highland Housing Market Area (HMA). Under both options 60 additional units will be allocated to Birnam. Using a density of 20 units per hectare, in line with the MIR, the total land requirement for housing at Dunkeld/Birnam is 3ha. No requirement for employment land has been identified at the settlements.

Cumulative Strategic Sensitivities

6.8.2 The assessment of the cumulative strategic sensitivities at Dunkeld/Birnam identified that within the 2.5km expansion area buffer 37% of the land is either free from or has limited constraints on development (0-1 sensitivities present). The remaining 63% represents areas where development should be limited (34% - 2-3 sensitivities present) or avoided (29% - 4-10 sensitivities present) due to the presence of overlapping strategic constraints and various nationally protected sites within those areas.

6.8.3 Figure 6.15 below shows the proportion of the potential development area (2.5km buffer) made up of land with no constraints on development, with development potential, with limited development potential and where there is no potential or development should be avoided. It also shows the proportion of the buffer that makes up the existing built up/developed area at Birnam and Dunkeld. The diagram demonstrates that the 3ha of land required for housing development at the settlement can be accommodated within the no constraints on development and development potential areas.

Figure 6.15: Dunkeld/Birnam Development Potential

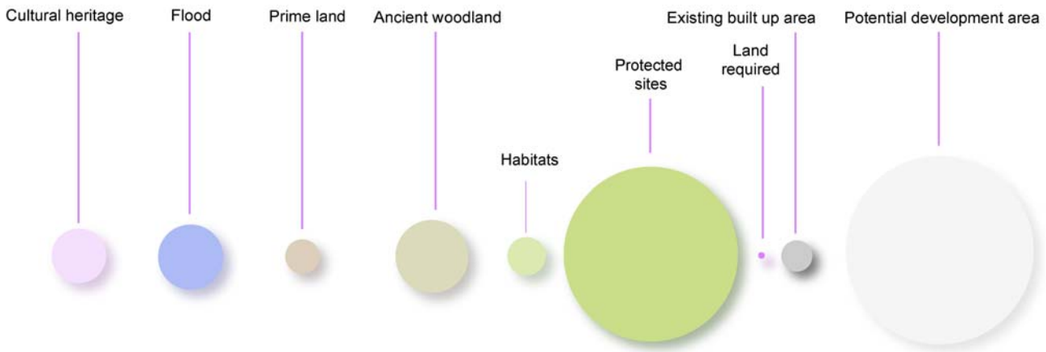
6.8.4 The *Cumulative Strategic Sensitivities and Development Pressures* map on the following page lends a spatial element to the above information and provides a picture of where development can most readily be accommodated in the environment at and surrounding the settlements. The map overlays proposed development site options to help make decisions about where areas are most suitable to development and illustrate both the positive and negative affects of the LDP. The map uses the following key to illustrate where the most sensitive areas can be found.

Key			
Potential Development Area		Development Potential	
No Constraints to Development		No Development Potential	
Limited Development Potential			

Significant Strategic Sensitivities

6.8.5 A further study of the type and extent of those sensitivities highlights that the key issues arising within the buffer include protected sites and species, the historic environment, and ancient woodland. Figure 6.16 provides a breakdown of the share of those sensitivities in relation to the total expansion area buffer.

Figure 6.16: Dunkeld/Birnam Development Sensitivities



6.8.6 The *Strategic Natural and Cultural Sensitivities and Development Pressures* map on the next page lends a spatial element to the above information and provides a picture of the nature and extent of sensitive areas in the environment within and surrounding the Dunkeld/Birnam expansion area.

Summary of Development Potential

6.8.7 The *Cumulative Strategic Sensitivities and Development Pressures* map demonstrates that the majority of the expansion area buffer has a high sensitivity to development but a small amount of land with development potential exists immediately to the west of Birnam at Little Dunkeld. However, closer analysis using the *Strategic Natural and Cultural Sensitivities and Development Pressures in 2010 – Dunkeld Birnam Expansion Area* map shows that the potential development land it is within the River Tay National Scenic Area, and is bordered to the north by the River Tay and to the west by the River Braan, and includes the following sensitivities which will require consideration: surface waters, riparian areas and areas at risk from fluvial flooding. It is also bordered to the south by the A9.

6.8.8 The *Cumulative Strategic Sensitivities and Development Pressures* map also shows potential for expansion to the north west and south east of Dunkeld, but listed buildings, Dunkeld House garden and designed landscape, ancient woodland inventory sites and the River Tay NSA are present in both directions and will require consideration in identifying/allocating land for development in that location.

6.8.9 Much of the land along the River Tay corridor has either limited development potential or development should be avoided due to the overlapping of a number of strategic sensitivities including: the presence of the River Tay SAC, surface waters, riparian areas, The Hermitage, Dunkeld House and Murthly garden and designed landscapes, listed buildings, areas at risk from fluvial flooding, ancient and semi-natural woodland inventory sites and Category 3.1 prime quality agricultural land.

Summary of Potential Significant Impacts and Key Issues – Dunkeld/Birnam

6.8.10 Development 'hot spots' are areas where proposed development overlaps areas of high cumulative or strategic sensitivities. Dashboard symbols have been used to summarise the level of perceived risk associated with these areas as they appear in the above maps.

- High risk areas are located in **sector 7** where proposed development sites are at a particularly high risk of being constrained by environmental factors. Development in sector 7 would require careful site design; mitigation and enhancement to ensure the natural, recreational and aesthetic assets of the River Tay SAC are protected and would also negatively impact on Murthly Castle GDL. High flooding risks and the need for a flood risk assessment have been highlighted.

- High risk areas are located in **sector 4** where proposed development sites are at a particularly high risk of being constrained by environmental factors. Development in sector 4 would require careful site design, mitigation and enhancement to protect historic and scenic attributes of the site. Stakeholders have identified a significant risk to Dunkeld House GDL and have recommended a flood risk assessment

6.8.11 Detailed summaries of individual sensitivities at Dunkeld/Birnam and their effects as they relate to the SEA Topics are provided in Table D11 of Appendix D. Maps of the *Indicative Green Networks and Development Pressures* and *Accessibility (walking distance to key services) and Development Pressures* are also provided in the appendix.

Coupar Angus

Housing and Employment Land Requirement

6.9.1 The MIR identifies that the largest percentage of the additional housing land requirement (1120 units) for the Strathmore and the Glens HMA will be concentrated within Blairgowrie/Rattray, Alyth and Coupar Angus. It then presents two options for allocating the remaining requirement in the Landward area. Under both options the highest possible allocation of the additional housing land requirement at Coupar Angus would be approximately 10% or 100 units.

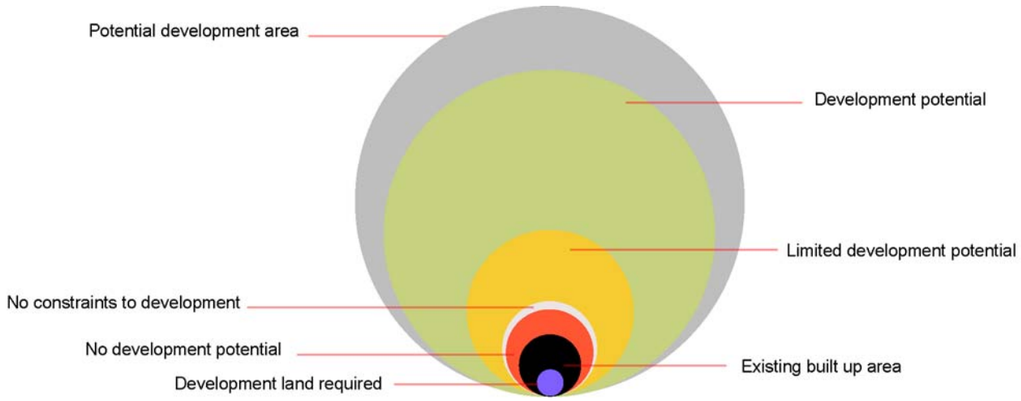
6.9.2 The SEA has assessed the capacity of the settlement to accommodate this level of housing development, which when applying a density of 20 units per hectare as per the MIR, results in the need for 5ha of land to meet the housing strategy. The MIR also identifies an employment land requirement of 3ha. Therefore the total land required for development at Coupar Angus is 8ha.

Cumulative Strategic Sensitivities

6.9.3 The assessment of cumulative strategic sensitivities for Tier 3 settlement Coupar Angus identified that within the 2.5km expansion buffer 77% of the area is either free of or has limited constraints (i.e. 0-1 sensitivities present). The remaining 23% represents areas where development should be limited (18% with 2-3 sensitivities present) or avoided (5% with 4-10 sensitivities present).

6.9.4 Figure 6.17 below demonstrates the total potential development area at Coupar Angus (i.e. the 2.5km expansion buffer) and the proportion of that buffer which is made up of land with: no constraints on development, development potential, with limited development potential, and where development should be avoided (i.e. no development potential). It also outlines the portion of the buffer which is the existing built up/developed area of the settlements and the area of land needed to deliver the additional housing units and land for employment uses. The diagram shows that the 8ha of land required can comfortably be accommodated within the no constraints and development potential areas.

Figure 6.17: Coupar Angus Development Potential



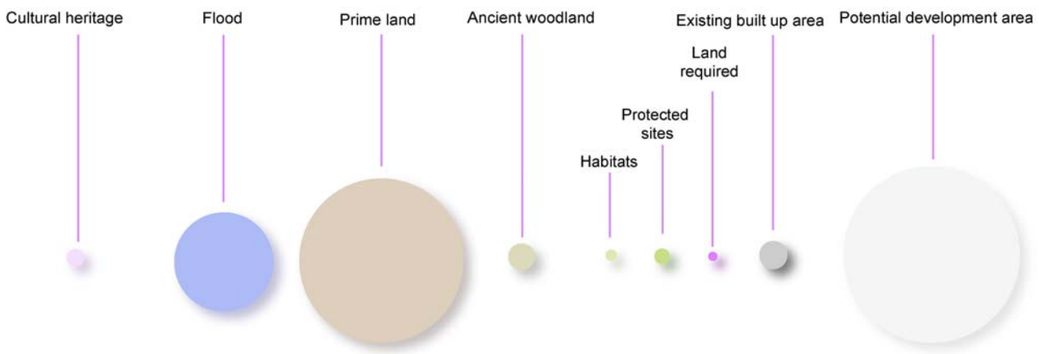
6.9.5 The *Cumulative Strategic Sensitivities and Development Pressures* map on the following page lends a spatial element to the above information and provides a picture of where development can most readily be accommodated in the environment at and surrounding Coupar Angus. The map overlays proposed development site options to help make decisions about where areas are most suitable to development and illustrate both the positive and negative affects of the LDP. The map uses the following key to illustrate where the most sensitive areas can be found.

Key			
Potential Development Area		Development Potential	
No Constraints to Development		No Development Potential	
Limited Development Potential			

Significant Strategic Sensitivities

6.9.6 A further study of the type and extent of those sensitivities highlights that the key issues arising within the buffer include prime quality agricultural land, flooding and surface water areas. Figure 6.18 provides a breakdown of the share of those sensitivities in relation to the total expansion area buffer.

Figure 6.18: Coupar Angus Development Sensitivities



6.9.7 The *Strategic Natural and Cultural Sensitivities and Development Pressures* map on the next page lends a spatial element to the above information and provides a picture of the nature and extent of sensitive areas in the environment within and surrounding the Coupar Angus expansion area.

Summary of Development Potential

6.9.8 The *Cumulative Strategic Sensitivities and Development Pressures* map demonstrates that potential for expansion exists all around the settlement but that this potential becomes limited or fully constrained along the various waterbodies to the north, south and south west of Coupar Angus due to the range of overlapping sensitivities present in these locations, including: parts of the River Tay SAC, surface waters, riparian areas, areas at risk from fluvial flooding, prime quality agricultural land (Categories 2 and 3.1), ancient woodland inventory sites, a SAM and listed buildings.

Summary of Potential Significant Impacts and Key Issues – Coupar Angus

6.9.9 Development 'hot spots' are areas where proposed development overlaps areas of high cumulative or strategic sensitivities. Dashboard symbols have been used to summarise the level of perceived risk associated with these areas as they appear in the maps above.

Moderate risk for proposed development sites in **sector 7** which adjoin but do not overlap sensitive areas. A range of overlapping sensitivities are present in other areas of **sector 7,** including: parts of the River Tay SAC, surface waters, riparian areas, areas at risk from fluvial flooding, prime quality agricultural land (Categories 2 and 3.1), ancient woodland inventory sites, a SAM and listed buildings.

High risk areas have been identified in **sector 4** where proposed development sites are located within a sector of high sensitivities including potential flood risk and threat to historic features. Stakeholders have identified the potential risk of enclosing the abbey precinct and enfold it within the townscape.

6.9.10 Detailed summaries of the individual sensitivities and their effects as they relate to SEA objectives are provided in Table D12 of Appendix D. Maps showing the *Indicative Green Networks and Development Pressures* and *Accessibility (walking distance to key services) and Development Pressures* are also provided in the appendix.

Alyth

Housing and Employment Land Requirement

6.10.1 The MIR identifies that the largest percentage of the additional housing land requirement (1120 units) for the Strathmore and the Glens Housing Market Area (HMA) will be concentrated within Blairgowrie/Rattray, Alyth and Coupar Angus. It then presents two options for allocating the remaining requirement in the Landward area. Under both options the highest possible allocation of the additional housing land requirement at Alyth would be approximately 20% or 240 units.

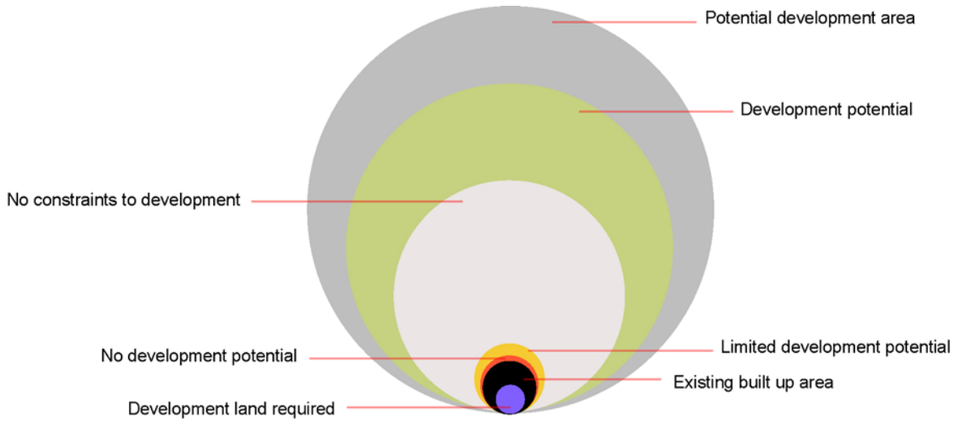
6.10.2 The SEA has assessed the capacity of the settlement to accommodate this level of housing development. By applying a density of 20 units per hectare as per the MIR there is a need for 12ha of land to meet the housing strategy. The MIR does not identify an additional employment land requirement at Alyth.

Cumulative Strategic Sensitivities

6.10.3 The assessment of cumulative strategic sensitivities for Tier 3 settlement Alyth identified that with the 2.5km expansion area buffer 95% of the area is either free of or has limited constraints (i.e. 0-1 sensitivities present). The remaining 5% represents areas where development should be limited (3% with 2-3 sensitivities present) or avoided (2% with 4-10 sensitivities present).

6.10.4 Figure 6.19 below illustrates the total potential development area at Alyth and the proportion of that buffer which is composed of land with: no constraints on development, development potential, limited development potential and no potential (i.e. land where development should be avoided). The diagram also shows the portion of the buffer which is the existing built up/developed area of the settlement and the area of land needed to deliver the additional housing land. The 12ha required to deliver the housing strategy at Alyth can comfortably be accommodated within the no constraints and development potential areas.

Figure 6.19: Alyth Development Potential



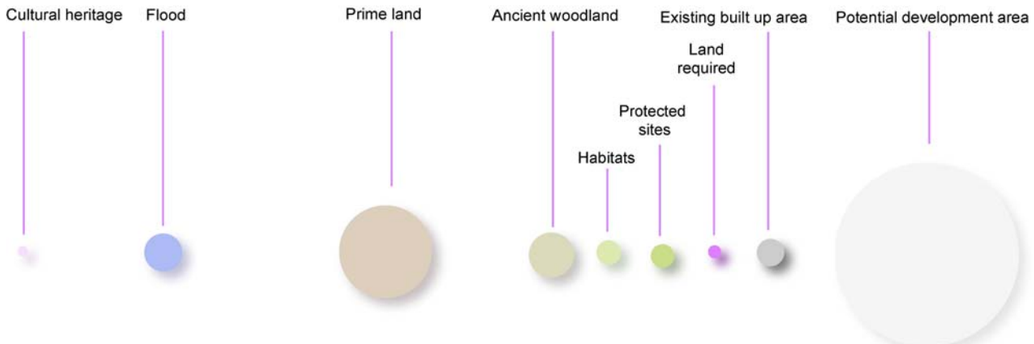
6.10.5 The *Cumulative Strategic Sensitivities and Development Pressures* map on the following page lends a spatial element to the above information and provides a picture of where development can most readily be accommodated in the environment at and surrounding Alyth. The map overlays proposed development site options to help make decisions about where areas are most suitable to development and illustrate both the positive and negative affects of the LDP. The map uses the following key to illustrate where the most sensitive areas can be found.

Key			
Potential Development Area		Development Potential	
No Constraints to Development		No Development Potential	
Limited Development Potential			

Significant Strategic Sensitivities

6.10.6 A further study of the type and extent of those sensitivities highlights that the key issues arising within the buffer include surface waters and riparian areas and agricultural land. Figure 6.20 provides a breakdown of the share of those sensitivities in relation to the total expansion area buffer.

Figure 6.20: Alyth Development Sensitivities



6.10.7 The *Strategic Natural and Cultural Sensitivities and Development Pressures* map on the next page lends a spatial element to the above information and provides a picture of the nature and extent of sensitive areas in the environment within and surrounding the Alyth expansion area.

Summary of Development Potential

6.10.8 The *Cumulative Strategic Sensitivities and Development Pressures* map demonstrates that potential for expansion exists all around the settlement on non-constrained and development potential land and that this potential only becomes limited or constrained along the corridor of the Alyth Burn which enters the settlement at the west and passes through the existing built up area and out to the south east. Strategic sensitivities within this corridor include: surface waters, riparian areas, areas at potential risk from fluvial flooding, Category 3.1 prime quality agricultural land, ancient and semi-natural woodland inventory sites and listed buildings.

6.10.9 Land in the southern and eastern sectors of the settlement expansion area is Category 3.1 prime quality agricultural land and there are a number of ancient woodland inventory sites and listed buildings within this location too. Land to the north is mostly free from sensitivities but there are some ancient and semi-natural woodland inventory sites, a listed building and SAM. The eastern sectors include listed buildings, ancient and semi-natural woodland inventory sites, the Alyth Burn (River Tay SAC) with its associated riparian and indicative flood risk areas, and the Den O' Alyth SSSI.

Summary of Potential Significant Impacts and Key Issues - Alyth

6.10.10 Development 'hot spots' are areas where proposed development overlaps areas of high cumulative or strategic sensitivities. Dashboard symbols have been used to summarise the level of perceived risk associated with these areas as they appear in the maps above.

There are no high risk areas in this settlement although proposed development in **sector 7** is adjoins prime agricultural land, and is located in a close proximity to areas of flood risk, and the River Tay SAC. For the most part, land in the expansion area faces limited constraints (95%). Proposed sites are generally located in these areas.

6.10.11 Detailed summaries of the individual sensitivities at Alyth and their effects as they relate to SEA Topics are provided in Table D13 of Appendix D. Maps showing the *Indicative Green Networks and Development Pressures* and *Accessibility (walking distance to key services) and Development Pressures* are also provided in the appendix.

7 CUMULATIVE EFFECTS

7.1 Cumulative impacts are impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the Local Development Plan. Synergistic effects are when a total effect is greater than the sum of the individual effects.

Assessment of Strategic Environmental Assessments for other relevant PPS

7.2 In order to help to determine the cumulative effects of the Plan on the environment the environmental assessments undertaken for other plans and polices that may have an effect on the area's environment have been analysed. This has allowed for an assessment to ascertain whether any negative environmental impacts of the Plan will be counterbalanced by improvements in other areas or whether positive environmental effects can be enhanced by similar actions in other areas. Table 7.1 below provides the outcome of that assessment.

Table 7.1: Assessment of Strategic Environmental Assessments for other relevant PPS

TAYplan Main Issues Report	Tay Area Draft Management Plan 2009-15	Tay Forest District Strategy 2009-13	National Planning Framework 2	TACTRAN Regional Transport Study	Overall Effects on the LDP Area
Biodiversity, Flora & Fauna					
Overall, the spatial strategy proposes development that could have potentially significant adverse effects on biodiversity, both protected and non-protected, within the TAYplan area. There are potentially significant negative impacts in relation to the Firth of Tay and Eden Estuary SPAs, as the Firth of Tay is in close proximity to both the city regions identified as key economic drivers, Perth and Dundee. This could lead to increased development pressures on the Tay estuary, a key feature of the TAYplan area. The Vision Framework proposes an objective to '*protect and enhance the quality of the area's natural and built environment, biodiversity and natural resources',* however there is weak inter-compatibility with other objectives in the Vision Framework, and would require strengthening through operational mechanisms	Measures to address diffuse pollution and point source pollution will improve water quality, reduce Eutrophication and therefore have benefits for aquatic ecosystems. Water efficiency measures could potentially result in more water being available for aquatic ecosystems and for greater dilution of pollutants. Controlling the rate and timing of abstraction will reduce biological stress (especially during low flow periods) and also provides the additional benefit of a more "natural" hydrological regime. Measures to improve morphology will lead to direct improvements for aquatic and riparian habitats. Measures to deal with non-native invasive species will likely lead to direct biodiversity benefits in the affected areas.	The plan's biodiversity policies provided the strongest contribution to achieving the biodiversity, flora and fauna objectives due to the high level of similarity between them. The environmental quality and climate change policies also make positive contributions to achieving the SEA goals especially through the promotion of sustainable forest management. In addition to the positive effects identified, some uncertainty and negative effects on biodiversity were also predicted as a result of some of the policies. In particular, income diversification of the forest estate and increased access may disrupt habitat networks and cause localised negative effects on certain species if not properly managed. It is important to note that this would largely be due to the lack of clear environmental safeguards relating to non-forest activities rather than the effects of any specific proposal	Loss of semi-natural habitats within and around cities as a result of increased economic growth and city region development.	Over the years the increased pressure from transport, road construction and associated infrastructure has resulted in a loss of landscape quality and biodiversity. Physical transport infrastructure projects have often led to a loss and fragmentation of habitats although mitigation planting has, in at least some instances enhanced local biodiversity. The RTS has positive measures to encourage the take up of public transport and a shift from heavy reliance on the car which should help to reduce the risk of potential effects that new road build, if permitted, would bring. As mentioned above, there are possible infrastructure schemes that may go ahead within the RTS so these could bring with them negative effects on landscape and biodiversity which the RTS would in effect be responsible for introducing. Detailed options studies and environmental impact assessment (EIA) would, however, allow mitigation to be identified to reduce the negative impacts of these schemes (which do also have potential to reduce congestion with subsequent environmental benefits).	Possible adverse impacts on biodiversity, water, soils, landscape and cultural heritage arising from a more flexible approach to land allocations in small and medium sized towns. Impacts on biodiversity arising from direct and indirect effects on protected sites. Implications for coastal and island habitats, disturbance of protected bird species and marine ecology. Overall, the Plan has potentially significant cumulative adverse effects that would not be mitigated by other plans.

TAYplan Main Issues Report	Tay Area Draft Management Plan 2009-15	Tay Forest District Strategy 2009-13	National Planning Framework 2	TACTRAN Regional Transport Study	Overall Effects on the LDP Area
Population & Human Health					
The SDP has a direct influence on how services are delivered to meet the needs of the population, and the provision of affordable houses and facilities Overall, the spatial strategy has a framework that would guide development in a positive manner that would improve the quality of life for the TAYplan population. Largely, the spatial strategy would ensure that development is concentrated in areas of greatest development pressure, thereby meeting the needs of the people. It would also seek to ensure rural inclusion by focusing on development at appropriate scales in settlements outside Dundee Core and Perth Core areas.	Measures to reduce diffuse and point source pollution will help to protect human health through reducing pollutant loads to protected areas such as drinking waters and bathing waters. Water efficiency measures could potentially result in more water being available for the dilution of pollutants and hence provide additional protection for protected areas. Some measures may improve access to waters in the river basin district, particularly where measures to improve water quality will enable greater access for bathing or other recreational pursuits. Water improvements may increase amenity value of water bodies in the river basin district.	In particular the plan's community development and access and health policies provided strong positive support of these objectives by promoting greater forest use and thereby improving health and quality of life. The business development policy promoting support for local businesses is likely to have a strong positive effect by boosting the local economy. Although the plan is likely to have an overwhelmingly positive effect, some uncertainties have been identified. These primarily relate to income diversification which depending on the type of project, could result in restricted access and recreation potential of the forest estate.	Positive impacts through the promotion of affordable housing and the long-term increase in housing supply to meet housing need and demand. Positive impacts through the support for the creation of sustainable communities.	A key goal will be to deliver some level of modal shift away from the car towards more efficient public transport, cycling and walking and to provide enhanced accessibility. If measures are not introduced that also help to tackle noise increases from traffic growth and congestion then negative effects will be inevitable. Overall, therefore, the local population would most likely be affected negatively without the RTS to combat and mitigate some of these potential effects. In terms of human health, issues such as obesity and heart disease are on the rise and may be further exacerbated by increases in sedentary modes of transport. Traffic growth and in particular congestion from the number of cars on the road, would be likely to increase air pollutants that affect health and could also have the ancillary effect of increasing the number of road traffic accidents.	Overall, the Plan would have significant positive cumulative effects when acting with other plans.
Soil & Water					
With the exception of the potential for regeneration in Dundee, development under the proposed strategy has the potential to have a negative impact on soil and land. The TAYplan has a large area of cultivatable land within its borders. Development would likely have a negative impact in terms of reducing the amount of this resource, particularly when considering the potential for incremental loss throughout the rural settlements in tiers 2 and 3. Under this spatial strategy option the majority of development would be concentrated in areas that are currently failing to meet required 'good' ecological status as	All of the measures in the draft RBMP are designed to address a pressure that is adversely affecting a water body and to improve its ecological status. All measures are designed to produce positive effects on the water environment in the water bodies to which they apply. Improvements in water quality caused by measures that tackle diffuse and point source pollution may result in improve soil quality as fewer pollutants will be deposited on land. Measures relating to abstraction and flow regulation may also lead to benefits for soils by reducing erosion by floods or soil loss	Sustainable and lower impact forest management as promoted in the climate change, timber and environmental quality policies will help to safeguard both water and soil resources. In addition, flood and catchment management plans will lessen erosion and help to disrupt surge events. Some uncertainty was identified in relation to business developments on forestry land which could be potentially harmful if inappropriately sited or designed. It should be noted that any negative effects on the soil resource would be largely due to the absence of a robust soil protection policy.	Potential effects on water quality from economic development in and around cities and in accessible areas. Effects on water supplies arising from economic development in and around cities and in accessible areas. Potential for soil sealing arising from green-field site development to accommodate strategic economic development on edge of cities and in accessible areas. Impacts on coastal waters arising from an emphasis on shipping sector. Increased risk of water pollution and damage or loss of soils,	The balance of RTS measures was not assessed as having significant impacts on either soil or water. Legislation at the European level (such as the Water Framework Directive) and associated UK legislation aims to deliver long-term protection of the water environment and thus any negative impacts must be identified and a programme of improvement measures introduced. This should prevent any further decline of water quality in the absence of the RTS, so the effect is considered to be slightly beneficial.	Possible flooding and water management issues arising in the Tay and Earn catchments. The potential significant adverse effects could be mitigated to some extent by other plans.

TAYplan Main Issues Report	Tay Area Draft Management Plan 2009-15	Tay Forest District Strategy 2009-13	National Planning Framework 2	TACTRAN Regional Transport Study	Overall Effects on the LDP Area
required by the Water Framework Directive, and could potentially cause further deterioration.	through drought. Measures to improve morphological conditions of channel banks, shorelines, riparian zones and wetland habitats will help to improve infiltration rates, reduce run off and therefore contribute to reducing erosion.		arising from processes of derelict land remediation.		
Air					
The plan aims to promote development in areas where transport infrastructure will assist in promoting the use of public services, and that development is placed strategically to allow for energy efficient infrastructure to develop in the future. Under this spatial strategy, there would be an increased number of people that live in AQMAs however there would be the potential benefits from clustering development in the city regions allowing for future strategic planning of energy efficient infrastructure. The SDP will have limited direct influence on reducing the level of air pollutants however it can set the agenda for the issue through such indirect measures as stated above.	Does not propose measures that will affect, either positively of negatively, the air quality of the region.	The use of sustainable timber transport methods will help to reduce atmospheric emissions as will the promotion of non-motorised access to the forest estate. Therefore it is likely there will be a slight positive effect on air quality through implementation of the 2007 plan. Furthermore, the development of renewable energy schemes in the district may also have a positive effect on reducing emission.	Potential impacts on air quality as a result of national transport developments and economic development. Effects of renewable and mixed use energy infrastructure support depend on the performance of energy sectors.	It is in relation to the predicted effects of the strategy on traffic growth and hence on emissions of carbon dioxide and local air pollutants where it is likely that the baseline environment in Tayside and Central Scotland would differ significantly in the absence of the RTS. Information obtained during the preparation of the RTS suggests that car ownership is likely to increase with growing congestion particularly in the hot spot areas of Perth. With or without the RTS it is predicted that air pollutant (NOx and particulates) and CO2 emissions are likely to increase, although implementation of the RTS should slow down this increase, thus without the RTS the effect is considered to be more adverse.	Overall, the Plan has potentially significant adverse effects.
Climatic Factors					
The spatial strategy will promote a large amount of development in coastal areas and areas at risk from flooding. The majority of these areas are low-medium risk.	Many measures will result in positive effects, particularly in relation to sustainable flood management, mitigation of floods and droughts, and climate change adaptation. Greater efficiency in water use may reduce the volume of water that has to be treated, which may result in some energy and greenhouse gas emission savings. Measures relating to abstraction and flow regulation in particular may have positive benefits for the management of floods and	The plan's climate change policies were assessed as having a highly positive effect due to the high level of synergy between the policy area and the objectives. The development of renewable energy schemes will make a positive contribution to Scotland's renewable resource particularly if biomass is prioritised as planting short rotation coppice should contribute to carbon sequestration. The development of habitat networks will help overcome fragmentation thereby helping	Does not propose measures that will affect, either positively of negatively, the climate quality of the region.	It is in relation to the predicted effects of the strategy on traffic growth and hence on emissions of carbon dioxide and local air pollutants where it is likely that the baseline environment in Tayside and Central Scotland would differ significantly in the absence of the RTS. Information obtained during the preparation of the RTS suggests that car ownership is likely to increase with growing congestion particularly in the hot spot areas of Dundee, Perth and Stirling. With or without the RTS it is predicted that air pollutant (NOx and particulates) and CO2 emissions are likely to increase, although implementation of the	Conflicts arising from long-term development aspirations and climate change impacts on capacity. Potential conflicts between settlement patterns that build in climate change adaptation and more traditional environmental constraints including biodiversity, cultural heritage, and landscape. Overall, other plans would mitigate the potential negative impacts of the Plan.

TAYplan Main Issues Report	Tay Area Draft Management Plan 2009-15	Tay Forest District Strategy 2009-13	National Planning Framework 2	TACTRAN Regional Transport Study	Overall Effects on the LDP Area
	droughts.	species adapt to climate change.		RTS should slow down this increase, thus without the RTS the effect is considered to be more adverse.	
Material Assets					
The strategy has the potential to promote and ensure high standards of sustainable design and construction, the effects will largely depend on implementation as well as spatial allocation. This highlights the importance of design quality. There is the potential to have cumulative negative impacts associated with rising sea-levels and infrastructure security, in the Perth Core Area. There will be an increase in the amount of waste produced, which is in direct conflict with MIR objective of zero waste. This objective will require operational mechanisms to ensure it is achieved.	Measures aimed at increasing water use efficiency (e.g. leakage reduction) will result in more sustainable use of water and as a result better use of other resources such as energy. As a result of the above, it is possible that this could delay the need for additional new infrastructure.	The 2007 plan will have an overall positive effect on the SEA material assets objectives particularly as a result of the business development, community development and access and health policies aiding integration of forestry with other land uses. Resource use may be minimised through the sustainable forestry and timber transport policies.	Potential impact on natural resources and increased waste as a result of economic development. Requirement to consider strategies for waste reduction will depend on implementation, technology and sector growth	The RTS includes measures that would help to maintain the quality of transport infrastructure and also introduce measures to encourage more sustainable design and construction techniques and use of recycled materials.	The Plan's impact is uncertain as it will depend on implementation.
Cultural Heritage					
Considering the historic environment there are a number of listed buildings and scheduled ancient monuments in the TAYplan area, as well as ancient woodlands, historic gardens and designated landscapes. Current and predicted development areas place significant pressure on many of the region's cultural assets. Of the region's 1335 Scheduled Ancient Monuments, 37% are within areas of either current or future predicted growth. Similarly, 49% of listed buildings and 50% of designed landscapes are within these areas. Overall, the spatial strategy proposes development that could have negative impacts on the historic environment through incremental losses if protection is	The majority of measures are not likely to have significant effects on cultural heritage.	The 2007 draft plan is likely to have a mixed effect on the SEA historic environment objectives. Renewable energy development and flood and catchment management schemes have the potential to have serious negative effects on the historic environment by threatening the fabric and setting of archaeological sites and monuments. Income diversification as a result of business development policies may also have a negative effect however the scale of the impact will depend on the nature and location of any proposed development. The 'Forests and Archaeology' guidelines should help to ensure that negative impacts as a result of these activities are avoided where	Potential loss of or damage to archaeology and effects on the setting of historic buildings, monuments, landscapes and townscapes in and around cities as a result of economic development.	Although through the activities of agencies such as Historic Scotland the cultural heritage will continue to be conserved and where appropriate enhanced, traffic growth and congestion, particularly in the historic towns and cities could cause harm to historic buildings and archaeological sites through emissions, noise and vibration. This could also impact negatively on townscapes and settings.	Negative impacts on the historic character or setting of small and medium sized towns as a result of development/diversification. Potential for loss or damage to the historic environment arising from associated visitor activity. Overall, the impact of the Plan is uncertain as it depends on how all plans are implemented.

TAYplan Main Issues Report	Tay Area Draft Management Plan 2009-15	Tay Forest District Strategy 2009-13	National Planning Framework 2	TACTRAN Regional Transport Study	Overall Effects on the LDP Area
not properly given.		possible. Promoting greater access to the forest may have a positive effect by increasing understanding and awareness of the importance of cultural heritage issues. The environmental quality cultural heritage policy will also have an overall positive effect.			
Landscape					
The proposals under the spatial strategy provide the opportunity to positively impact on landscape through the regeneration of Dundee. They could also potentially have negative impacts on landscape, in terms of capacity issues and urbanising rural areas. These impacts could include changes to landscape within the visual influence of settlements, causing alteration to the physical and visual relationships between the town and the countryside.	The majority of measures are not likely to have significant effects on landscape, although measures to improve downgraded water bodies (especially where they have been physically changed) will have positive landscape effects at a local level.	The plan has been assessed as making a positive contribution to landscape value in the Tay district however some uncertainties and potential negative effects did arise. Positive effects include the use of sustainable forest management practices and the policy related specifically to landscape quality both of which will contribute to the creation of more naturalistic and aesthetically pleasing woodland. Negative effects may arise from renewable energy development and the implementation of business development policies depending on the scale and location of the project in question. It should be noted that any negative effects would be largely due to the lack of clear environmental safeguards relating to non-forestry activities rather than the effect of any specific proposal. Furthermore, such projects are likely to require planning consent and may be subject to EIA.	Potential for cumulative effects of economic growth on landscape quality and character.	Over the years the increased pressure from transport, road construction and associated infrastructure has resulted in a loss of landscape quality and biodiversity. Physical transport infrastructure projects (e.g. new roads, rail lines etc) have often led to a loss and fragmentation of habitats although mitigation planting has, in at least some instances enhanced local biodiversity. The RTS has positive measures to encourage the take up of public transport and a shift from heavy reliance on the car which should help to reduce the risk of potential effects that new road build, if permitted, would bring. As mentioned above, there are possible infrastructure schemes that may go ahead within the RTS so these could bring with them negative effects on landscape and biodiversity which the RTS would in effect be responsible for introducing. Detailed options studies and environmental impact assessment (EIA) would, however, allow mitigation to be identified to reduce the negative impacts of these schemes (which do also have potential to reduce congestion with subsequent environmental benefits).	Impacts on urban fringe landscapes arising from reallocation of industrial land for mixed use development. Potential conflict between commitments to renewable energy development and emphasis on protecting and enhancing landscapes. Possible effects on landscape arising from requirements for new waste and road infrastructure. The impact of the Plan is uncertain as it is dependent on how all plans are implemented.

Assessment of Cumulative Effects across Perth and Kinross

7.3 There is a significant degree of uncertainty in respect of how the Plan may be implemented as a result it is difficult to draw any conclusions as to whether these uncertainties could themselves generate cumulative or synergistic effects. However, the wide range of environmental conservation and enhancement policies that will be contained in the Proposed Plan are likely to have beneficial cumulative and synergistic effects on the environment of Perth and Kinross, due to how environmental changes are likely to interact; for example, improvements to landscape distinctiveness are likely to enhance biodiversity and vice versa. These effects cannot, however, be quantified.

Housing and Employment Land Requirement

7.4 The MIR identifies an additional housing land requirement of 5180 units across Perth and Kinross to be delivered via various spatial strategy options as identified in Section 6 of this report.

7.5 Applying the density used in the MIR of 20 units per hectare equates to a total housing land requirement of 259ha to meet the housing land strategy. The MIR also highlights a requirement for an additional 106ha of employment land, bringing the total land requirement to 365ha.

Cumulative Strategic Sensitivities

How much land will be affected by new development?

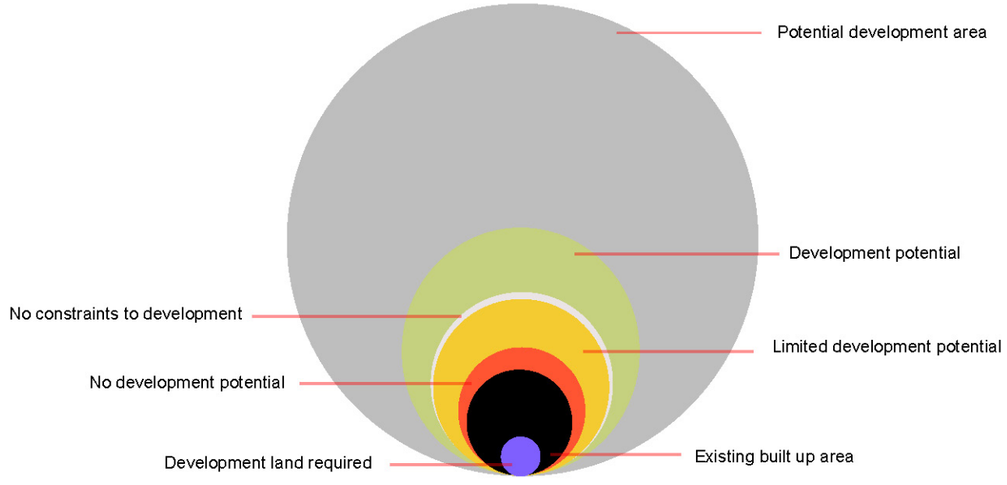
7.6 There is a considerable spatial variation in the extent of landscape sensitivity where significant areas in the highlands and coastal areas are considered largely sensitive to further development. These are areas that are covered by numerous overlapping natural or cultural constraints. Approximately one third of the land mass (180,000ha) in the Perth and Kinross area is characterised as sensitive to development.

7.7 Figure 7.1 below puts into context the amount of land required across Perth and Kinross to accommodate the scale of development likely to be proposed by the LDP over the next 10 years or so. The diagram shows the existing built up area, the potential development area, the land required in order to accommodate development and how constrained the potential development area is across the expansion areas of Perth and Kinross.

7.8 On average the proposed expansion areas have sufficient land to accommodate development. Nearly one fifth (18%) of expansion areas are free of constraints and a further 61% have development potential. Sensitive areas, account for one fifth (21%) of the expansion area where development should be limited (13% with 2-3 sensitivities present) or avoided (8% with 4-10 sensitivities present).

7.9 The diagram demonstrates that the 365ha land requirement can be comfortably be met within the proposed expansion areas in the no constraints and development potential areas, although this figure masks significant differences in the development potential of individual settlements.

Figure 7.1: Perth and Kinross Development Potential



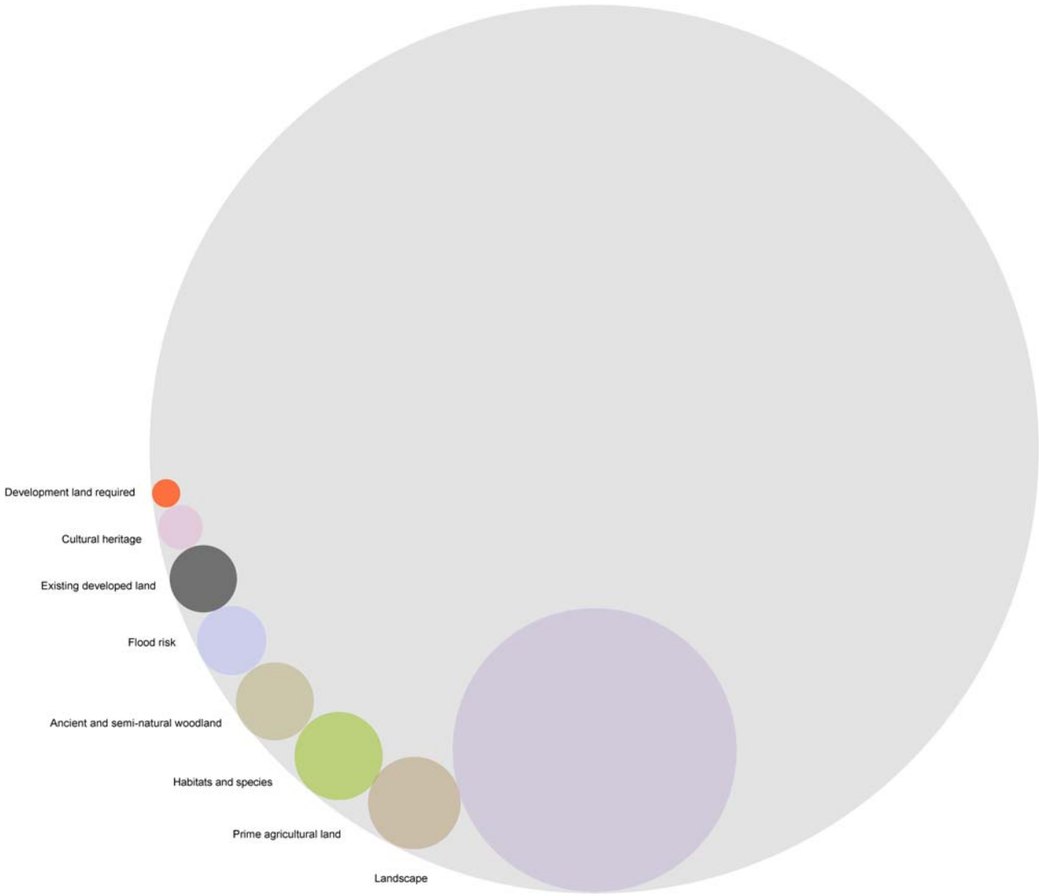
7.10 The *Cumulative Strategic Sensitivities and Development Pressures* map which follows lends a spatial element to the above information and provides a picture of where development can most readily be accommodated in the environment of Perth and Kinross. The map overlays proposed development site options to help make decisions about where areas are most suitable to development and

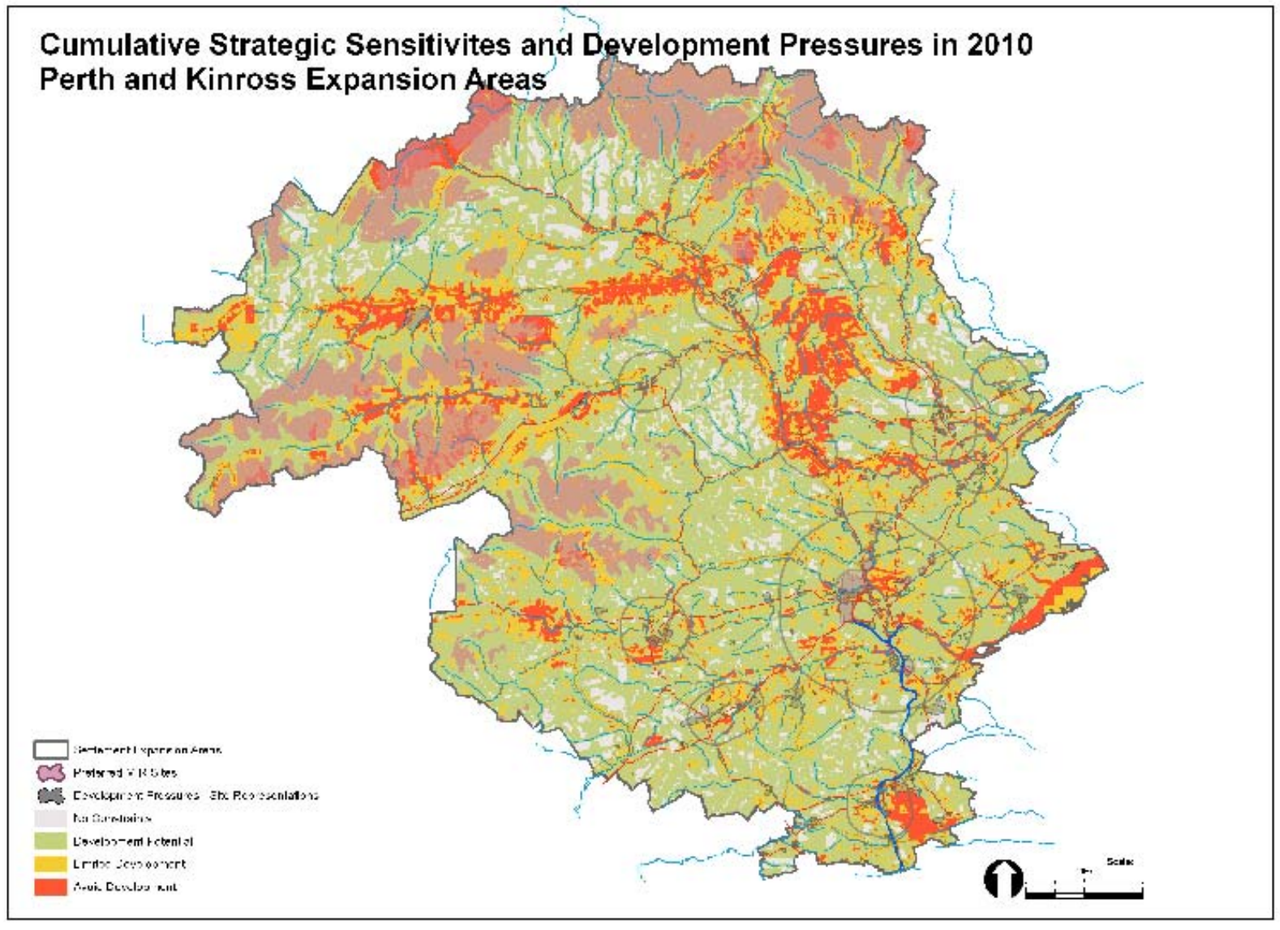
illustrates both the positive and negative affects of the LDP. The map uses the following key to illustrate where the most sensitive areas can be found.

Key			
Potential Development Area		Development Potential	
No Constraints to Development		No Development Potential	
Limited Development Potential			

7.11 Figure 7.2 demonstrates that the key issues for settlement expansion areas include surface waters and prime agricultural land, where 45% and 39% of the landscape, on average, is considered sensitive**.** Other key issues relevant to approximately one sixth of the expansion areas, respectively, include flooding, protected sites, ancient woodland and topography. This figure masks significant variance in the concerns effecting individual expansion areas. For example, prime agricultural land is a key concern in Coupar Angus, however is of minimal concern in Dunkeld where designated sites render the majority of the landscape sensitive to further development.

Figure 7.2: Perth and Kinross Development Sensitivities





Map Description

This map displays areas that have the potential for accommodating new development in the Perth and Kinross Council Area. Development constraints are strategic natural or cultural features that limit or restrict new development. Areas with development potential are those where development constraints are limited or absent.

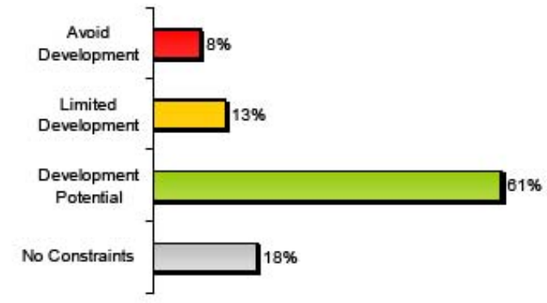
Assessment of constraints was undertaken by ranking and overlaying strategic sensitivities in a GIS to produce a *cumulative sensitivities map*

The map delineates the range of sensitivities and should be used to:

- Identify areas that can accommodate new development
- Identify areas that limit or restrict development
- Identify environmental impacts of growth policies

Current Position

There is a considerable spatial variation in the extent of landscape sensitivity where significant areas in the highlands and coastal areas are considered largely sensitive to further development. These are areas that are covered by numerous overlapping natural or cultural constraints. Approximately one third of the land mass (180,000 ha) in the Perth and Kinross region is characterised as sensitive to development.



On average, expansion areas have sufficient land to accommodate development. Nearly one fifth of expansion areas are free of constraints and a further 61% have development potential. Sensitive areas, account for 21% of the expansion area and should be avoided if possible. This figure masks significant differences in the development potential of individual settlements.

Relevance of this indicator

Landscape incorporates the environmental and cultural features present in an area. Preservation and enhancement of the distinctive landscape of the Perth and Kinross area is important in maintaining community well being, biodiversity and supporting the local economy (tourism in particular). This indicator collates numerous cultural and natural heritage features to provide a comprehensive picture of landscape sensitivity across the region.

Table 7.2: Summary of Cumulative Effects for Perth and Kinross

SEA Topic	Summary of Impacts – PKC Wide Assessment
Biodiversity, Flora & Fauna	Cumulative impacts on protected and locally important habitats and species and on the ancient and semi-natural woodland inventory sites resource across the LDP area may prove significant as a result the relatively high proportion (14%) of expansion areas containing these sensitivities. Siting of new development on greenfield and agricultural land and bordering the ancient woodland resource may exacerbate this effect. Green networks can strengthen ecological resilience and enhance biodiversity; however, potential fragmentation of the existing indicative green network as a result of development proposals may lead to cumulative losses across the system.
Population & Human Health	In order to achieve sustainable communities, all of the key local services and facilities such as hospitals, school, employment, banks, places of worship etc. should be grouped together to form local and neighbourhood centres which are easily accessible, ideally on foot. A large proportion of the MIR site options are within 15 minute walking distance of key services at settlements. This could lend positive support to SEA Objectives in relation to improving the quality of life for communities, and directing development to sustainable locations which help to reduce journey lengths and the need to travel. It could also positively support LDP objectives relating to more efficient settlement patterns and promoting the vitality and viability of shopping centres. However, increased development may also put pressure on existing social infrastructure across the area but this conflict would be addressed through the LDP Objective to identify and provide for new and improved social and physical infrastructure to support an expanding and changing population. New developments will primarily be on greenfield sites or agricultural land which has a lower biodiversity value than greenfield locations. This presents an opportunity to enhance the green space network and provide greater access to open space for leisure and recreation activities which could impact positively on the health and well being of residents of an area. Development could increase the pressure on the quality of the water environment in the area which would result in secondary impacts for human health, particularly if development is not accompanied by appropriate infrastructure. Development is likely to increase the levels of air pollution across Perth and Kinross which would have secondary impacts for human health.
Soil & Land	Development that would result in the loss of prime quality agricultural land would be in conflict with the MIR and SEA Objectives. Prime agricultural land represents a major sensitivity across Perth and Kinross. Over one third of the settlement expansion areas are sensitive to development as a result of prime agricultural land. Therefore, the cumulative impact of the loss of prime quality agricultural land across Perth and Kinross could be significant. Greenfield development would change the character of the ground and soil. Soil can be contaminated and polluted, particularly in cases where waste water treatment facilities are not appropriate. This could potentially have secondary impacts on biodiversity, water resources and human health.
Water	The protection of riparian areas is important due to the relationship that exists within them between species movement, food sources, water quality and other ecological processes. Land use and land use management changes can impact on water resources through changes in catchment yields, infiltration rates, dissolved organic carbon and nutrient transfers. Development within or close to these areas has the potential to negatively impact upon a number of the SEA topics, in particular: biodiversity, flora and fauna, human health, soil, water and climatic factors. In 2009 52% of surface water bodies were classified as being in good status, the remaining 48% are of moderate or poor status. Nearly one half (45%) of the expansion areas, on average, are located in the immediate catchment area of a surface waterbody making this a significant concern across all areas. Cumulative development could result in additional pressure on surface waterbodies, particularly if it is not accompanied by appropriate waste water treatment facilities. Potential also exists for positive impacts upon the water environment, including improved water quality through the removal of pollutants, but it is dependent on the implementation of strategies, the provision of new waste water treatment facilities and SUD schemes.
Air & Climatic Factors	It is important that risk of flooding should not be exacerbated and consideration should be given longer term implications beyond the lifetime of the LDP. Therefore adjustments or decisions should be made now that will reduce the number of people at risk, or potentially at risk from flooding. Development in flood risk areas is in conflict with the SEA Objectives which seek to safeguard the functional floodplain and reduce the area's vulnerability to the effects of climate change. Currently the floodplain in Perth and Kinross remains relatively undeveloped and the majority of water courses affect only agricultural or hill land. However, one sixth (17%) of the expansion areas are within the 1 in 200 year flood risk outline representing the third ranked sensitivity (in terms of area affected) across the expansion areas. New development which is at risk of flooding or could place existing settlements at risk is a significant pressure. Almost 10% of existing residential properties are located within the SEPA indicative 1 in 200 year flood risk outline. A sustainable flood risk management strategy should avoid such development. In areas where flood defences are required, strategies should look to ensure that these, as far as possible, enhance the environment e.g. soft engineering and managed land retreat. This could potentially have positive impacts on biodiversity in terms of habitat creation and loss. Development is likely to increase the levels of air pollution across Perth and Kinross which would have secondary impacts for human health.
Material Assets	An increase in the population of Perth and Kinross is likely to result in an overall increase in waste generation which is in conflict with the SEA Objective to minimise waste. In 2008/09, the amount of municipal waste arising in Perth and Kinross fell below that of the previous year to 98,374 tonnes, potential exists to continue this trend and decrease the amount of waste generated per head of the population through actions to move away from landfilling waste, promoting waste minimisation and recycling and composting as alternative disposal methods. Siting, design and layout of new development are important, and have the potential to impact positively on landscape character. New developments in greenfield locations could provide the opportunity for positively impacting upon green space networks, which could also have secondary impacts on biodiversity and human health. Appropriate siting and design of new development will be key in achieving any positive benefits and ensuring

	existing networks are maintained and enhanced. Some vacant and derelict land in key settlement areas could be reused for new development in line with the SEA Objective to maximise the sustainable use/reuse of land and buildings. Potential also exists for the sensitive reuse of old buildings within the settlement.
Cultural Heritage	Archaeological and architectural heritage are protected through legislation, but cultural heritage has the potential to be impacted on through development. Development in close proximity to protected sites or buildings can, if not mitigated for, impact on their context, which could lead to pressure on the historic environment and potentially result in degradation or loss. This would be in conflict with MIR and SEA Objectives. Although, less than one tenth of the landscape across settlement expansion areas is sensitive as a result of cultural heritage interests, this figure masks significant variance amongst settlements as well as the cumulative impacts on locally important archaeological features. Nearly 30% of Crieff's expansion area possesses cultural heritage assets, in contrast to only 1% of the expansion area in Alyth. Potential also exists to improve the historic environment through investment in old buildings and the management of gardens and designed landscapes.
Landscape	Currently 13% of Perth and Kinross is designated as part of five National Scenic Areas at Ben Nevis and Glen Coe, Loch Tummel, Loch Rannoch and Glen Lyon, River Tay, and River Earn. These areas are considered to be of national importance due to their outstanding scenic interest which must be conserved as part of the country's natural heritage. Views in the highlands are often covered by this designation, however partial areas of these views (e.g. between Loch Tummel and Loch Rannoch) and the majority of views in the lowland area are currently unprotected. Siting, design and layout of new developments are important, and could have positive impacts on landscape character. Currently an information gap inhibits detailed comment on the landscape capacity and visual resource across the area outwith Perth and Kinross/Milnathort. Work is currently underway to further inform policy and decisions in this area.

7.12 The most likely significant cumulative negative effect is the loss of prime agricultural and greenfield land. These effects cannot be avoided because the Local Development Plan must meet the Strategic Development Plan's housing land requirements. Nonetheless the effects can be mitigated by landscape works of substantial scale to improve the way that the new developments will fit in the landscape and through the creation of new habitats and green corridors.

7.13 The overall conclusions of this assessment are that the effects are largely uncertain as they will depend on how the Plan is taken forward, implemented and decisions taken on individual proposals.

7.14 From an analysis of the assessments for potential proposals, site options in some locations are likely to have significantly more negative effects on the environment than others. However, only a few areas appear to have the potential to lead to significant adverse environmental effects for example the proposed new bridge over the Tay and possible developments to the north of Perth associated with it. However, there may also be environmental benefits such as improved air quality in Perth itself. This proposal is subject to a separate and more detailed Environmental Report. It is clear that the implementation of such a project will require the identification of measures to ensure the environment is protected and where appropriate identify mitigation measures. Consequently, it is vital that the environmental effects of it are assessed as part of a detailed project Environmental Impact Assessment.

7.15 In other instances it may be that when locations or sites are more fully assessed at the next stage in the development of the LDP there are measures which could mitigate their effects on the environment.

8 POLICY ASSESSMENT

8.1 This section summarises the findings of the analysis of potential policy in the LDP to ensure its potential environmental effects are assessed and if necessary mitigated. The actual effect of a policy cannot be assessed in the appraisal because the MIR does not contain any policies and in any event any effects will depend on how the policy is applied in relation to any planning applications made. However, for the purpose of clarification, the assessment is applied to the likely significant effects of the policy area not to the effects of any policy included in the existing Development Plan or proposed for the Local Development Plan.

8.2 Many policies will have no environmental effects or only an inconsequential or benign or neutral effect. In many cases there may be uncertainty about the effects, for example because there is insufficient information or understanding about the likely effects, or about the environmental resource, or because the effects may largely depend on how the policy is implemented.

8.3 To keep the appraisal of policies structured and systematic, a matrix is used both in making the assessments and in presenting the results. To keep the appraisal understandable and simple in its presentation, symbols are used to express the judgement made in respect of each criterion. The table below provides the policy matrix testing each of the policy areas against the environmental criteria listed.

8.4 It is important to ensure that the assessment is not misrepresented as something more sophisticated than it actually is. The appraisal is based on a series of informed, professional judgements about the likely significant effects of the policy area, using the best information available.

8.5 The symbols used are as follows:

+	Likelihood of significant beneficial effect(s)
	Blank cell Criterion not relevant, or likelihood of no significant or only neutral effect(s)
~	Uncertain or unpredictable effect(s) and / or some potential for policy divergence with environmental objectives in the Local Development Plan.
-	Likelihood of significant adverse effect(s) and / or likelihood of policy divergence with environmental objectives in the Local Development Plan.
- -	Not assessed as part of the SEA of the MIR for the reason stated in the comments column, e.g. because assessed at a higher or lower tier

Topic Title	Sub-topics	Will the policy …	Effect
General	Design Statements	…ensure high design quality and respect for local character…?	+
	Sustainable Development	…encourage the safe treatment and disposal of waste	+
	Existing Residential Amenity	…avoid new development in areas at risk from erosion, including coastal erosion…?	+
Housing	Residential Areas/Uses	… be likely to significantly affect the quality of the built environment … ?	+
	Affordable Housing		Subject to separate SEA
	Housing in the Countryside		Subject to separate SEA
Retail	Existing Areas & Proposals	… be likely to significantly affect the quality of the built environment … ?	~
Community facilities	All social, community, recreational, educational facilities and infrastructure (e.g. street furniture)		May be subject to separate SEA
Open space & recreation	Existing areas (including play parks)		
	Public Access		Subject to separate SEA of Core Path Plan
	Core Paths & Rights of Way		
Infrastructure	Waste Management	…encourage the safe treatment and disposal of waste	+
	Roads & Transport		
	Water & Drainage	…protect or enhance water quality…?	~
Environment & resources	Noise Pollution		
	Light Pollution		
	Air Quality	…reduce levels of air pollution in the area…?	~
	Contaminated Land		~
	Brownfield Land		~
	Greenbelt		+
	Green Networks	…ensure the accessibility of healthcare services, including	+

Topic Title	Sub-topics	Will the policy …	Effect
		access to environments that may be beneficial to health…?	
	Flood Risk	…reduce the number of properties, and infrastructure, at risk from flooding…?	+
	Forestry and woodland		Subject to separate SEA
Cultural heritage	Conservation Areas	… affect Scheduled Monuments, Listed Buildings or Historic Gardens or Designed Landscapes or their settings…?	+
	Listed Buildings		+
	Archaeology		+
	Designed Gardens and Landscapes		+
Tourism	Tourist Development		~

8.6 Supplementary Guidance will be required alongside or just after the Proposed Plan is produced to cover planning issues such as Place Making, Design of Houses in the Countryside and Travelling People. This guidance will provide more detailed information and regulation than what can be contained within the Proposed Plan. Each Supplementary Guidance document will therefore be subject to individual screening and assessment process for the requirement of an SEA.

9 MITIGATION AND ENHANCEMENT

9.1 Schedule 3 of the Act requires that measures are identified to prevent, reduce and as fully as possible offset any significant adverse effects on the environment as a result of implementing the Plan. Mitigation measures are a crucial part of SEA in that they offer an opportunity to not only address potential adverse effects of a plan, but also to make a plan even more positive than it may already be. As part of the environmental assessment of each of the alternatives consideration was given to the mitigation measures which would be necessary to offset any significant adverse impact on each of the SEA Objectives.

9.2 However, unlike in project assessment, it is not possible to include a list of specific measures of a practical nature, such as screen planting or noise attenuation bunds. It is more likely that the mitigation measures will need to be covered by policies or other site specific requirements to avoid or reduce the potential adverse effects of the LDP or to reduce the uncertainty attached to this assessment. These should be incorporated into the Proposed Plan.

9.3 Consequently, it is considered that much could be done to improve the environment if the Proposed Plan identified environmental matters that would strengthen its contribution to enhancing and managing biodiversity, reducing the risk form flooding, addressing climate change though mitigation and adaptation, air quality improvements, managing greenspace to improve biodiversity and townscapes, and protecting soils. In summary the Plan should provide leadership to ensure that the planned economic, social, and environmental activity achieves a net gain for the environment which will ultimately enhance well-being for local communities.

Changes to the Plan

9.4 One of the most important mitigation measures is to change the plan itself as a result of the findings of the environmental assessment process. However, it is not always possible to summarise the results of the continuous, unrecorded process of innumerable adaptations to the MIR made during the preparation of it. It is an unrecorded process because minimising environmental impacts is a continuous process. It is not practical to record every decision in the drafting of a plan that was taken with a view to avoiding or reducing environmental effects. The fact that these many decisions are not recorded, or set out in a report, does not diminish their importance as mitigation measures or weaken the environmental assessment reporting process; it is an integral part of good planning practice.

Enhancement for the Proposed Plan

9.5 There has been extensive iteration between the SEA process and the preparation of the MIR. This has enabled the strength of environmental weighting to be brought through in the content and of the MIR. Discussions have sharpened the text of the MIR, and have allowed for enhancements to the proposed Vision to be incorporated at an early stage. This process involved the tightening and reshaping of summary main issues and associated objectives to provide a framework that could be assessed, and proposing a number of enhancements to the framework.

9.6 These changes have provided a more comprehensive set of objectives that cover all aspects of the environment in relation to the SEA Objectives. Nonetheless, the MIR does not at this stage propose any policies to safeguard the environment. Consequently the environmental objectives it proposes for the LDP require strengthening. This can be achieved by making the objectives operational, attaching required actions and/or guidance for the development of Supplementary Guidance.

Proposed Mitigation

9.7 Directed by the issues summarised in the tables in Section 6 of this report, this section proposes mitigation measures for each of the environmental issues.

Biodiversity

9.8 There should be a range of measures used including where appropriate and necessary policies to ensure that biodiversity will be protected and where appropriate enhanced.

Water

9.9 To ensure that the water resource will be safeguarded and enhanced, the LDP should: Consider the potential impact on waterbodies when allocating sites the

LDP and seek to avoid sites which would result in the deterioration of the ecological status of waterbodies

Landscape

9.10 There should be a range of measures used including where appropriate and necessary policies to ensure that the landscape resource will be protected and where appropriate enhanced.

Historic Environment

9.11 There should be a range of measures used including where appropriate and necessary policies to ensure that the historic environment will be protected and where appropriate enhanced.

Soil and Land

9.12 The Perth and Kinross area has a large quantity of prime agricultural land within its borders, and green field development will inevitably mean that some of this is lost due to soil sealing. The LDP should make certain that measures are in to ensure the release of land to development is safeguarding the most valuable areas of this resource.

Material Assets/Waste Management

9.13 In line with national policy, the LDP aims to create a zero waste region. To achieve this, the LDP will be need to have regard to the Council's Waste Strategy ensuring that were possible, efforts are made to reduce the production of waste, and encourage the safe treatment of waste. The LDP has the opportunity to promote sustainable waste management, and constrain landfill by limiting access to landfill sites and by providing alternative processing and waste treatment options.

10 MONITORING PROPOSALS

10.1 The SEA Directive requires that the significant environmental effects of the Local Development Plan are monitored. This will also allow for the assessment of the effectiveness of the mitigation and enhancement proposals.

10.2 It is essential to develop a strong framework for monitoring, facilitated by feedback systems. The monitoring proposed below should be incorporated into an adaptive management system, which would require the identification of targets and limits for each of the indicators. If future monitoring shows adverse impacts arising from the implementation of the LDP, consideration will need to be given to further review the Plan.

10.3 The monitoring framework is linked to the SEA Objectives used in the assessment. Table 10.1 identifies the significant potential environmental effects from the MIR proposals and the associated monitoring requirements that should accompany the LDP.

Table 10.1: Proposed monitoring to assess effectiveness of mitigation and enhancement proposals for the Local Development Plan

Ref.	SEA Topic	SEA Objective	Indicator
SEA 1	Biodiversity, Flora and Fauna	Conserve and enhance the diversity of species and habitats	% area of land designated for the protection of habitats and species in favourable condition % of Biological or Mixed SSSI features in favourable condition Abundance of Terrestrial Breeding Birds % of priority BAP habitat coverage in P&K
SEA 2	Population	Accommodate population and household growth and direct that growth to appropriate locations	No. of years effective housing land supply in each Housing Market Area (HMAs) Levels of affordable housing provision across HMAs
SEA 3	Human Health	Improve the quality of life for communities in Perth and Kinross	% resident population that travel to work/school by a) private motor vehicle, b) public transport, c) on foot or cycle % of residents surveyed finding it easy to access key local services % of households within 200m of an open space
			Area of greenspace % of residents surveyed who are satisfied with their neighbourhood % of datazones ranked in the most deprived areas % of households within 500m of a signposted draft core path
SEA 4		Maximise the health and wellbeing of the population through improved environmental quality	Life expectancy at birth (male and female) Mortality rate from coronary heart disease under the age of 75 (per 100,000 population)
SEA 5	Soil	Maintain, protect and where necessary enhance the fundamental qualities and productive capacities of soils	% area of Geological SSSIs in favourable condition No. of planning applications approved for development of prime quality agricultural land % change in the amount of land recorded as vacant and derelict land % area of 'potentially' contaminated land
SEA 6	Water	Protect and where possible enhance waterbody status	% of inter-catchments classified as being at risk % of groundwater area failing to meet quality standards Mean daily peak river flow levels
SEA 7	Water	Safeguard the functional floodplain	% area of land in P&K within the 1:200 year flood area
SEA 8	Air	Protect and enhance air quality	Mean annual levels of key air pollutants No. of days air quality exceeds legislative limits for the Perth AQMA
SEA 9		Direct development to sustainable locations which help to reduce journey lengths and the need to travel	% resident population that travel to work/school by a) private motor vehicle, b) public transport, c) on foot or cycle
SEA 10	Climatic Factors	Reduce the area's vulnerability to the effects of climate change through identifying appropriate mitigation and adaptation measures	Installed capacity of renewable energy schemes within the area % area of land in P&K within the 1:200 year flood area Annual precipitation rates
SEA 11		Reduce emissions of greenhouse gases	% of carbon released by sector (road transport, industry, and domestic sources) Tonnes of carbon released from road

Ref.	SEA Topic	SEA Objective	Indicator
			transport Total domestic energy consumption per capita (kWh) Total domestic electric and gas consumption per capita
SEA 12	Material Assets	Promote and ensure high standards of sustainable design and construction	No. of buildings meeting BREEAM 'excellent' standard or equivalent % of households within 200m of an open space Total domestic energy consumption per capita (kWh)
SEA 13		Minimise waste per head of population	Total municipal waste arising % of MSW collected and treated by recycling, composting, energy from waste and landfilling Location and no. of waste treatment facilities
SEA 14		Maximise the sustainable use/re-use of material assets (land and buildings)	Total area of land stock that is vacant and derelict Amount of new development undertaken on greenfield compared to brownfield land considering the amount of brownfield land available
SEA 15	Cultural Heritage	Protect and enhance the historic environment	No. of and area covered by Conservation Areas % change of listed buildings and SAMs at risk No. of planning approvals with the potential to impact on the historic environment
SEA 16	Landscape	Protect and enhance the character, diversity and special qualities of the area's landscapes to ensure new development does not exceed the capacity of the landscape to accommodate it	% area of woodland cover % change in land cover categories Change in no. and area of nationally designated landscape areas % change in area of wild land
SEA 17		Protect and enhance townscape character and respect the existing pattern, form and setting of settlements	Changes to existing settlement patterns

11 NEXT STEPS

Consideration of SEA Findings

11.1 As per the requirements of Section 17 of the Environmental Assessment (Scotland) Act 2005, the findings of the Environmental Report will taken into account by the Council in preparing the Local Development Plan. This section also requires the responsible authority i.e. Perth & Kinross Council to take into account the findings of the consultation on the Local Development Plan in finalising it prior to adoption.

11.2 Following the adoption of a plan or programme, the Environmental Assessment Act requires the responsible authority to provide the public and the Consultation Authorities (Historic Scotland, Scottish Environment Protection Agency and Scottish Natural Heritage) with information on how environmental considerations and the consultation responses have been reflected in the plan or programme, and also future monitoring arrangements for the Plan's implementation.

11.3 In order to satisfy this requirement Perth & Kinross Council will prepare a Strategic Environmental Statement to accompany the completed Local Development Plan. It will outline how the Environmental Report informed the development of the Plan, including how opinions made on the Environmental Report have been taken into account in finalising the Plan. This will be called the 'Post-Adoption Statement' and will be published under Section 18(1)(a)(iii) of the Environmental Assessment (Scotland) Act 2005.

Consultation Arrangements and Questions

11.4 The table below sets out the future key milestones in the development of the Plan and associated SEA.

Table 11.1: Future Key Milestones for the LDP and its SEA

Milestone	Anticipated Date	Time Period
Publication of Environmental Report	8 October 2010	
Launch of the Main Issues Report	8 October 2010	
Consultation period for the Main Issues Report	8 October 2010 – 14 January 2011	14 weeks
Active consultation (meetings, workshops etc.)	8 October 2010 – 14 January 2011	14 weeks
Consideration of comments received	January – November 2011	
Publication of the Proposed Plan	December 2011	
Approval of the Plan and publication of SEA Post-Adoption Statement	December 2014	

Consultation Questions

11.5 Consultees are asked to provide their responses on proposals for the Perth & Kinross Vision and Spatial Strategy options and the environment effects. It may also be helpful to consider the following questions:

1. Do you agree with our understanding of the baseline environment in the Perth and Kinross Area?
2. Do you think that there are any other plans, policies (in addition to those listed in this report) or wider environmental objectives that should be taken into account?
3. In your opinion have we identified the most important or significant environmental problems affecting the Perth and Kinross area?
4. Do you disagree with any of the assessment questions? Is so please identify which ones and why. (Please support this with additional baseline data and explain your reasoning)
5. Do you have concerns about significant or cumulative environmental effects on particular parts of the Perth and Kinross area or on particular environmental features? (If yes, please support this with additional data and explain your reasoning)
6. Do you think that there are further, relevant positive aims and aspirations for the environment that the Local Development Plan could deliver in the long term? If yes please provide details.

APPENDICES

If you or someone you know would like a copy of
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