

ABBREVIATIONS

CCC	Cumbria County Council
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
LTP2	Local Transport Plan 2006-11
NATA	New Approach to Appraisal
SEA	Strategic Environmental Assessment
TAG	Transport Analysis Guidance

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I. BACKGROUND

I.1 General Background

Cumbria County Council (CCC) are preparing their second Local Transport Plan (LTP2) which will address the county's transport issues between 2006 and 2011. The Department for Transport (DfT) requires a Strategic Environmental Assessment (SEA) to be undertaken in conjunction with the LTP2, the output of which is an Environmental Report (ER).

Prior to the full LTP2 and associated SEA and ER to be produced in March 2006, CCC have produced a Provisional LTP2. This document is the ER of a Preliminary SEA to accompany the Provisional LTP2.

I.2 Strategic Environmental Assessment

The requirement for SEAs came in to force in the UK on 20th July 2004 as a result of EU Directive 2001/42/EC through the Environmental Assessment of Plans and Programmes Regulations 2004. Their purpose is to ensure that environmental considerations are assessed and fully integrated in to the design and implementation of certain plans and programmes, including LTPs.

The SEA process has five main stages, each with its own outcome or outcomes:

Stage	Objective	Outcome(s)
A	Setting the context and establishing the baseline	<ul style="list-style-type: none"> • Establishment of environmental baseline data • Assessment of other plans and programmes relevant to the LTP2 • Assessing the potential environmental problems, constraints and opportunities associated with the implementation of the LTP2 • Setting the SEA Objectives
B	Deciding the scope of the SEA and developing alternatives	<ul style="list-style-type: none"> • Discussion with and feedback from external environmental bodies • Developing and assessing alternatives to the plan
C	Assessing the plan and mitigation	<ul style="list-style-type: none"> • Assessment of LTP2s policies against the SEA objectives • Mitigation measures for the plan's impacts
D	Consultation on the LTP2 and the Environmental Report	<ul style="list-style-type: none"> • Putting the documents in the public domain and considering their feedback
E	Monitoring	<ul style="list-style-type: none"> • Monitoring the significant environmental effects of the implemented LTP2

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The Environmental Report of the SEA is produced for consultation after stage C, once A, B and C have been completed, and contains the details of the work undertaken throughout each stage.

The SEA for LTP2 is being undertaken in accordance to Transport Analysis Guidance (TAG) Unit 2.11 '*Strategic Environmental Assessment Guidance for Transport Plans and Programmes*', as published by the DfT in April 2004.

1.3 Cumbria County Council LTP2

The LTP2 succeeds the first LTP which, after being adopted in 2001, expires in 2006. LTP2 will specify CCC's strategy for both the continuing development of its general transport provision and for its more detailed proposals during the five-year planning period and will follow the five DfT priority areas of concern for local transport planning:

- Accessibility
- Congestion
- Road Safety
- Air Quality
- Quality of Life Issues

1.4 Methodology

The SEA was undertaken by Capita Symonds Ltd between 25th April and 22nd July 2005.

2. SETTING THE CONTEXT AND ESTABLISHING THE BASELINE

There are four main components of this stage: establishing baseline data; assessing other plans and programmes; assessing environmental problems, constraints and opportunities; and finally, setting the SEA objectives. These sections can exist separately from one another but are interrelated in both a holistic context and in terms of the analysis necessary in creating each one.

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2.1 Environmental Baseline

In order to establish an environmental baseline for Cumbria data were collected under each of the SEA topics as provided by the Directive. The indicators used for this purpose and the SEA topics to which they relate are shown in **Table I**. Only data that are readily available in the public domain have been used. No data creation has taken place. A table was produced that featured:

- County, regional and national data
- Any apparent trends
- Targets
- Sources
- Any additional notes

Appendix I shows this table in full.

There was some difficulty with the availability of interpreted data and therefore any that was secured was used. Also, some data was sourced from 'one-off' studies or reports and are unlikely to be produced on a regular basis in the future. However, the baseline gives a picture of the state of the environment at large and does not necessarily concern the impacts of transport. It is likely that more specific indicators for monitoring the environmental performance of LTP2 will result from the SEA.

Table I - Key Baseline Data Indicators for Cumbria's LTP2 SEA

SEA topic	Indicator
Biodiversity	<ul style="list-style-type: none"> • SSSIs reaching Public Service Agreement target, i.e. favourable/recovering • Condition of County Wildlife Sites • Condition of roadside verges • Status of the woodland bird population • Status of the farmland bird population • Status of all native bird species population
Human Health	<ul style="list-style-type: none"> • Population in 'not good' health • Population with limiting long-term illness • Population sedentary/taking no exercise
Population	<ul style="list-style-type: none"> • Community severance • Rural households at set distances from key services
Landscape	<ul style="list-style-type: none"> • Rights of way easy to use • Area of designated land • Change in countryside character
Material assets	<ul style="list-style-type: none"> • Recycled and secondary aggregates as a percentage of all aggregates used • Use of organic nitrogen and phosphorus fertilisers

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	<ul style="list-style-type: none"> • Soil erosion potential
Air quality	<ul style="list-style-type: none"> • No. of moderate to poor air quality days • Background levels of air pollutants listed in the National Air Quality Strategy
Water	<ul style="list-style-type: none"> • Rivers with good to fair biological quality • Rivers with good to fair chemical quality • Flood risk area
Climatic factors	<ul style="list-style-type: none"> • Estimated change in CO2 emissions from road traffic locally • Mode share of journeys to work • Mode share of journeys to school
Cultural heritage	<ul style="list-style-type: none"> • Number of historic sites in each category • Grade I listed buildings at risk • Grade II* listed buildings at risk • Grade II listed buildings at risk • Scheduled monuments at risk • Registered parks and gardens at risk • Total number of conservation areas in local authority area • Percentage of conservation areas in local authority area with an up-to-date character appraisal • Percentage of conservation areas with published management proposals

The SEA Directive requires a discussion on the likely evolution of the environmental baseline without implementation of the PP being assessed. This was done through an analysis of trends in the baseline data as presented in **Appendix I**.

2.2 Links to Other Plans, Programmes and Environmental Objectives

As recognised by the SEA Directive, all plans, including Transport Plans, have an inherent characteristic of both affecting and being affected by other plans, programmes and environmental objectives (PPEOs). The following relevant PPEOs were assessed in order to highlight their implications for LTP2:

Context	Document
National	<ul style="list-style-type: none"> • Department for Transport: The Future of Transport – a network for 2030 • Climate Change: The UK Programme • Rural White Paper: Our Countryside: The Future – A Fair Deal for Rural England • National Cycling Strategy • PPG 13 Transport

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	<ul style="list-style-type: none"> • PPS 1: Delivering Sustainable Development • PPS6: Planning for Town Centres • PPS7: Sustainable Development in Rural Areas • PPS11: Regional Spatial Strategy • PPS12: Local Development Frameworks • PPS23: Planning and Pollution Control • Countryside Commission – Roads in the Countryside • The Countryside Agency – Transport in Tomorrow’s Countryside • The Countryside Agency – Rural Routes and Networks
Regional	<ul style="list-style-type: none"> • The Cumbria Biodiversity Action Plan - Summary • Regional Planning Guidance – England’s Northwest – A Strategy Towards 2020 • Regional Planning Guidance for the North West (RPG13): Chapter 9 - Ensuring High Environmental Quality • Regional Planning Guidance for the North West (RPG13): Chapter 10 – An Accessible Region with an Integrated Transport System
County	<ul style="list-style-type: none"> • Cumbria County Council Minerals and Waste Local Plan • Cumbria and lake District Joint Structure Plan 2001 – 2016: Deposit Plan • Cumbria County Council Sustainability Strategy
Local	<ul style="list-style-type: none"> • Carlisle District Local Plan • South Lakeland Local Plan 2006 • Copeland Borough Council Local Plan • Barrow Borough Local Plan Review 1996-2006 • Eden Local Plan • Allerdale Local Plan

Appendix 2 shows the results of the full PPEO assessment. The main finding of this assessment were:

- The environmental objectives of the PPEOs generally complement those of LTP2 by aiming for a reduction in pollution levels, congestion and impacts on cultural heritage through:
 - An overall reduction in the county’s road traffic, especially in the key service centres
 - Increases in the provision and use of public transport, walking and cycling
 - Increased access to the countryside
 - An ecologically and visually sympathetic approach in the design of road schemes
- However, the aim to increase access throughout the county, especially the more isolated communities on its west, and also to encourage new developments within them, could offset the environmental objectives of LTP2 by increasing vehicle and construction impacts, especially in the rural areas.

Some LTP2 policies were hard to assess due to their complexity and/or non-specific nature. These policies are highlighted in **Appendix 2**.

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The following sources are relevant to the CCC's LTP2 and this SEA but are more theory based and so were not considered appropriate for full assessment:

- Preparing community strategies: government guidelines to local authorities
- UK Government Sustainable Development – Indicators of Sustainable Development
- Department of the Environment, Transport and the Regions – Accounting for nature: assessing habitats in the UK countryside
- North West Regional Delivery Plan – Sustainable Farming and Food Strategy, September 2003.
- North West Regional Assembly – Spatial Implications of Climate Change in the North West
- North West Regional Assembly – Regional Planning Guidance Annual Monitoring Report, January 2004
- North West Environment Link – A Green User's Guide to Regional Planning Guidance 13 – North West, July 2003

2.3 Environmental Problems, Constraints and Opportunities

The potential environmental problems, constraints and opportunities associated with the implementation of LTP2 were assessed through analysing LTP2 itself, the related PPEOs, and through consultation with CCC officers. Fundamentally, it should be noted from the outset that Cumbria, as a county with a relatively high proportion of rural areas and protected land and townscapes, has the potential to implement and possibly champion environmentally sympathetic modes and systems of transport.

Table 2 presents the main environmental problems, constraints and opportunities of the county and their implications on LTP2.

Table 2 – County-specific Problems, Constraints and Opportunities for Cumbria's LTP2

Problem/Constraint/Opportunity	Implications for LTP2
The Lake District National Park (LDNP) divides the economically declining western areas of the county (e.g. Barrow, Whitehaven, Workington, Maryport, Silloth, Egremont, Cleator Moor and Millom) from the more economically expanding districts to its east (such as Kendal, Carlisle and Penrith). Enhancing and creating new transport links between these community's areas is made difficult through the strict planning regulations of LDNP and in the high level of its public interest and scrutiny of any local developments.	Envisaging and striking a balance between opening linkages across the county whilst minimising or mitigating their environmental impact.
The nature of the sparsely populated and mainly small-scale communities of the county, especially the marginalised townships on its western coast, means their travel demands are not met by mass transport or public transport systems. Car dependence is very high in these areas and the local rail and bus systems have to be subsidised.	Increasing public transport provision to the less populated areas of the county.

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Problem/Constraint/Opportunity	Implications for LTP2
The marginalisation of the western communities means new business is unlikely to be attracted there, thus lessening the potential of demand-specific road network enhancements being implemented.	Adopt an approach to improving the transport network in cases where the changes are not just needed but will have envisaged future and more wide-ranging benefits.
Carlisle and Kendal city centres have severe bottlenecking in their rush hours; possibly a result of their lack of traffic river crossings and ring roads to cope with the current levels of traffic.	Either adhering to established thinking and creating river crossings and ring roads, or else find alternative methods to minimise this congestion – e.g. the provision of park and ride schemes.
The industrial areas on the outskirts of Carlisle, Kendal and Workington are partly inaccessible from the external road network and traffic is forced to pass through, and consequently congest, their centres.	Create new or enhance existing links to these areas, or find alternative methods to minimise this congestion – e.g. the provision of park and ride schemes.
The restructuring of British Nuclear Fuels Limited (BNFL) at Sellafield and Drigg in 2008 could reduce employment in those areas. This could reduce road network enhancements in these areas, and thus further isolate the communities from jobs outside of these areas.	Maintain existing road networks and/or increase the provision of public transport.
The restructuring of British Nuclear Fuels Limited (BNFL) at Sellafield and Drigg in 2008 could reduce employment in those areas and relieve the existing road networks in the area.	Maintain existing road networks and/or increase the provision of public transport for those still using them.
The closing of post offices and small businesses in the county's rural communities has led to a greater need for commuting and car dependency to access these services.	Increase the provision of mobile services or increase public transport links to established services.
The closing of post offices and small businesses in the county's rural communities has led to a greater demand and potential for mobile services, such as libraries, health services and community policing, to these areas.	Increase the provision of mobile services or increase public transport links to established services.
LDNP receives the equivalent of roughly 450 times its resident population in tourist visits each year and 90% of these journeys are made by car. The area's Transport Settlement Allowance is only based on its resident population and does not take into account the environmental, safety and infrastructure impact of its high number of transient visitors. Kendal, Carlisle, the North Pennines, the Yorkshire Dales, Hadrian's Wall and Eden Valley are also affected by this phenomenon.	CCC still has to accommodate the county's tourists in its transport strategy, despite the apparent shortfall in budget.
Lorries are needed to serve the geographically isolated and dispersed nature of the county's manufacturing and distribution centres, creating congestion, safety implications and structural and environmental damage on its long road network.	CCC still has to accommodate for the county's haulage in its transport strategy, despite the apparent shortfall in budget. Alternative methods for

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Problem/Constraint/Opportunity	Implications for LTP2
	distribution should be assessed.
An Air Quality Management Area (AQMA) exists in Kendal as a result of the area's high volume of stationary traffic.	Implement measures to tackle air pollution in this area.
An AQMA is likely to be declared in Stanwix Bank in Carlisle. Other areas of the city are suffering from a decline in air quality.	Implement measures to tackle air pollution in this area.
Cumbria has a wide-ranging railway infrastructure system and therefore a good opportunity to utilise this mode of transport.	Find methods to enhance utilisation of the county's railway infrastructure.
Applying appropriate flood mitigation measures to any developments in the flooding-vulnerable areas in the centre of Carlisle would be financially demanding.	An appropriate flood mitigation cost-benefit analysis should be undertaken for each related project.
The dispersed nature and car-dependence of the county means its elderly and mobility-impaired have limited access to its services.	Improve/maintain public transport access to key services or ensure provision of mobile services to these groups.
Cycling and walking are to be encouraged as a mode of transport. However, where the compact nature of the county's urban areas are ideally suited to them, they aren't appropriate methods for commuting in the dispersed rural areas.	Promote cycling and walking as a mode of transport in appropriate areas and provide the means to make it viable.

2.4 The SEA Objectives and Indicators

The key output of stage A is to develop a set of SEA objectives by which the environmental performance of LTP2 can be assessed. TAG Unit 2.11 suggests that objectives should ideally be derived from the following:

- SEA topics as provided by the Directive
- DfT New Approach to Appraisal (NATA) objectives/sub-objectives
- Local issues highlighted during stage A of the SEA or in consultation with stakeholders
- Objectives from other PPEOs

The objectives for the Cumbria LTP2 SEA are as follows:

1. **Protect and enhance biodiversity**
2. **Protect and enhance air quality**
3. **Protect and enhance the water environment**
4. **Protect and enhance landscape character**
5. **Protect soil quality**
6. **Promote waste reduction, recycling, and the protection of material assets**
7. **Minimise flood damage potential**
8. **Contribute to national climate change reduction aims**
9. **Improve general health and reduce health inequalities**

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10. Reduce social and physical exclusion
11. Preserve and enhance cultural heritage

The objectives have been deliberately kept simple. A more detailed account of the context behind each objective and the measures that should be undertaken to ensure its application can be seen in **Table 6** Mitigation of LTP2 impacts on page 23.

3. SCOPING AND CONSULTATION WITH STATUTORY BODIES

Representatives from the four statutory bodies (the Countryside Agency, English Heritage, English Nature and the Environment Agency), along with representatives from CCC, gathered for a scoping meeting for the SEA. Prior to the meeting all parties were given the results of the work undertaken in Stage A of the SEA. Their responses and the implications of them for the SEA and LTP2 are presented in **Table 3**.

Table 3 - SEA Response from Statutory Bodies for Cumbria's LTP2 SEA

Consultee	Consultee response	Implications for SEA and LTP2
The Countryside Agency (CA)	<p>CA's main areas of concern with the CCC LTP2 SEA:</p> <ul style="list-style-type: none"> - Need for Countryside Quality Counts and tranquillity as indicators - Loss of undeveloped land and changes in landscape quality - Impact on people's enjoyment of the landscape - Impact on county's National Parks, AONBs and Heritage Coasts - Visitor pressure on the countryside <p>The following documents/sources were highlighted as being relevant to the both LTP2 and SEA:</p> <ul style="list-style-type: none"> - 'Transport in Tomorrow's Countryside', 2003 (CA 143). - Rural Routes (2002, Institute Civil Engineers/Countryside Agency) - Roads in the Countryside (1995, CoCo CCp459) - Rural Traffic – Getting it Right (1997, CoCo CCP515) <p>Highlighted the following publications and resources as being relevant to SEA in particular:</p> <ul style="list-style-type: none"> - Countryside Quality Counts http://www.countryside-quality-counts.org.uk/. - The website of the Countryside Character Network http://www.ccnetwork.org.uk/ - The Finest Countryside Learning Network - http://finest.net.countryside.gov.uk/index.html - The National Trails Website - http://www.nationaltrail.co.uk/ - Also the State of Countryside and the Data Hub on the 	<p>The SEA is considered to have met the CA's main concerns.</p> <p>The relevant material recommended and highlighted for use/interest by the CA was reviewed and, where applicable, utilised and included in the SEA.</p> <p>The Biodiversity and Landscape Character objectives already in the SEA were considered to cover the subject material relevant to the suggested 'to preserve and enhance the landscape' objective recommended by the CA.</p> <p>An ongoing search for relevant data concerned with the CA's areas of interest will be undertaken.</p>

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Consultee	Consultee response	Implications for SEA and LTP2
	<p>CA's website - http://www.countryside.gov.uk</p> <p>Other comments and recommendations were made, including the suggested SEA Objective 'to preserve and enhance the landscape'.</p>	
<p>English Heritage (EH)</p>	<p>Expressed concerns at the lack of appropriate county data.</p> <p>Recommended various relevant plans and programmes for review at international, European, national, regional and local level.</p> <p>Highlighted the following aspects of the historic environment that should be considered in the LTP2 and SEA:</p> <ul style="list-style-type: none"> - World Heritage Sites - Listed Buildings (all grades) - Scheduled Monuments - Other nationally important sites - Registered Historic Parks and Gardens - Battlefields - Conservation Areas - Other local-specific elements with an emphasis on 'Local Distinctiveness' - Areas with potential and as yet unrecorded archaeology <p>Highlighted appropriate information sources and indicators for SEA reference.</p> <p>Proposed 5 specific SEA Objectives relating to the historic environment.</p> <p>Suggested the following points for consideration when monitoring indicators and assessing the significance of impact on the historic environment:</p> <ul style="list-style-type: none"> - Rarity and trends - The irreplaceability of the historic environment - Understanding of the historic environment to best minimise impacts - The inextricable link between the historic environment and the landscape - The need to consider and monitor cumulative impacts affecting the historic environment. <p>Provided EH's General Guidelines on historic environment impact protection</p>	<p>The relevant plans and programmes recommended and highlighted for use/interest by EH were reviewed and, where applicable, utilised and included in the SEA.</p> <p>The aspects of the historic environment highlighted by EH for consideration in the LTP2 and SEA were acknowledged. Specific reference to any feature or element falling under these definitions is beyond the scope of SEA and any related impact through a major scheme should be covered through project level EIA.</p> <p>The relevant information sources recommended for use/interest by EH was reviewed and, where applicable, utilised and included in the SEA.</p> <p>The proposed SEA Objectives were not implemented, as they were considered to be too complex. Some of the key points raised in them, however, were included elsewhere in the SEA.</p>
<p>English Nature (EN)</p>	<p>Suggested the following appropriate baseline data sources:</p> <ul style="list-style-type: none"> - Biodiversity Audit - www.biodiversitynw.org.uk/audit 	<p>The relevant information sources recommended for use/interest by EN were</p>

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Consultee	Consultee response	Implications for SEA and LTP2
	<p>- Cumbria Biodiversity Action Plans - www.wildlifeincumbria.org.uk</p> <p>- Species and Habitats in Cumbria Action Plans - www.natureonthemap.org.uk</p> <p>Natural Area description- www.english-nature.org.uk/science/natural/NA</p> <p>- Environmental Protection Wildbirds in English Regions www.defra.gov.uk/environment/statistics/wildlife/research</p> <p>Highlighted the following criteria for selecting appropriate data:</p> <ul style="list-style-type: none"> - Which habitats and species are likely to be affected by transport? - Which criteria are capable of use to monitor outcomes of policy - Data set should include indicators of value through local distinctiveness - Data set should include “data chains” where relevant criteria above met e.g. water quality indicators with biological and chemical criteria - Data set should be capable of demonstrating/monitoring cumulative impacts and expressed in terms of significance, and sustainability of the resource. - Interpretation should identify data needs that would improve quality through meeting fit for purpose criteria <p>Suggested ‘Protect Soil Quality’ as an SEA Objective</p> <p>Suggested indicators, relevant legislation and policy, and further issues and comments for each of the SEA Objectives.</p> <p>Highlighted RPG13 as being an especially relevant policy to the SEA.</p>	<p>reviewed and, where applicable, included in the SEA.</p> <p>The criteria for selecting appropriate data were considered and, where appropriate, utilised and included in the SEA</p> <p>Protect Soil Quality was implemented as an SEA Objective. Soil quality was initially going to be included in the Protect Material Assets objective but EN’s suggestion highlighted that it warrants its own specific objective.</p> <p>The indicators, relevant legislation and policy, and further issues and comments for each of the SEA Objectives were considered and, where applicable, utilised and included in the SEA.</p> <p>RPG13 had already been reviewed in the SEA. Nonetheless, EN were correct in highlighting its significance.</p>
<p>Environment Agency (EA)</p>	<p>Highlighted the importance of considering chains of events affecting the environment and the subsequent need to monitor and, where possible, predict these.</p> <p>EA’s written response contained their comments on Cumbria’s draft LTP2, covering the following areas:</p> <ul style="list-style-type: none"> - Park and Ride - Links with other policies/integration of transport services - Education - Surface water/ground water issues - Mention of proposed scheme - Eden contribution – points to consider 	<p>The EA’s emphasis on environmental impact through chains of events was considered.</p> <p>The comments on the LTP2 were passed on to and discussed with CCC.</p>

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Consultee	Consultee response	Implications for SEA and LTP2
	- Points that need more emphasis	

4. IDENTIFYING AND ASSESSING LTP2 ALTERNATIVES

The SEA Directive requires the consideration of ‘reasonable alternatives’ and that an outline for the selection of these is provided in the ER.

Alternatives were developed in collaboration with CCC staff in relation to the LTP2 core objectives (in bold italics) and individually assessed against the SEA objectives. The alternatives were either alternative development options or alternative transport strategy approaches to achieving the core LTP2 objectives and were assessed in general terms. **Appendix 3** shows the full assessment; **Table 4** provides comments on the findings.

Table 4- Comments of LTP2 Alternative Assessment Findings for Cumbria’s LTP2

Alternative	Comments
<i>To provide a transport network that supports a dynamic, diversified and sustainable economy</i>	
Provide new road links to promote and accommodate economic growth	There will be negative environmental impacts associated with the development of the links, but in themselves they will bring obvious benefits to regeneration and social inclusion.
Offer alternative strategies to an increase in new road links, such as park and ride schemes and an increase in public transport	While there are environmental, landscape, access and cultural benefits of an increase in public transport, these need to be balanced against the funding available to provide these services and the potential impact on those who need access by car.
Build a Carlisle southwestern bypass or a Wigton eastern relief road	The environmental impact of this is hard to assess as although it will relieve high traffic flow in some areas it will mean both new construction and new traffic flow in others.
<i>To enable access for all to jobs and services such as health, education and training</i>	
Increase the network of scheduled local bus services within key service centres	While there are environmental, landscape, access and cultural benefits of an increase in public transport, these need to be balanced against the funding available to provide these services and the potential impact on those who need access by car.
Increase the network of scheduled local bus services into key service centres from areas of sparser population	While there are environmental, landscape, access and cultural benefits of an increase in public transport, these need to be balanced against the funding available to provide these services and the potential impact on those who need access by car.
Increase the provision of demand-responsive services	It is difficult to assess the net environmental benefits these services would bring but there are real social inclusion and cultural benefits.

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Alternative	Comments
<i>To reduce road casualties and improve community safety</i>	
To increase the level of safety training, education and publicity	It is difficult to assess the net environmental benefits these services would bring but cultural benefits include fewer accidents and an increased feeling of safety and security.
To increase the amount of safety-specific engineering measures at locations known to have high casualty rates	It is difficult to assess the net environmental benefits these services would bring but cultural benefits include fewer accidents and an increased feeling of safety and security.
<i>To maintain and improve the quality of the built and natural environment</i>	
In any highway scheme, use only locally relevant/sensitive materials and design	This should bring environmental and cultural benefits, but the increased costs of such design could limit its implementation.
In any highway scheme use standard engineering materials	This would probably have negative environmental and cultural impacts.
Pursue and develop non-standard alternatives to traffic signage and lining	Hard to assess without examples, but, if done correctly, should improve Landscape Character and bring positive cultural impacts.
<i>To contribute to improving public health through increased levels of walking and cycling and better air quality</i>	
Increase cycling and walking networks in key service centres	While there are environmental, landscape, access and cultural benefits of an increase in public transport, these need to be balanced against the funding available to provide these services and the potential impact on those who need access by car.
Improve the quality of the existing public rights of way network and long distance cycle routes	This would bring environmental, landscape, access, health and cultural benefits.
Promote cycling and walking for short journeys	This would bring environmental, landscape, access, health and cultural benefits
Implement engineering measures to reduce traffic at locations known to have air quality concerns	This would imply extra construction/maintenance at the specific locations but would ultimately bring an improvement in the environmental and air quality. It could however have negative exclusion impacts if alternatives are not offered to compensate for car use.
<i>To manage the transport assets of the county to maximise value for money and make best use of infrastructure</i>	
Manage car parking in key service areas to discourage commuting by car	While there are environmental, landscape, access and cultural benefits of an increase in public transport, these need to be balanced against the funding available to provide these services and the potential impact on those who need access by car.
Promote walking and cycling as alternative modes of transport for commuting and short journeys	This would bring environmental, landscape, access, health and cultural benefits.
<i>To enable access to culture, heritage and the countryside</i>	
Provide more car	This would help reduce social exclusion, and would arguably benefit the environment

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Alternative	Comments
parking at key sites	through creating a greater appreciation of it, but it could also cause negative environmental impacts through an increase in rural traffic.
Improve opportunities for access by walking and cycling	While there are environmental, landscape, access and cultural benefits of an increase in public transport, these need to be balanced against the funding available to provide these services and the potential impact on those who need access by car.
Improve access through additional scheduled bus services	While there are environmental, landscape, access and cultural benefits of an increase in public transport, these need to be balanced against the funding available to provide these services and the potential impact on those who need access by car.
Increase promotion of existing scheduled bus services	While there are environmental, landscape, access and cultural benefits of an increase in public transport, these need to be balanced against the funding available to provide these services and the potential impact on those who need access by car.

The environmental or cultural impact of any as yet unforeseen major transport schemes implemented between 2006 and 2011 should be covered through project level EIA.

5. ASSESSMENT AND MITIGATION OF LTP2 IMPACTS

5.1 Assessment of LTP2 Impacts

LTP2 has seventy-nine policies and of these fifty-five have an environmental context that relates to this SEA. These fifty-five policies were assessed against the SEA Objectives in order to ascertain their likely environmental implications. **Appendix 4** shows the assessment matrix which was made by gauging the impact of each policy on the SEA Objectives. The cumulative impact of all the policies combined on each of the SEA Objectives was then assessed by working down the completed matrix. **Table 5** provides a comment on the general findings against each of the SEA Objectives. Not all of the policies were easy to assess in this context and, where difficulty was encountered, a suggestion was made in the comments/action column in the full assessment in **Appendix 4**. The assessment highlighted that reducing the county's level of private car use and providing and encouraging public transport systems was of the core aims of CCC's LTP2.

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Table 5 - Summary of Assessment of Cumbria's LTP2 Policies against the SEA Objectives

SEA Objective	Impacts of LTP2 policies
Protect and enhance biodiversity	<ul style="list-style-type: none"> ▪ LTP2 will largely benefit Cumbria's biodiversity through secondary impacts. Policies that aim to reduce traffic, contribute to a reduction in climate change and improve air quality can be considered as beneficial for biodiversity in general. ▪ Ground water and soil quality should also improve if pollution is minimised through these policies and this will aid biodiversity as a whole. ▪ The policies that will have a negative effect on biodiversity are largely ones that promote new transport development in rural areas. These have the potential to fragment habitats and bring direct forms of pollution. ▪ Appropriate, biodiversity-aiding, mitigation measures should be adhered to for any specific schemes undertaken in the county. Larger schemes should have their impacts addressed through project level EIA.
Protect and enhance air quality	<ul style="list-style-type: none"> ▪ Overall, LTP2 would appear to complement this objective. ▪ As encouraging the use of non-motorised transport and reducing the use of the private car are strong themes throughout LTP2 there should be an overall benefit of improved air quality. ▪ However, this will occur only if the more sustainable modes of transport provide a real-world alternative to private car use: if they don't serve people's needs and ultimately operate alongside the current levels of traffic there will be an increase in the air pollution associated with congestion
Protect and enhance the water environment	<ul style="list-style-type: none"> ▪ LTP2 generally has a neutral to beneficial impact on environmental water quality ▪ Most benefits come in the form LTP2's overall aim to reduce traffic. Consequently this would reduce the associated petrol, oil and gaseous emissions that could enter the water environment. ▪ Adverse impacts would largely come from schemes which may increase pollution through surface run-off from new road and car park developments. This can be mitigated during 'on the ground' implementation. Any major schemes would be subjected to project level EIA.
Protect and enhance landscape character	<ul style="list-style-type: none"> ▪ Landscape character should largely benefit from LTP2 ▪ Positive effects would come from the intended reduction in traffic and the use of local materials and sensitive design in any transport related development. ▪ Negative effects would come from insensitive design and use of standard materials in development or high impact signage or speed reduction measures. The intention to increase access to the countryside could bring negative character effects to the rural environment through new road developments and an increase in traffic. ▪ Larger schemes should have their impacts addressed through project level EIA.
Protect soil quality	<ul style="list-style-type: none"> ▪ LTP2 should largely benefit soil quality, especially in the long-term, through its intention to reduce overall traffic numbers and pollution. ▪ Negative soil quality impacts will come where LTP2 policies could bring an increase in runoff (through new hard surface developments) which

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SEA Objective	Impacts of LTP2 policies
Promote waste reduction, recycling, and the protection of material assets	<p>would bring pollutants in to the soil environment.</p> <ul style="list-style-type: none"> ▪ Most of the negative impacts associated, particularly in the use of material assets (such as the sourcing of bitumen and tops dressings) will come from major schemes and these should be tackled through project level EIA. ▪ Overall, CCC should implement a general approach to protecting these interests in any development of plan it oversees.
Minimise flood damage potential	<ul style="list-style-type: none"> ▪ LTP2 has a generally neutral or unknown impact on flood damage potential. ▪ Any policies helping to reduce global warming or helping to maintain or increase natural areas would have positive effects on this objective whereas any that increase runoff could hinder it. ▪ It is more likely that the implementation of major schemes would have greater adverse impacts for flood risk than policies. Any impacts here will be dealt with through project level EIA
Contribute to national climate change reduction aims	<ul style="list-style-type: none"> ▪ Overall, LTP2 appears to favour the objective. ▪ Impacts on the objective are closely linked to those on local air quality. ▪ N.B. It is important to maintain a clear divide between the two objectives. Climate change concerns are largely regarding CO₂. This is not a consideration when improving air quality, which is more concerned with although a reduction in CO₂ emissions normally accompanies a reduction in other air pollutants.
Improve general health and reduce health inequalities	<ul style="list-style-type: none"> ▪ Overall LTP2 favours this objective. The accumulation of policies dealing with the main themes of LTP2 (accessibility, safer roads, quality of life and health, congestion, and air quality) lead to an overall beneficial impact. ▪ Many of the policies have secondary benefits for the objective. For example, measures to reduce congestion should help to improve air quality and in turn reduce incidence of human respiratory illnesses. Furthermore, less congestion may mean safer roads and an improved transport environment for pedestrians and cyclists. ▪ LTP2 would appear to have no direct adverse impact on the objective, although cumulative impacts that are adverse for other objectives may result in secondary concerns for human health. For example an increase in public transport that is not accompanied by a reduction in private vehicle use may not only impact upon air quality and climate change but in turn upon issues such as human respiratory illnesses.
Reduce social and physical exclusion	<ul style="list-style-type: none"> ▪ Overall, LTP2 favours this objective as accessibility is an overarching theme of the Plan, especially for the rural communities and mobility-impaired of Cumbria. ▪ The only aspect of LTP2 that could hinder this policy is the intention to limit the use of private cars in the key services centres. Unless otherwise catered for (through park and ride, or similar, schemes), this could inhibit car-dependent people from visiting the centres.
Preserve and enhance cultural heritage	<ul style="list-style-type: none"> ▪ Impacts on cultural heritage from LTP2 are generally positive or neutral ▪ Most of the benefits are from secondary impacts relating to measures reducing traffic, climate change and air pollution. ▪ Numerous minor schemes that would not require EIA for their impacts

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SEA Objective	Impacts of LTP2 policies
	to be mitigated should be monitored to avoid a negative cumulative effect.

5.2 Major Schemes

Two major road schemes are currently being considered in Cumbria: the Carlisle Northern Development Route (CNDR) and the Kendal Northern Relief Road (KNRR). It was felt unnecessary to assess these scheme as part of the SEA as they have already been subjected to scheme/project level Environmental Assessment.

5.2.1 CNDR

The CNDR had a full Environmental Assessment carried out between 1997 and 1999. The Environmental Statement (ES) was then submitted along with the planning application in February 2000. A public enquiry was held in December 2002 and the Secretary of State granted approval for the scheme in June 2003.

5.2.2 KNRR

The KNRR has undergone a Stage 2 Design Manual for Roads and Bridges (DMRB) assessment. This means that an Environmental Impact Assessment has been undertaken on each of the possible route options.

5.3 Mitigation of LTP2 Impacts

The SEA Directive requires that the ER should include measures to help reduce or avoid adverse impacts. The SEA Objectives were used as a measure against which these potential adverse or beneficial impacts could be assessed and predicted, and against which the subsequent mitigation measures could be suggested (**Table 6**).

LTP2's potentially adverse impacts will largely take place at ground level and so are difficult to mitigate by making strategic alterations to the Plan. Most of the proposed mitigation measures listed below are points for consideration at the implementation stage of schemes. Many of the larger adverse impacts that could result from LTP2 will relate to major schemes. Again, these cannot be mitigated at a strategic level and so have been highlighted as points for consideration during project level EIA.

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Table 6 – Mitigation for CCC’s LTP2 impacts

SEA objective	Potential problem/benefit	Mitigation measures
Protect and enhance biodiversity	<p>The LTP2 policies aimed at reducing traffic and supporting and encouraging more environmentally friendly forms of transport will bring a range of inherent biodiversity benefits.</p> <p>LTP2 policies which suggest or indicate the construction of new accessibility-extending developments in the county would have potential negative impacts on its biodiversity. Fragmentation of habitat through new road systems could be especially detrimental. However, these effects do have the potential to be ameliorated through effective case-specific mitigation measures.</p>	<p>Any major project schemes in the county should have their biodiversity impacts tackled through project level EIA.</p> <p>There should be a general safeguarding of areas and corridors of biodiversity importance and mechanisms of ensuring sensitive and appropriate development within them.</p> <p>Measures should be implemented to especially avoid traffic collision with birds, bats, mammals and amphibians.</p> <p>With 3 SSSI rivers in the county (2 of which are Special Areas for Conservation), river crossings are a sensitive issue and should be given special consideration</p> <p>Consultation with relevant environmental organisations should occur for any scheme that has a likelihood of affecting biodiversity.</p>
Protect and enhance air quality	<p>LTP2 policies have an emphasis towards reducing congestion, promoting public transport, and encouraging the use of non-motorised forms of travel. The air quality and consequent health benefits of this are partially offset by the policies, such as an increase in public transport, which could lead to increases in traffic volume.</p>	<p>For public or non-motorised forms of transport use to have net air quality benefits they must be encouraged and operated in the context of being an alternative to private car use, and not run in addition to them. This could be implemented through the proposed Bus and Community Transport Strategies.</p> <p>Any highway maintenance undertaken should employ pollution-minimising practices. This should be implemented through the Highway Maintenance Strategy.</p>
Protect and enhance the water environment	<p>LTP2 policies that aim to reduce congestion, promote public transport, and encourage the use of non-motorised forms of travel, would decrease the amount of associated pollution (in the form of</p>	<p>Continual assessment of, and efforts to adhere to, acceptable levels/targets of water pollution.</p> <p>Adherence to the requirements of the Water Framework Directive for</p>

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SEA objective	Potential problem/benefit	Mitigation measures
	<p>runoff, spray, fuel and chemical spillages, and atmospheric deposition) which enter the water environment.</p> <p>Adverse impacts could come from these forms of pollution resulting from new construction or general highway maintenance.</p>	<p>protection and enhancement of wetlands.</p> <p>Any major schemes in the county should have their water quality impacts tackled through project level EIA.</p> <p>As far as possible, transport infrastructure should allow space for river systems to self-regulate – both in terms of choosing their own course (including flooding events) and in terms of natural vegetative succession, seasonal or otherwise.</p> <p>The use of appropriate biological indicators (e.g. indicator species such as salmonids) should be reviewed and applied where appropriate.</p> <p>Appropriate on-site measures to minimise water pollution should be carried out for smaller construction or for highway maintenance schemes.</p> <p>Measures and in-place procedures to intercept and treat spillages and runoff should be implemented for any schemes or incidents that have the potential to pollute the water environment.</p>
Protect soil quality	<p>LTP2 policies have an emphasis towards reducing congestion, promoting public transport, and encouraging the use of non-motorised forms of travel.</p> <p>Adverse impacts could come from these forms of pollution resulting from new construction or general highway maintenance and inappropriate traffic use of highways or rights of way.</p>	<p>Measures undertaken to limit runoff and drainage from the roads would aid soil quality.</p> <p>Appropriate traffic use of highways and rights of way to avoid erosion.</p> <p>Establishing appropriate measurable indicators to assess changes in soil quality.</p>
Protect and enhance landscape character	LTP2 benefits this objective through the policies that intend to enhance public transport access to the countryside and policies which	Landscape character impacts from major schemes should be assessed through project level EIAs and, as with any smaller schemes, work