Northumberland's Third Local Transport Plan: Strategic Environmental Assessment

Volume 2: Environmental Report

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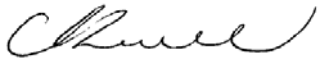

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List of Acronyms

AEP	Annual Exceedance Probability
ALC	Agricultural Land Classification
AONB	Area of Outstanding Natural Beauty
AQMAs	Air Quality Management Area
BAP	Biodiversity Action Plan
BOATs	Byways Open to all Traffic
CFMP	Catchment Flood management Plan
CHIA	Centre for Health Impact Assessment
CMP	Construction Management Plan
CO_2	Carbon Dioxide
CRoW	Countryside and Rights of Way Act
CTRN	Calculation of Road Traffic Noise
DaSTS	Delivering a Sustainable Transport Strategy
DCLG	Department of Communities and Local Government
DEFRA	Department of Food and Rural Affairs
DfT	Department for Transport
DPD	Development Plan Documents
EEC	European Economic Community
EIA	Environmental Impact Assessment
ER	Environmental Report
EU	European Union
HER	Histroic Environment Record
HIA	Health Impact Assessment
HRA	Habitats regulations Assessment
IMD	Index of Multiple Deprivation
IPCC	International Panel for Climate Change
LDF	Local Development Framework
LNR	Local Nature Reserve
LSOA	Lower Super Output Area
LTP	Local Transport Plan
MPA	Marine Protected Area
MPS	Mineral Planning Statement
NCA	National Character Area
NCC	Northumberland County Council
NMU	Non Motorised Users
NNR	National Nature Reserve
ODPM	Office of the Deputy Prime Minister
ONS	Office for National Statistics
PM_{10}	Standard for particulates
PPC	Pollution Prevention Control
PPG	Planning Policy Guidance
PPS	Planning Policy Statement
RBD	River Basin District
RBMP	River Basin Management Plan
RIGS	Regionally Important Geological Site
ROWIP	Right of Way Improvement Plan
SA	Sustainability Appraisal
SAC	Special Area of Conservation
SCNI	Site of Nature Conservation Importance
SEA	Strategic Environmental Assessment
SPA	Special Protection Area

SSSI	Sire of Special Scientific Interest
SUDS	Sustainable Urban Drainage Systems
TAG	Transport Appraisal Guidance
UK	United Kingdom
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNESCO	United Nations Educational, Social and Cultural Organisation
WFD	Water Framework Directive

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1 Introduction

1.1 Introduction

This Environmental Report (ER) presents the findings of a Strategic Environmental Assessment (SEA) of the Northumberland's 3rd Local Transport Plan (LTP3) prepared by Northumberland Country Council (NCC). This chapter of the Environmental Report sets out what an SEA is, the requirements of the SEA Directive and how the SEA will inform the production and the delivery of the LTP3.

1.2 Strategic Environmental Assessment

In accordance with the SEA Directive (2001/42/EC) and Environmental Assessment of Plans and Programmes Regulations 2004, there is a requirement for the LTP3 to be the subject of a formal SEA. In addition to the SEA, a Habitats Regulations Assessment (HRA) and a Health Impact Assessment (HIA) have been undertaken alongside the preparation of the LTP3 and have informed the development of the LTP3 preferred policies.

1.2.1 Objectives of the SEA Directive

The objectives of the SEA Directive, as set out in Article 1 (2001/42/EC), are, "*to provide a high level of protection to the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development*". These objectives have been integrated into the relevant UK SEA Regulations.

1.2.2 Requirements of the SEA Directive

The five main requirements of the SEA Directive and the relevant UK SEA Regulations include:

- Preparation of an Environmental Report;
- Consultation;
- Taking the results of the Environmental Report and consultations into account in decision making;
- Providing information on the decision making; and
- Setting out a monitoring framework.

Based on recognised approaches to SEA, these requirements are generally delivered through a series of stages A to E:

- Stage A – Setting the context and objectives, establishing the baseline and deciding on the scope.
- Stage B – Developing and refining alternatives and assessing effects
- Stage C – Preparing the Environmental Report
- Stage D – Consulting on the draft plan or programme and the Environmental Report
- Stage E – Monitoring the significant effects of implementing the plan or programme on the environment.

This SEA has been carried out in accordance with the information provided in the following guidance documents:

- A Practical Guide to the Strategic Environmental Assessment Directive (ODPM 2005);
- Guidance on Full Local Transport Plans (Dft 2004);
- Strategic Environmental Assessment Directive: Guidance for Local Planning Authorities (DCLG 2003);
- Strategic Environmental Assessment for Transport Plans and Programmes 'TAG Unit 2.11 (DfT 2004); and
- Towards a more efficient and effective use of Strategic Environmental Assessment and Sustainability Appraisal in spatial planning (DCLG 2010).

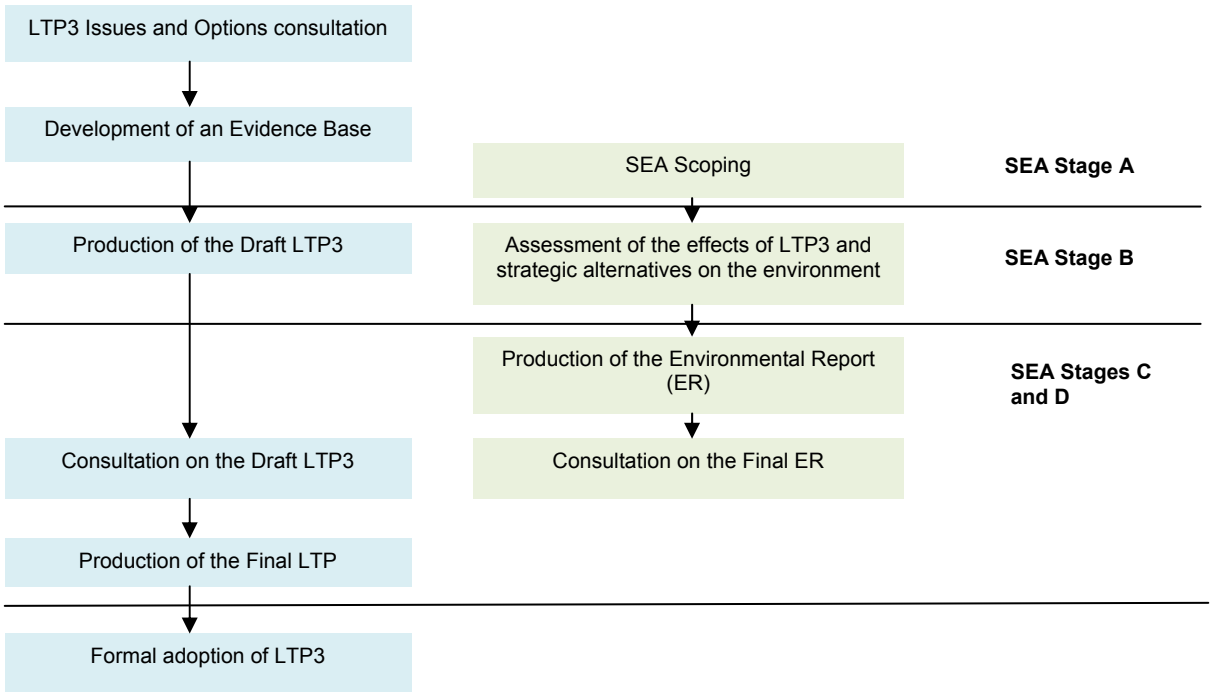
Additional guidance documents considered in the development of this SEA included:

- Natural England Guidance note on Local Transport Plans and the Natural Environment (Natural England, no date);
- Natural England LTP and ROWIP Integration: good practice note (Natural England, no date);
- Strategic Environmental Assessment, Sustainability Appraisal and The Historic Environment (English Heritage, no date); and
- Natural England's Position on Transport and the Natural Environment (Natural England, no date).

1.3 SEA and the LTP3

SEA is an iterative process and this SEA has been carried out in conjunction with the preparation of the LTP3 to ensure any adverse effects of the plan on the environment have been identified, avoided and mitigated at the earliest opportunity. Figure 1 illustrates how the SEA has been undertaken alongside the LTP3.

Figure 1: Development of the SEA alongside LTP3



1.4 Progress to Date

This report is the Environmental Report, which represents Stage C of the SEA process. The Environmental Report outlines the findings of Stage B: Developing and Refining Alternatives and Assessing Effects.

A Scoping Report, which represents Stage A of the SEA process, was issued in July 2010 for formal consultation with the statutory consultees; Environment Agency, English Heritage and Natural England. Responses received from the statutory consultees have been taken into account within the assessment of effects and the preparation of this report. A workshop was undertaken in September 2010 to which the statutory consultees and other stakeholders were invited. A summary of the scoping report and responses received are presented in Chapter 5: Scoping Summary.

1.5 Limitations of SEA

The SEA was carried out in accordance with the requirements of the SEA Directive as well as the relevant guidance and good practice documents listed above.

The SEA was based on baseline information available at the time of the assessment. The assessment of potential effects also reflects the level of detail and information that was contained within the LTP3 at the time of the assessment.

To this end, there were a number of limitations associated with the assessment that should be taken into account when considering the main results and conclusions presented in the subsequent chapters.

The main limitations are related to the level of detail associated with the interventions included in the LTP3. Due to the strategic level of the LTP3, although specific interventions were included, there was limited project specific information available in relation to the location of projects associated with the interventions, type of works that would be involved, construction requirements, scale of the schemes or project and associated timescales for delivery.

Consequently the results of the assessment reflect the knowledge, experience and understanding of the likely effects that transport related schemes could potentially have on the environment, rather than detailed assessment of the individual interventions and schemes presented in the LTP3. However, the assessment of the LTP3 should be carried out at a strategic level, not subject to a project specific, EIA type assessment.

1.6 Habitats Regulations / Appropriate Assessment

As well as the need to undertake an SEA of the LTP3, Regulation 102 of the Conservation of Habitats and Species Regulations 2010 requires all emerging land use plans to be subject to an 'Assessment of implications for European sites and European offshore marine sites', if the LTP is likely to have a significant effect on existing and proposed sites. A Habitats Regulations Assessment is being carried out in parallel with the preparation of the SEA process and the report will be included in the final SEA document.

1.7 Health Impact Assessment

The Centre for Health Impact Assessment (CHIA), Institute of Occupational Medicine was commissioned to undertake a Health Impact Assessment (HIA) of the LTP3 goals, objectives and options.

Whereas SEA is a statutory assessment, HIA is not. However, the Department of Health has produced draft consultation guidance on how health can be considered during the SEA process. HIA is widely seen as good practice with many previous LTPs having undertaken HIA alongside or as part of the SEA. The HIA report will be included in the final SEA document.

1.8 Structure of the Environmental Report

This Environmental Report is split into three volumes: Volume 1 – Non Technical Summary, Volume 2 – Environmental Report and Volume 3 – Appendices. The structure of this report (Volume 2 – Environmental Report) is given below:

Chapter 1 – Introduction: This chapter sets out what the SEA is, the requirements of the SEA Directive and how the SEA will inform the production and the delivery of LTP3.

Chapter 2 - Northumberland LTP3: This chapter sets out the background to LTP3, the main aims and objectives for the LTP3 and provides a summary of the LTP3 interventions.

Chapter 3 - Assessment of Alternatives: This chapter sets out the alternatives considered and an assessment of these alternatives against the SEA topics.

Chapter 4 - Assessment of Relevant Plans and Programmes: This chapter of the report provides a summary of the plans and programmes and 'other' environmental objectives that are relevant to and which could interact with the LTP3 and determines if /how the proposed LTP3 interventions will affect or have in-combination effects with any of the plans and programmes identified.

Chapter 5 - Scoping Summary: This chapter provides an overview of the consultation undertaken as part of the SEA process.

Chapter 6 – SEA Objectives and Indicators: This chapter sets out the SEA objectives and indicators used in the assessment process.

Chapter 7 - Baseline: This chapter sets out the baseline environment, taking into account any recommendations made during consultation.

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Chapter 8 - Key Issues: This chapter presents the key environmental/sustainability issues or considerations that have been identified for Northumberland, following an evaluation of the baseline situation and through scoping / consultation.

Chapter 9 - Assessment Methodology: This chapter sets out how the SEA informed the development of Northumberland's LTP3 and provides details of the methodology used to deliver the SEA.

Chapter 10 - Construction Impacts and Mitigation: This chapter outlines the typical construction related impacts and mitigation for each SEA topic.

Chapter 11 – Assessment Results: This chapter provides of a summary of the key findings from the assessment of the interventions on the SEA topics.

Chapter 12 - Cumulative Effects: This chapter sets out any cumulative effects of implementing the interventions identified within the LTP3.

Chapter 13 - Mitigation: The following chapter identifies the mitigation measures required where effect cannot be avoided and opportunities for enhancement that have been suggested to increase the overall 'sustainability' of the LTP3.

Chapter 14 - Monitoring: This chapter sets out a proposed monitoring framework for the implementation of the Northumberland LTP3.

Chapter 15 - Conclusions: This chapter summarises the conclusions of the assessment and sets out any recommendations.

2 Northumberland LTP3

2.1 Introduction

This chapter of the Environmental Report sets out the background to the LTP3, the main aims and objectives of the LTP3 and provides a summary of the LTP3 interventions.

2.2 Background to LTP3

This Environmental Report has been prepared as part of the Strategic Environmental Assessment (SEA) of the 3rd Northumberland Country Council (NCC) Local Transport Plan (LTP3). The LTP3 is intended to cover transport activities in Northumberland between 2011 and 2026.

The previous LTPs (LTP1 and LTP2) covered five year periods. The LTP3 will cover a longer period in order to bring the LTP3 into alignment with the emerging Local Development Framework (LDF) for the area. The process commenced with the preparation on the LTP3 Issues Paper which was issued for consultation in February 2010. The comments received on the Issues Paper helped identify the main priorities for transport within Northumberland.

The LTP3 is a strategy document and, as such, it does not contain comprehensive details of individual schemes but rather sets out overarching programmes for action, with examples of the types of measures that could be implemented. LTP3 will set out the main objectives for highways and transport for the 15-year period 2011 to 2026 together with the strategies and policies necessary to achieve them.

The Transport Act 2000 made it a statutory requirement for local highway authorities to produce LTPs. LTPs must be consistent with national and local objectives for highways and transport and in particular the policies contained within the national planning guidance, and the emerging LDF.

2.3 LTP3 Study Area

Northumberland is the northernmost county in England and acts as a gateway between England and Scotland. It borders Scotland to the north, Cumbria to the west and Durham and Tyne and Wear to the south. Geographically, Northumberland is one of the largest counties nationally, with a surface area of approximately 500,000 ha. Demographically however, it is one of the smallest counties in England, with a population in 2008 of only 311,000. There is an uneven population distribution with over half of the population living in the urbanised south east, which covers only 5% of the County's surface area. There is a very low population density in the rural north and west which creates particular challenges for the delivery of services.

The LTP3 for Northumberland will cover the new unitary council area of Northumberland Country Council. Following the unitary reform in 2009, the former districts of Northumberland were combined to form three service areas; North Northumberland, South East Northumberland and West Northumberland.

North Northumberland is the second largest of the three service areas in Northumberland and is a sparsely populated, mainly rural area centred on the main towns of Alnwick, Berwick-upon-Tweed and Morpeth. South East Northumberland is the smallest of the service areas and is centred on the urban areas of Ashington, Blyth and Cramlington, and as such, has a high population density compared to the rest of Northumberland. West Northumberland is the largest of the three areas and is predominantly rural in nature but is pocketed by a number of small towns such as Hexham, Prudhoe, Ponteland and Haltwhistle.

This SEA covers the environmental, social and economic considerations within Northumberland[1] and the potential for trans-boundary effects.

[1] The Northumberland Country Council area.

2.4 LTP3 Goals and Objectives

The LTP3 for Northumberland sets out the long term plans of the local authority for maintaining and improving transport provision in the area between 2011 and 2026. The plan seeks to address the five national Department for Transport (DfT) goals outlined below:

- Support Northumberland's economic competitiveness and growth by delivering reliable and efficient transport networks ***(Support Economic Growth)***
- Minimise the environmental impact of transport by reducing carbon emissions and addressing the challenge of climate change ***(Reducing Carbon Emissions)***
- Promote greater equality of opportunity by improving peoples' access to services ***(Improving Access to Services)***
- Improve transport safety and security and promote healthier travel ***(Safer and Healthier Travel)***
- Ensure that transport helps to improve quality of life for residents, employers and visitors ***(Quality of Life)***

The Council proposes to adopt the following draft Objectives for the third LTP which explain how these goals will be achieved.

Table 2.1: LTP Goals and Objectives

Transport Goals	Objectives
Supporting Economic Growth Support Northumberland's economic competitiveness and growth by delivering reliable and efficient transport networks	***Existing Networks*** Improve the performance of existing transport networks in those places that show signs of increasing congestion and unreliability
	Additional Capacity Extend the reach of existing networks where it is needed to meet growing demand
Reducing Carbon Emissions Minimise the environmental impact of transport by reducing carbon emissions and addressing the challenge of climate change	***Sustainable Travel Choices*** Deliver sustainable low carbon travel choices
	Network Resilience Strengthen our networks against the effects of climate change and extreme weather events
Safer and Healthier Travel Improve transport safety and security and promote healthier travel	***Vulnerable Road Users*** Improve safety of the transport network, particularly for vulnerable road users
	Active Travel Enable and encourage more physically active and healthy travel
Improving Access to Services Promote greater equality of opportunity by improving peoples' access to services	***Barriers to Travel*** Reduce the barriers preventing people travelling to services and facilities
	Need to Travel Reduce the need and distance for people to travel to access services
Quality of Life Ensure that transport helps to improve quality of life for residents, employers and visitors	***Public Realm*** Improving streetscapes and the urban environment

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2.5 LTP3 Interventions

Interventions have been developed to address the Key Challenges (Chapter 4) identified in the evidence base. Annex E of the DfT Guidance Document for LTPs sets out a series of possible measures and this was used as a starting point. Further interventions were taken from the DaSTS work (Delivering a Sustainable Transport Strategy) for Access to Tyne and Wear which AECOM has recently completed. A full set of interventions were developed following consultations with Northumberland County Council (NCC) and stakeholders whilst taking into account the thoughts and opinions of residents which were identified in the initial consultation exercises.

An overview of the intervention groups proposed in the LTP3 is given in Table 2.2.

Table 2.2: LTP3 Intervention Groups

Transport Goals and Overview of Interventions			

Supporting Economic Growth	- Managing and Maintaining the Network
	  - *Network Management*
	  - *Transport Asset Management*
	- Increasing Network Capacity
	  - *A19(T) Junction Improvements*
	  - *A193 Cowpen Road Corridor, Blyth*
	  - *A189 to Battleship Wharf*
	  - *Telford Bridge, Morpeth*
	- Improving Local Bus Travel
	- Improving Rail Travel
	- Improving Facilities for Coach Travel
	- Improving Walking and Cycling for Tourists
	- Freight
	- South East Northumberland Public Transport Corridor
	- Morpeth Northern Bypass
	- Blyth Central Link Road
	- A1 Improvements
	- Inter-modal Freight Transport
		Safer and Healthier Travel	- *Safer for Children*
			- *Safer Drivers*
			- *Safer Infrastructure*
			- *Safer Speeds*
			- *Safer Vehicles*
			- *Safer Motorcycling*
			- *Safer Pedestrians, Cyclists and Horse Riders*
			- *Better Enforcement*
			- *Promoting Safer Road Use*
			- Deliver the Sustrans' Connect2 Project
			- Deliver the Links to School Project
			- Deliver the Blyth Active Travel Scheme
			- Promote Walking
			- Promote Cycling

Reducing Carbon Emissions	- Travel Planning
	  - *Workplace Travel Plans*
	  - *School Travel Plans*
	  - *Residential Travel Plans*
	- Active Travel Choices
	- Influencing Demand
	- Marketing and Branding
	  - *Travel Awareness Campaigns*
	- Sustainable Car Use
	  - *Car Sharing Schemes*
	  - *Car Club Schemes*
	- *Low Carbon Vehicles*
	- Highway Infrastructure
	  - *Capital Programme to Strengthen Infrastructure*
	  - *Maintenance and Resurfacing of Roads*
	  - *Hard Surfacing and Improved Drainage on Footpaths and Cycleways*
		Improving Access to Services	- Widening Travel Choice
			- Reducing the Cost of Travel
			- Improving Travel Information
			- Increasing Accessibility for the Mobility Impaired
			- Increasing Personal Safety and Security

		Quality of Life	- No specific interventions identified* **No specific interventions have been identified for the Quality Of Life Transport Goal, as this goal relates to those issues already identified for the other Transport Goals; many of the interventions for the other Transport Goal will have a positive impact on Quality Of Life.*

2.6 Development of the LTP3

This SEA was undertaken in conjunction with the development of the LTP3. Initially a set of eight intervention groups were developed for the LTP3:

- Highway Capacity Interventions
- Public Transport Interventions
- Smarter Choice Interventions
- Freight Interventions
- Non Motorised Users Interventions
- Road Safety Interventions
- Climate Change Interventions
- Miscellaneous Interventions

The assessment undertaken for this SEA was based on the intervention groups listed above; however, following a review, the interventions are presented within the draft LTP3 under the five transport goals rather than the eight groups above. Table 2.3 shows how the original intervention groups relate to the way the LTP3 interventions are set out in the LTP3. Two additional interventions were also added: 'A193 Cowpen Road Corridor, Blyth' and 'A189 to Battleship Wharf'. These interventions have been added to the 'Highways Interventions' intervention group and are marked in bold in Table 2.3. Descriptions of each of the interventions (as assessed in the SEA) are provided in Appendix E (Volume 3), which contains detailed assessment results for each of the interventions.

Table 2.3: Comparison of interventions as assessed in SEA and as presented in LTP3

Original Intervention Group	Original Intervention	New Intervention	New Intervention Group
(as assessed in SEA)		*(as presented in the LTP3)*	
Highway capacity	1. A1 Dualling	- A1 Improvements	- Supporting Economic Growth
	2. Morpeth Northern Bypass	- Morpeth Northern Bypass	- Supporting Economic Growth
	3. A19 Junction Improvements	- Increasing Network Capacity - *A19 (T) Junction improvements*	- Supporting Economic Growth
	4. Telford Bridge Junction Improvements	- Increasing Network Capacity - - *Telford Bridge, Morpeth*	- Supporting Economic Growth
	5. Blyth Central Link Road	- Blyth Central Link Road	- Supporting Economic Growth
	6. A193 Cowpen Road Corridor, Blyth		- Supporting Economic Growth
	7. A189 to Battleship Wharf		- Supporting Economic Growth
	8. General Highway Capacity Improvement	- Managing and Maintaining the Network - - *Transport asset management*	- Supporting Economic Growth
Public Transport Interventions	1. Reopening the Ashington to Blyth and Tyne Railway Line	- South East Northumberland Public Transport Corridor	- Supporting Economic Growth
	2. More local train services on the East Coast Main Line	- Improving Rail Travel	- Supporting Economic Growth
	3. Real Time Information at stations and stops	- Improving Local Bus Travel/ Improving Rail Travel	- Supporting Economic Growth
	4. Up to date timetabling at stations and stops	- Improving Local Bus Travel/ Improving Rail Travel	- Supporting Economic Growth
	5. Passenger Assistance Personnel	- Improving Rail Travel	- Supporting Economic Growth
	6. Fast ticketing machines at stations and stops	- Improving Rail Travel	- Supporting Economic Growth
	7. Interactive journey planners/timetables at stations and interchanges	- Improving Rail Travel	- Supporting Economic Growth
	8. Greater car parking facilities at train stations	- Improving Rail Travel	- Supporting Economic Growth
	9. Improve access to train stations	- Improving Rail Travel Increasing Accessibility for the Mobility Impaired	- Supporting Economic Growth - Improving Access to Services
	10. Bus stop improvements	- Improving Local Bus Travel - Increasing Accessibility for the Mobility Impaired	- Supporting Economic Growth - Improving Access to Services

Original Intervention Group	Original Intervention	New Intervention	New Intervention Group
(as assessed in SEA)		*(as presented in the LTP3)*	
	11. Improve station and stop security	- Increasing Personal Safety and Security	- Improving Access to Services
	12. Improved safety onboard public transport	- Increasing Personal Safety and Security	- Improving Access to Services
	13. Extra peak hour public transport services	- Improving Rail Travel	- Supporting Economic Growth
	14. Ticketing options	- Widening Travel Choice - Reducing the cost of travel	- Improving Access to Services
	15. Improved vehicle quality	- Increasing accessibility for the Mobility Impaired	- Improving Access to Services
	16. Public Transport Marketing	- Widening Travel Choice	- Improving Access to Services
	17. Low emission public transport vehicles	- Sustainable car use - *Car sharing schemes*	- Reducing Carbon Emissions
	18. Improved coach parking	- Improving facilities for coach travel	- Supporting Economic Growth
	19. Strengthened relationships between NCC and operations	- Improving Local Bus Travel - Improving Rail Travel	- Supporting Economic Growth
Smarter Choice Interventions	1. Local Authority monitoring and support for Travel Plans	- Travel Planning	- Reducing Carbon Emissions
	2. Travel awareness campaigns	- Marketing and Branding- *Travel awareness campaigns*	- Reducing Carbon Emissions
	3. Cycle/walking education in schools, workplaces and communities	- Travel Planning - Workplace Travel Plans - Promote Walking	- Reducing Carbon Emissions - Safer and Healthier Travel
	4. Promote/support flexible working practices	- Influencing Demand	Reducing Carbon Emissions
	5. Promotion of car clubs and car sharing	- Sustainable car use - *Car sharing schemes*	- Reducing Carbon Emissions
Freight Interventions	1. Efficient rail freight network operation	- Freight - Intra Modal Freight Transport	- Supporting Economic Growth
	2. Promote rail freight	- Freight - Intra Modal Freight Transport	- Supporting Economic Growth
	3. Freight consolidation	- Freight	- Supporting Economic Growth
	4. Address congestion on highway network on approach to Port of Blyth	- Intra Modal Freight Transport	- Supporting Economic Growth
	5. Develop freight quality partnerships	- Freight	- Supporting Economic Growth

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Original Intervention Group	Original Intervention	New Intervention	New Intervention Group
(as assessed in SEA)		*(as presented in the LTP3)*	
Non Motorised Users Interventions	1. Develop CONNECT 2 programme	- Deliver the Sustrans Connect2 Project	- Safer and Healthier Travel
	2. Roll out cycle hubs across Northumberland	- Improving walking and cycling for tourist - Active Travel Choices	- Supporting Economic Growth - Safer and Healthier Travel
	3. Work with Sustrans to develop active travel schemes	- Deliver the Blyth Active Travel Scheme	- Safer and Healthier Travel
	4. Continue to support bikeability	- Safer Children and Promote Cycling	Safer and Healthier Travel
	5. Continuous walking/cycling routes	- Active Travel Choices - Promote Walking	- Reducing Carbon Emissions - Safer and Healthier Travel
	6. Walk/cycle campaigns	- Promote Walking	- Safer and Healthier Travel
	7. Cycling parking and facilities at pt stations and key destinations	- Promote Cycling	- Safer and Healthier Travel
	8. Improve signing	- Improving Travel information	- Improving Access to Services
	9. Walking and cycling maps	- Improving Travel information	- Improving Access to Services
	10. Improvements to security and maintenance of footpaths and cycleways	- Hard Surfacing and Improved Drainage on Footpath and Cycleways	- Reducing Carbon Emissions
Road Safety Interventions	1. Education and training	- Improved Safety of the Public Transport Network	- Safer and Healthier Travel
	2. Publicity campaigns	- Improved Safety of the Public Transport Network	- Safer and Healthier Travel
	3. Traffic calming measures	- Improved Safety of the Public Transport Network	- Safer and Healthier Travel
	4. Safer routes to school	- Improved Safety of the Public Transport Network	- Safer and Healthier Travel
	5. Increased/improved pedestrian and toucan crossings	- Improved Safety of the Public Transport Network	- Safer and Healthier Travel
	6. Driver training	- Improved Safety of the Public Transport Network	- Safer and Healthier Travel
Climate Change Interventions	1. Capital programme to strengthen infrastructure	- Capital programme to strengthen infrastructure	- Reducing Carbon Emissions
	2. Regular maintenance and resurfacing of roads	- Maintenance and resurfacing of Roads	- Reducing Carbon Emissions -
	3. Hard surfacing and improved drainage on footpaths and cycleways	- Hard Surfacing and Improved Drainage on Footpath and Cycleways	- Reducing Carbon Emissions

Original Intervention Group	Original Intervention	New Intervention	New Intervention Group
(as assessed in SEA)		*(as presented in the LTP3)*	
Miscellaneous Interventions	1. Improve broadband connectivity and telephone communications	- Reduce the Need and Distance for People to Travel to Access Services	- Improving Access to Services
	2. Spatial planning linked to transport policy	- Reduce the Need and Distance for People to Travel to Access Services	- Improving Access to Services
	3. EV charging points	- Sustainable car use - *Low Carbon Vehicles*	- Reducing Carbon Emissions
	4. Support community transport organisations	- Improving Local Bus Travel - Increasing Accessibility for the Mobility Impaired	- Supporting Economic Growth - Improving Access to Services
	5. Greater parking enforcement	- Network management	- Supporting Economic Growth
	6. Identify taxi waiting areas and enforce TRO's to avoid delay to public transport	- Network management	- Supporting Economic Growth
	8. Schemes to improve signing	- Network management	- Supporting Economic Growth

3 Assessment of Alternatives

3.1 Introduction

This chapter of the Environmental Report sets out the alternatives considered and an assessment of these alternatives against the SEA topics.

3.2 Assessment of Alternatives

There were two main alternative options for development of the LTP3. These included:

1. Do Nothing Option
- The Do Nothing Option assumes that no transport schemes will be implemented, however it has been assumed that routine maintenance of transport infrastructure would continue to be undertaken when necessary.

2. Continuation of the current situation (LTP2)
- Continuation of the current situation would mean that the proposals set out under the LTP2 would continue to be implemented, but no further improvements would be put forward.

3.3 Potential Effects of Alternatives on Key Challenges

The evidence base prepared for the LTP3 identified the emerging challenges that need to be overcome during the period of the LTP3. As part of the development of the LTP3, it was necessary to rationalise these challenges before prioritising them and using them to inform the LTP Objectives. The Key Challenges presented within the LTP3 are as follows:

- Accessibility
- Mode Share
- Economy
- Local Congestion
- Regional Congestion
- Freight
- Road Safety
- Tourism
- Climate Change
- Maintenance

An assessment of the potential effects of the alternatives on these key challenges has been undertaken and is summarised below.

3.3.1 Accessibility

Accessibility to services and facilities using public transport in Northumberland is an issue. This is caused by the dispersed nature of the population and existing barriers to travel. The problem will be exacerbated in the coming years with an increase in the population of rural areas and an increase in the proportion of elderly residents who are often more reliant on accessibility by public transport.

Do Nothing Option: The Do Nothing option would mean that no solutions would be put in place to alleviate the problems with access to key services and facilities. This would result in increased severance on communities in particular on rural communities where accessibility to services and facilities is an issue. This would contradict the SEA objective to reduce poverty and social exclusion closing the gap between most disadvantaged communities and the rest.

Continuation of the LTP2: The LTP2 progress report risk assessment shows that bus patronage fell during 2007 – 2008. Although investment in public transport infrastructure is ongoing, there remains the problem of lack of services for people in rural areas because they are not commercially viable. There is still a need to improve accessibility, particularly in rural areas, to help to reduce social exclusion. This should be addressed through the LTP3 otherwise there could continue to be severance of rural communities from accessible transport. If no interventions are put in place to address this issue this could also result in continued congestion affecting local air quality, and continued reliance on private car resulting in people being less active.

3.3.2 Mode Share

Northumberland has above average levels of car use for short journeys, many of which could be undertaken by walking and cycling. Encouraging behaviour change to more active travel would contribute to both transport and health objectives.

***Do Nothing Option*:** The Do Nothing option would mean that no measures would be implemented to encourage a modal shift from private car use to public transport or other more sustainable modes of travel. This has implications for climate change, health, air quality and social exclusion.

***Continuation of the LTP2*:** The LTP2 progress report shows a reduction is bus patronage and a decrease in sustainable travel to schools. Continued reliance on private car should be tackled through the implementation of LTP3 through the provision of better public transport and improving accessibility to public transport. A new bus strategy is proposed in the LTP3, which will replace the LTP2 bus strategy. The strategy will include improved facilities, better reliability and improved interchange between bus and rails services. The LTP3 will also address the need to improve rail travel through an updated rail strategy.

3.3.3 Economy

There are insufficient jobs in Northumberland to accommodate the working age population. This is likely to continue in the future with employment growth being centred on Tyne & Wear. As a consequence, many residents have to commute into Tyne & Wear for work purposes. This can be difficult for people without access to a car with lengthy and costly bus journeys. Increased car trips can also contribute to congestion on the transport network both in Northumberland and Tyne and Wear.

***Do Nothing Option*:** The Do Nothing option would mean that no measures would be implemented to encourage a modal shift from the private car to public transport or other more sustainable modes of travel, resulting in continued congestion. This has implications for climate change, health, air quality and biodiversity.

***Continuation of the LTP2*:** The LTP2 progress report[2] notes that congestion remains a problem. A number of interventions have been identified within the LTP3 that will address the issue of congestion and the need to encourage a modal shift from private car use to public transport or other more sustainable modes of travel. One intervention within the LTP3 is to provide passenger services along the existing Ashington, Blyth and Tyne rail freight lines.

3.3.4 Congestion (Local and Regional)

There are localised issues of congestion on the transport network in Northumberland. This is impacting on the operation of the highway network and public transport journey times and reliability. The problem could be exacerbated in the future with a growth in population.

There is an important economic connection between Northumberland and Tyne and Wear. Regional congestion is an issue on the highway network on the approaches into Tyne and Wear. This could inhibit the ability of Northumberland to grow economically

***Do Nothing Option*:** The Do Nothing option would mean that no measures would be implemented to encourage a modal shift from private car use to public transport or other more sustainable modes of travel. People would continue to rely on the car as a primary method of travel going against the SEA objective to reduce road traffic and congestion and reduce the need to travel by car.

***Continuation of the LTP2*:** The LTP2 progress report notes congestion to be a particular problem on Cowpen Road in Blyth and on the Telford Bridge in Morpeth. The report also highlights a slight decrease in sustainable travel at schools with travel plans between 2006-07 and 2007-08, however the numbers of pupils walking and cycling to school has increased. There remains a need to develop and implement school and workplace travel plans, particularly since the biggest cause of congestion in

[2] The Northumberland LTP 2006-11 Progress Report (NCC 2008) sets out the impact on local transport provision in the first two years of the plan.

Northumberland is vehicles on the journey to work and school. A number of interventions have been identified within the LTP3 that will address these issues.

3.3.5 Freight

The A1 is a key route for freight transport originating in and travelling within Northumberland. For much of this route, the A1 is single carriageway and slow HGV speeds can cause delay to other drivers. Operational and capacity issues with the road, rail and shipping freight networks restrict the potential for modal shift.

***Do Nothing Option*:** The Do Nothing option would mean that no measures would be implemented to improve the capacity of the road, rail and shipping freight networks.

***Continuation of the LTP2*:** The LTP2 progress report notes some improvement in access for freight transport, but there remains a need to extend the reach of the existing network and meet growing demand. The LTP3 will seek to widen coverage of the Tyne and Wear Freight Quality Partnership to help encourage a modal shift from road to freight transport.

3.3.6 Road Safety and Maintenance

Road safety is an issue in Northumberland with the local Council unlikely to reach its target of a 40% reduction in KSI incidents by 2010. Attention needs to be focussed on reducing the impact of motorised traffic on streetscapes in urban and rural areas. We also need to focus on improving safety for vulnerable road users.

There is an extensive network of highways and bridges to maintain and continued network performance is threatened by more frequent severe weather events and restricted revenue and capital budgets.

***Do Nothing Option*:** The Do Nothing option would mean no measures would be implemented to attempt to reduce the number of road accidents and accidents would continue to happen having an effect on human health. No measures would be put in place to maintain existing infrastructure; this has implications for road safety and also reduces the ability of the transport network to adapt to the effects of climate change.

***Continuation of the LTP2*:** Although improvements have been made in terms of road safety during the LTP2, the progress report notes that there are still major challenges with road safety. Therefore the LTP3 should look at specific interventions to address these issues, e.g. improvements to public transport/transport infrastructure, which could affect road safety.

3.3.7 Tourism

The majority of tourists who visit Northumberland use the car to access the region and throughout their stay. This is associated with a lack of provision and awareness of alternative transport options and facilities

***Do Nothing Option*:** The Do Nothing option would mean no measures would be implemented to encourage tourists to use other, more sustainable modes of transport. This would result in implications on human health, carbon emissions, local air quality and effects on the natural and historic landscape as through a continued increase in visitors by car to sites such as Northumberland National Park.

***Continuation of the LTP2*:** The LTP2 progress report acknowledges that a need for careful transport planning is necessary to promote and protect tourism in Northumberland. The LTP3 proposes to improve sustainable tourism initiatives such as better integration of transport modes.

3.3.8 Climate Change

CO_2 emissions in Northumberland from road transport per head of population are higher than the regional and national figures. This is likely to increase in the future if action is not taken now. This will have implications for climate change and air quality within the local and wider area.

***Do Nothing Option*:** The Do Nothing option would implement no mechanisms to support the objective to reduce the causes of climate change having implications on climate change and air quality within the local and wider area.

***Continuation of the LTP2*:** The LTP2 progress report shows a reduction is bus patronage and decrease in sustainable travel to schools. Continued reliance on private car should be tackled through provision of better public transport and improving accessibility to public transport, in order to reduce CO_2 emissions. Therefore solutions within LTP3 should seek to address these issues.

3.4 Summary of Potential Effects of Alternatives on SEA Topics

Biodiversity:

Without schemes to increase the accessibility of public and sustainable transport and reduce the reliance on the car, deposition of pollutants from transport emissions will continue to have an effect on biodiversity.

Water:

If emissions are not reduced, deposition of pollutants from transport emissions will continue to have an effect on water quality and aquatic biodiversity. Failure to create a modal shift and tackle an increase in traffic volumes may result in an increased spillage risk.

Noise:

No modal shift to public transport and other forms of transport such as walking/cycling. This means continued reliance on private car along with potentially increasing car ownership levels/traffic. This in turn could result in increased levels of traffic noise.

Air:

No modal shift to public transport and other forms of transport such as walking/cycling. Existing problems of congestion and emissions will continue to have a negative effect on air quality.

Climatic Factors:

Failure to create a modal shift to public transport and other forms of sustainable transport and existing problems of congestion and emissions will continue to have a negative effect on climate.

Soil:

Without the implementation of highway schemes which introduce the provision of treatment for run off leaching of routine runoff into adjacent soils will continue.

Population: No improvements in public transport/transport infrastructure will result in continued poor access to key services and employment, long commutes from rural areas and isolation of rural communities.

Material Assets:

No improvements in public transport/transport infrastructure will result in poor quality transport infrastructure and thus negative effect on material assets.

Human Health:

No improvements in public transport/transport infrastructure will result in continued congestion affecting air quality, no improvement in accessibility to health services and continued reliance on private car resulting in people being less active.

Capabilities on project:
Environment

4 Assessment of Relevant Legislation, Policies, Plans and Programmes

4.1 Introduction

This chapter of the Environmental Report provides a summary of the plans and programmes and 'other' environmental objectives that are relevant to and which could interact with the LTP3. It also determines if/how the proposed LTP3 interventions will affect or have in-combination effects with any of the plans and programmes identified.

4.2 Identification of Relevant Legislation, Policies, Plans and Programmes

The SEA has taken into account the relationship between the LTP3 and other policies, plans, programmes and environmental objectives relevant to the LTP3.

The contents of the LTP3 will be partially influenced by, and will also have some influence over, objectives presented within other plans/programmes that are produced for the same area (Northumberland), the North East of England and the UK.

The identification of objectives within other plans is important to identify any inconsistencies or conflicts between the LTP3 and the other plans so that these can be addressed at the earliest stage possible. When addressing potential inconsistencies and conflicts between the LTP3 and other plans/programmes, the hierarchy of plans, legal status and type of plan needs to be taken into account.

In addition to the identification of plans and programmes, it was also important to identify and review legislation, policy statements and guidance notes that may also be of relevance to the LTP3. Legislation is a 'statement of law' at various levels, International, European and UK and domestic law.

Relevant plans, programmes and 'other' objectives identified as being of relevance to the SEA and the LTP3 are listed below. A summary of these plans/programmes detailing the key objectives, indicators and targets of relevance is provided in Appendix A (Volume 3). It has also been acknowledged that the LTP3 area boarders the Scottish Borders, therefore there is potential for the LTP3 policies to interact with plans for this area.

International Legislation, Policies, Plans and Programmes

- Bern Convention (1979)
- Bonn Convention (1979)
- Intergovernmental Panel on Climate Change (IPCC) report (2007)
- Johannesburg Summit on Sustainable Development (2002)
- Kyoto Protocol to the UN Framework Convention on Climate Change (1992)
- Local Action 21 (2002)
- Ramsar Convention (1971)
- The Convention on Biological Diversity (1992)
- The UN Millennium Declaration and Millennium Development Goals (2002)
- UNESCO Convention – Protection of World Cultural Heritage (1972)

European Legislation, Policies, Plans and Programmes

- Convention for the protection of Archaeological Heritage – ratified by the UK in September 2000 (Valetta Convention)
- Convention for the Protection of Architectural Heritage of Europe (Granada Convention 1985)
- Directive 1996/62/EC on ambient air quality and management ('The Air Quality Framework Directive')
- Directive 2000/60/EC establishing a framework for the community action in the field of water policy ('The Water Framework Directive')
- Environment 2010: Our Future, Our Choice – EU Sixth Environmental Action Programme (2002)
- Environmental Liability Directive 2004/35/CE (2004)
- EU Biodiversity Strategy (1998)
- EU Directive 2002/49/EC relating to the assessment and management of environmental noise – The Environmental Noise Directive (2002)
- EU Directive for the Promotion of Biofuels for Transport 2003/30/EC (2003)
- EU Emissions Trading Scheme (2005)
- EU Sustainable Development Strategy (2004)

Capabilities on project:
Environment

- European Climate Change Programme (2000)
- European Commission White Paper on the European Transport Policy (2001)
- European Landscape Convention (Florence Convention) (2007)
- European Spatial Development Perspective (1999)
- Pan-European Biological and Landscape Diversity Strategy
- The EC Directive on the conservation of Natural Habitats of Wild Fauna and Flora 92/43/EEC 'Habitats Directive' (1992)
- The EC Directive on the Conservation of Wild Birds 79/409/EEC 'Birds Directive' (1979)
- The Renewed EU Sustainable Development Strategy (2006)
- The Sixth Environmental Action Program of the European Community 1600/2002/EEC
- UNCED, Earth Summit, Rio (1992) Agenda 21, Chapter 9: Protection of the Atmosphere

UK and Domestic Legislation, Policies, Plans and Programmes

- A Better Quality of Life: A Strategy for Sustainable Development for the UK (1999)
- A Future for Transport: A Network for 2030 (2004)
- Active Travel Strategy (2010)
- Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007)
- Ancient Monuments and Archaeological Areas Act 1979 (as amended by the National Heritage Act 1983)
- Building for the Future, UK Sustainable Communities Plan (2003)
- Circular on the Protection of World Heritage Sites, DCLG 07/2009
- Climate Change: The UK Programme (2006)
- Climate Change and Biodiversity Adaptation – The Role of the Spatial Planning System (2009)
- Conserving Biodiversity The UK Approach (2007)
- Conserving Biodiversity in a Changing Climate: Guidance on Building Capacity to Adapt (2007)
- Countryside and Rights of Way Act (2000)
- DEFRA Rural white paper: Our Countryside: the future: A fair deal for rural England
- Department of Health Choosing Health - White Paper (2004)
- DfT Walking and Cycling: An Action Plan (2004)
- Energy White paper, Our energy future – creating a low carbon economy (2003)
- England's Biodiversity Strategy (2002)
- Green Belts: A Greener Future - Main Report
- Guidance on building a local sense of belonging CLG 2009
- Landscape Character Assessment: Guidance for England and Scotland (2002)
- Lost Life: England's Lost and Threatened Species (no date)
- Marine and Coastal Access Act (2009)
- Meeting the Energy Challenge, UK Energy White Paper (2007)
- MPS1: Planning and Minerals, Annex 3 Natural building and roofing stone provision (no date)
- Natural England's Green Infrastructure Guidance
- Part IV Environment Act, 1995 (England and Wales)
- Planning (Listed Buildings and Conservation Areas) Act 1990
- Planning for a Sustainable Future, UK Planning White Paper (2007)
- Draft PPS: Planning for a Natural and Healthy Environment
- PPS: Planning and Climate Change - Supplement to Planning Policy Statement 1 (2007)
- PPS 1: Delivering Sustainable Development (2005)
- PPG 2: Green Belts (2001)
- PPS 3: Housing (2000)
- PPS 4: Planning for Sustainable Economic Growth (2009)
- PPS 5: Planning for the Historic Environment (2010)
- PPS 5 Planning for the Historic Environment: Historic Environment Planning Practice Guide
- PPS 7: Sustainable Development in Rural Areas (2004)
- PPS 9: Biodiversity and Geological Conservation (2005)

Capabilities on project:
Environment

- ODPM Circular 06/2005 Biodiversity and Geological Conservation – Statutory Obligations and their impact within the planning system (2005)
- ODPM Guide to Good Practice: Planning for Biodiversity and Geological Conservation (2005)
- PPS10: Planning for Sustainable Waste Management, Annex E
- PPS 12: Local Spatial Planning (2004)
- PPG 13: Transport (2001)
- PPG 17: Planning for Open Space, Sport and Recreation (2002)
- PPG 20: Coastal Planning (1992)
- PPS 23: Planning and Pollution Control (2004)
- PPS 24: Planning and Noise (1994)
- PPS 25: Development and Flood Risk (2006)
- Planning Policy Statement 25 Supplement: Development and Coastal Change (2010)
- Natural Environment and Rural Communities Act (2006)
- Rural Strategy (2004)
- Securing the Future – UK Government sustainable Development Strategy (2005)
- The Conservation (Habitats & c.) Regulations 1994 ('Habitats Regulations')
- The Conservation of Habitats and Species Regulations (2010)
- The End of Vehicles Regulations (2003)
- The Environment Act (1995)
- The Environmental Protection Act (1990)
- The Future of Transport: White Paper (2004)
- The Government's Statement on the Historic Environment for England (2010)
- The Pitt Review – Lessons Learned from 2007 floods (2008)
- The Pollution Prevention and Control (England and Wales) Regulations (2000)
- The Stern Review – Review of the Economics of Climate Change (October 2006)
- The Strategy for England's Trees, Woods and Forests (no date)
- The UK Government's 10 Year Transport Plan (2000)
- The Water Environment (England and Wales) Regulations (2003)
- UK Biodiversity Action Plan (1994)
- UK Climate Change Act (2008)
- UK Climate Change and Sustainable Energy Act (2006)
- Wildlife and Countryside Act 1981 (as amended)
- World class places: the Government's strategy for improving quality of place CLG (2009)

Regional Plans, Policies and Programmes

- A Biodiversity Audit for the North East (2001)
- Better Health, Fairer Health, A strategy for 21st century health and well-being in the North East of England (2008)
- Biodiversity Indicators and Targets for the North East of England (2004)
- Building-in Sustainability - A guide to sustainable construction and development in the North East (2003)
- Catchment Flood Management Plans - North East Northumberland, River Tyne, River Wear and River Tees
- Climate Change Action Plan for North East England (2008)
- Health inequalities in the North East (2006)
- Integrated Regional Framework for the North East (2008)
- Leading the Way – The Regional Economic Strategy for the North East 2006-11
- North East Climate Change Adaptation Study (2008)
- North East Housing Strategy (2005)
- North East of England Tourism Strategy 2005-2010
- North East Strategy for the Environment (Regional Environment Strategy) (2008)
- Northumberland Landscape Character Assessment Final Draft April 2010
- Northumberland Rights of Way Improvement Plan (2007)
- ONE North East Corporate Plan 2007-12

Capabilities on project:
Environment

- ONE North East North East Strategic Connections Study Draft Report (2010)
- ONE North East/ Department for Transport Access to Tyne and Wear City Region Study: Evidence Review Draft Report (2010)
- One North East/ANEC North East Rural Transport and Connectivity Study Draft Report (2010)
- Rights of Way Improvement Plan Evaluation Regional Report for North East Region
- State of the Environment Report for the North East of England (2004)
- State of the Natural Environment in the North East (2008)
- Sustainable Communities in the North East (2004)
- The North East Rural Action Plan (2002)
- The Region for all Ages: a vision for ageing and demographic change in North East England – Years Ahead, The North East Regional Forum on Ageing (2008)
- The Regional Forest Strategy for the North East of England (2005)
- The Revised Regional Cultural Strategy for the North East of England (2005)

Local Plans, Policies and Programmes

- A Geodiversity Audit and Action Plan 2004-09 for the North Pennines AONB
- A Strategic Action Plan for a Low Carbon National Park in the North East of England 2010-2015
- Durham Heritage Coast Management Plan 2005-2010
- Healthy lives, healthy communities: a strategy to improve health and well-being in Northumberland (2009)
- North Pennines AONB 'Guidance for the Management and Maintenance of Roads'
- North Pennines AONB Geodiversity Action Plan 2010 - 2015
- North Pennines AONB Management Plan 2004-2009 and 2009-14 Review
- Northumberland 2010: A Community Strategy for Northumberland
- Northumberland Annual Monitoring Report (2008)
- Northumberland Area Tourism Management Plan 2010-2015
- Northumberland Biodiversity Action Plan (2007)
- Northumberland Coast AONB and Berwickshire and North Northumberland Coast EMS Management Plan 2009-2014
- Northumberland Coast Geodiversity Audit and Action Plan
- Northumberland County Council Climate Change Action Plan (2008)
- Northumberland Cultural Strategy (2003)
- Northumberland Housing Strategy, 2007-2010
- Northumberland Local Development Scheme (2009)
- Northumberland Local Transport Plan 2006 - 2011
- Northumberland National Park Management Plan 2009 – 2014
- Northumberland National Park Biodiversity Action Plan (2000)
- Northumberland National Park: Geodiversity Audit and Action Plan
- Northumberland National Park Local Development Framework
- Northumberland National Park State of the National Park Report 2009/10
- Northumberland Rights of Way Improvement Plan (2007)
- Northumberland Shoreline Management Plan (2009)
- Northumberland Strategic Partnership – Strategic Framework for Climate Change Planning (2007)
- Northumberland Sustainable Community Strategy 2007 - 2021 and Northumberland Local Area Agreement 2008 – 2011
- Northumberland Tourism Business and Workforce Development Plan 2005 - 2010.
- Northumbria River Basin District – River Basin Management Plan (2009)
- North Yorkshire and Cleveland Heritage Coast Management Plan, 3RD Review, 2008-2013 and North Yorkshire and Cleveland Heritage Coast Action Plan 2008 -2013/1
- Older people in Northumberland. A longer term view. Amended draft following consultation
- South East Northumberland New Growth Point Programme of Development (2008)

4.3 Implications of the Relevant Legislation, Plans, Policies and Programmes for the LTP3

Appendix A (Volume 3) details the relevant plans and programmes that are described above and details whether or not the LTP3 would have any implications, both positive and or negative, on these plans and programmes.

The review of plans, programmes and other objectives identified that similar environmental protection objectives and targets were required from International to local level. The main broad objective of the plans, programmes and other documents are as follows:

- To protect the environment (water, air soil, biodiversity etc.)
- To preserve the cultural and natural landscape
- To work towards sustainable development
- To reduce the need to travel
- To promote sustainable travel
- To promote integration of transport modes
- To promote health (encourage walking and cycling)
- To improve accessibility and social inclusion
- To encourage economic growth

From the review, it was identified that potential conflicts exist between protecting the environment (especially landscapes and biodiversity) and economic development and accessibility. There is also a need to integrate economic, social and environmental objectives. Sustainable planning, taking into account relevant plans, programmes and guidance, should ensure that these objectives are integrated to ensure that no detrimental effects to the environment occur as a result of implementation of any of the preferred policies.

5 Scoping Summary

5.1 Introduction

This chapter of the Environmental Report provides a summary of Stage A of the SEA process (Scoping) and a summary of the key comments from scoping consultations.

Table 5.1 shows the various tasks undertaken as part of Stage A of the SEA process.

Table 5.1: SEA - Stage A

Tasks		Description
Stage A: SEA Scoping		
Task A1	Baseline Data Collection	- Review existing baseline data. - Collect additional (updated) baseline data (where available) – clearly documenting sources of data/information. - Identify and document date gaps. - Identify solutions for filling data gaps (where appropriate). - Describe environmental characteristics of the area likely to be affected by the plan.
Task A2	Develop Objectives	- Review objectives used to assess LTP2. - Review objectives developed as part of the LDF Sustainability Appraisal (SA). - Develop set of objectives that reflect wider interests of the area, tailored where appropriate to reflect the nature of the assessment.
Task A3	Review Relevant Plans and Programmes	- Review relevant plans and programmes. - Analyse the environmental protection objectives that are relevant to the LTP3.
Task A4	Identify Environmental Problems	- From a review of the baseline data and feedback from consultation on the Main Issues Report outline any environmental problems that are relevant to the plan including those relating to areas of particular environmental importance.
Task A5	Prepare Scoping Report	- Produce Scoping Report.
Task A6	Consult on the Scoping Report	- Issue Scoping Report for consultation with Statutory Consultees.

5.2 Scoping Report

The Northumberland LTP3 SEA Scoping Report was prepared in accordance with Stage A of the SEA. The Scoping Report contains a summary of:

- other plans, programmes and environmental objectives that were identified as being relevant to the LTP3;
- a description of key environmental issues affecting Northumberland;
- the SEA objectives that were used to appraise the LTP3;
- indicators that will be used to assess the performance of the plan in achieving the objectives;
- a summary of the baseline situation; and
- a summary of the contents which will be included in the Environmental Report (this report).

5.3 Scoping Consultation

Consultation is an integral part of the SEA process. The statutory environmental bodies that must be consulted on the proposed scope of the SEA are the Environment Agency, English Heritage and Natural England. It is also recognised good practice to consult other key stakeholders at the scoping stage.

A number of consultation questions were included throughout the Scoping Report in order to focus the feedback received by the statutory consultees. These questions are listed below.

- Q1: Is the spatial scale appropriate for assessing the significant environmental effects of the LTP3?

- Q2: Are there any other Policies, Plans, Programmes and 'other' Environmental Objectives that contain environmental protection objectives or identify relevant issues that are not covered by this list?
- Q3: Could any of these Policies, Plans, Programmes and 'other' Environmental Objectives be omitted without losing relevant environmental protection objectives or issues?
- Q4: Are there any other potential conflicts between Policies, Plans, Programmes and 'other' Environmental Objectives that have not been identified?
- Q5: How could potential conflicts be addressed?
- Q6: Are there any significant issues that are not covered by the important factors?
- Q7: Are the proposed important factors appropriate in informing the development of LTP3?
- Q8: Is there any other baseline information that will be relevant to the LTP3 that has not been identified here?
- Q9: Are there any other issues or opportunities the LTP3 should be considering?
- Q10: Do you believe that the significant environmental effects of the LTP3 will be identified using this approach?
- Q11: Is the proposed structure of the Environmental Report for the SEA of LTP3 appropriate, or should anything be added or removed.

Written consultation responses on the Scope of the Northumberland LTP3 received are included in Appendix B (Volume 3). These comments are summarised in Table 5.2.

Table 5.2: Consultation Responses

Organisation	Comments
Environment Agency	- None received.
English Heritage	- Recommended review of English Heritage's 'Strategic Environmental Assessment, Sustainability Appraisal and The Historic Environment' guidance document. This guidance included a list of relevant plans, which was used to update the Assessment of Relevant Plans and Programmes section.
Natural England	- Provided a list of relevant plans, which were incorporated into the Assessment of Relevant Plans and Programmes section. - Natural Environment and Rural Communities Act 2006 and Marine and Coastal Access Act 2009 to be added to list of legislation. - Add Ramsar sites and Local Nature Reserves to the list of biodiversity receptors in Table 6.1 and Heritage Coast and Regionally important Geological / Geomorphological Sites to landscape receptors within the same table. - Suggest mentioning the importance of public rights of way (walking, riding, cycling) for tourism and the tourist economy. - The main influence of The Countryside and Rights of Way (CRoW) Act's main influence on the LTP is the introduction of Rights of Way Improvement Plans (ROWIPs).

National Parks	- Suggested adding 'Cycling and Walking' to Climate Change 'Important factors (receptors) to be included in the assessment' in the SEA Objectives and Indictors section.
	- Suggested adding Northumberland National Park to the point under 'Environmental Considerations' in the Key Issues section.
	- Suggested adding additional plans to Assessment of Relevant Plans and Programmes section:
	  - Northumberland National Park Geodiversity Audit and Action Plan;
	  - Northumberland National Park Biodiversity Action Plan;
	  - A Strategic Action Plan for a low carbon National Park in the North East of England;
	  - Northumberland National Park Local Development Framework; and
	  - Northumberland National Park State of the Park Report.

All comments received from the statutory consultees have been taken into consideration. For example, a number of additional policies and plans were suggested by the statutory consultees and these plans have been included within the assessment of relevant plans and programmes. In addition, a number of additional SEA objectives were added to Table 6.1 SEA Objectives and Indicators based on recommendations from the statutory consultees. These are highlighted in the following chapter.

6 SEA Objectives and Indicators

6.1 Introduction

This chapter of the Environmental Report sets out the SEA objectives and indicators used in the assessment process.

6.2 SEA Objectives and Indictors

The previous SEA of the LTP2 developed a set of SEA objectives (Table 6.1). To ensure consistency between the development of the two plans it has been deemed appropriate to use the same objectives in the preparation of the LTP3. Whilst consistency is necessary, this is also an appropriate stage at which to review the existing objectives to ensure they are still appropriate and updated where required.

In reviewing the existing objectives they were grouped according to the environmental topics / issues derived from the SEA Directive to ensure all aspects of the environment will be addressed by the SEA. Table 6.1 sets out the objectives from the LTP2 against the SEA topics. All topics with the exception of noise had been covered by the existing LTP2 objectives. Whilst it is acknowledged that this topic is broadly covered within a number of the other objectives, it was felt that given that this SEA will inform the development of a transport plan, the potential effects of noise from transport should be included as a standalone SEA topic/objective. Therefore an additional objective has been included that covers noise.

A number of additional objectives were identified by Natural England in their scoping response. The objective '*To adapt to and mitigate for the effects of climate change*' was added under the Climatic Factors SEA topic. The need to include an objective related to adapting to and mitigating the effects of climate change was also highlighted during an assessment workshop held on 16 October 2010. Another objective suggested by Natural England was '*To conserve and enhance opportunities for sustainable public access to the natural environment'* which has been added to the Population SEA topic and '*To adopt a strategic approach to planning and provision of multi functional green infrastructure*' which has been added to the Material Assets SEA topic.

Whilst the objectives set out an overarching goal for each of the SEA topics, it is also important to highlight the factors that will ensure the objectives are reached, therefore Table 6.1 also lists the key factors (receptors) that will be assessed under the SEA topics to ensure the SEA objectives are achieved.

The Issues Paper that was consulted on in February 2010 identified five overarching goals for the LTP3, which have been derived from the national DfT goals. These are as follows:

- Supporting Economic Growth
- Reducing Carbon Emissions
- Safer and Healthier Travel
- Improving Access to Services
- Quality of Life

These five goals are fundamental to the development in delivering the LTP3; therefore it is necessary that the SEA process aids the production of the LTP3 in ensuring these are achieved. These goals have been attributed to each of the SEA objectives in Table 6.1 to ensure the SEA will address all five goals.

Capabilities on project:
Environment

Table 6.1: SEA Objectives and Indicators

SEA Topics	SEA Objective	Important factors (receptors) to be included in the assessment
Biodiversity	**1. To protect and enhance Northumberland's biodiversity and geodiversity and to safeguard protected species.** *Quality of Life*	- Ancient Woodland - Biodiversity Action Plan (BAP) Species and Habitats - Local and country wildlife sites - Local Nature Reserves (LNRs) - National Nature Reserves (NNRs) - Nationally protected sites (e.g. Sites of Special Scientific Interest (SSSIs) and - Natura 2000 Sites (Special Protection Areas and Special Areas of Conservation) - Protected species - Ramsar sites
Landscape	**2. To maintain and enhance the local distinctiveness, character and appearance of Northumberland's rural and urban land and landscapes, including the public realm.** *Quality of Life*	- Areas of local landscape importance - Areas of Outstanding Natural Beauty (AONB) - Built landscape and townscape - Character Areas - Heritage Coasts - National Parks - Natural Areas - Regionally Important Geological/ Geomorphological Sites (RIGS)
Archaeology and Heritage	**3. To protect and enhance Northumberland's buildings, sites, areas and features of historic, archaeological and architectural interest and diversity**. *Quality of Life*	- Conservation areas - Historic Parks and Gardens - Listed Buildings - Local archaeological sites - Registered Battlefields - Scheduled Monuments - World Heritage Sites
Water	**4. To reduce the risk of flooding.** *Quality of Life*	- Road drainage infrastructure - Incorporation of SUDS into infrastructure development
	5. To protect and enhance the quality of Northumberland's ground, river and sea waters. *Quality of Life*	- Water Framework Directive (WFD) Targets - Incorporation of SUDS into infrastructure development
Noise	**6. To reduce transport related noise.** *Quality of Life* *Safer and Healthier Travel*	- Transport related Noise and Vibration

Capabilities on project:
Environment

SEA Topics	SEA Objective	Important factors (receptors) to be included in the assessment
Air	**7. To ensure good local air quality.** *Quality of Life* *Safer and Healthier Travel*	- Air Quality Management Areas (AQMAs) - Dust
Climatic Factors	**8. To reduce the causes of climate change.** Reducing Carbon Emissions	- Use of public transport/ cycling/walking - Use of more fuel efficient cars where reliance can't be avoided - Modal shift in the distribution of Freight.
	9. To adapt to and mitigate for the effects of climate change. *Safer and Healthier Travel* *Quality of Life*	- Appropriate design and use of materials in new and upgraded infrastructure
Soil	**10. To reduce the amount of waste produced and increase the amount recycled and composted**. *Quality of Life*	- Re-use of aggregate in any infrastructure development
Population	**11. To ensure good accessibility for all to jobs, facilities, goods and services in Northumberland.** *Supporting Economic Growth* *Improving Access to Services*	- Accessibility to and from Regional and District centres - Accessibility to and from Villages - Accessibility to and from Hamlets - Agricultural land - Public consultation - Accessibility to tourist and recreational sites / attractions. - Improved rights of way
	12. Conserve and enhance opportunities for sustainable public access to the natural environment. *Quality of Life*	
	13. To reduce road traffic and congestion through reducing the need to travel by car and improving travel choice. *Quality of Life* *Supporting Economic Growth*	
	14. To increase public involvement in decision-making and civic activity. *Improving Access to Services*	

Capabilities on project:
Environment

SEA Topics	SEA Objective	Important factors (receptors) to be included in the assessment
Material Assets	**15. To increase the vitality of town centres.** *Safer and Healthier Travel* *Quality of Life*	- Transport infrastructure - Residential Property - Commercial and employment property
	16. To make better use of our resources. *Quality of Life*	
	17. To improve efficiency in land use through the re-use of previously developed land and existing buildings, and encourage urban renaissance. *Quality of Life*	
	18. Adopt a strategic approach to planning and provision of multi functional green infrastructure *Quality of Life*	
Human Health	**19. To reduce crime and the fear of crime.** *Safer and Healthier Travel*	- Accessibility to health care facilities - Accessibility to employment - Accessibility to key services - Road safety - Cycle and pedestrian safety - Safety and security on public transport
	20. To improve health and reduce inequalities in health. *Safer and Healthier Travel*	
	21. To reduce poverty and social exclusion and close the gap between the most disadvantaged communities and the rest. *Safer and Healthier Travel* *Improving Access to Services*	

6.3 SEA Objectives Compatibility

The previous SEA of LTP2 assessed the compatibility of the SEA objectives. For the LTP3, the compatibility of the objectives has been revisited and a number of changes have been made. The updated compatibility matrix is included as Table 6.2. The changes made are summarised below:

Objective 1 and 4: No interaction with Objective 4 identified in LTP2 matrix. This has been updated so that the objectives are both compatible and incompatible. The objectives are compatible in that flooding can have negative impacts on biodiversity and therefore reducing the risk of flooding could be beneficial to biodiversity. The objective can be non-compatible in that some flood prevention measures could potentially have a negative effect on biodiversity through the creation of artificial barriers.

Objective 1 and 16: These objectives were identified as being inconsistent in the LTP2. This has been updated so that the objectives are compatible as to make better use of resources is consistent with protecting and enhancing biodiversity.

Objective 1 and 17: These objectives were identified as being inconsistent in the LTP2. This has been updated so that the objectives are compatible as efficiency in land use and reuse of previously developed land is seen to be more beneficial than development on previously undeveloped land in terms of biodiversity.

Capabilities on project:
Environment

Objective 2 and 17: These objectives were identified as being inconsistent in the LTP2. This has been updated so that the objectives are compatible as reuse of previously developed land and urban renaissance would be beneficial for listed and historic buildings that are currently in poor condition providing appropriate design and good practice is implemented.

Objective 3 and 17: No interaction with Objective 4 identified in LTP2 matrix. This has been updated so that the objectives are both compatible and incompatible. Regeneration/ re-development of town centres could result in improvements and/or damage to historic buildings.

Objective 7 and Objective 11: These objectives were identified as being inconsistent in the LTP2. This has been updated so that the objectives have no interaction. It is not considered certain that improving accessibility will necessarily result in deterioration in air quality.

Objective 7 and 15: These objectives were identified as being inconsistent in the LTP2. This has been updated so that the objectives have no interaction. It is not considered certain that improving the vitality of town centres will necessarily result in deterioration in air quality.

Objective 7 and 17: These objectives were identified as being inconsistent in the LTP2. This has been updated so that the objectives have no interaction. It is not considered certain that improving efficiency in land use will necessarily result in deterioration in air quality.

Objective 7 and 20: No interaction with Objective 4 identified in LTP2 matrix. This has been updated so that the objectives are compatible, as an improvement in air quality would generally have a beneficial impact on health.

Capabilities on project:
Environment

Table 6.2: SEA Objectives Compatibility Matrix

1. To protect and enhance Northumberland's biodiversity and geodiversity and to safeguard protected species.	1
2. To maintain and enhance the local distinctiveness, character and appearance of Northumberland's rural and urban land and landscapes, including the public realm.	2
3. To protect and enhance Northumberland's buildings, sites, areas and features of historic, archaeological and architectural interest and diversity.	3
4. To reduce the risk of flooding.	4
5. To protect and enhance the quality of Northumberland's ground, river and sea waters.	5
6. To reduce transport related noise.	6
7. To ensure good local air quality.	7
8. To reduce the causes of climate change.	8
9. To adapt to and mitigate for the effects of climate change.	9
10. To reduce the amount of waste produced and increase the amount recycled and composted.	10
11. To ensure good accessibility for all to jobs, facilities, goods and services in Northumberland.	11
12. Conserve and enhance opportunities for sustainable public access to the natural environment.	12
13. To reduce road traffic and congestion through reducing the need to travel by car and improving travel choice.	13
14. To increase public involvement in decision-making and civic activity.	14
15. To increase the vitality of town centres.	15
16. To make better use of our resources.	16
17. To improve efficiency in land use through the re-use of previously developed land and existing buildings, and encourage urban renaissance.	17
18. Adopt a strategic approach to planning and provision of multi functional green infrastructure	18
19. To reduce crime and the fear of crime.	19
20. To improve health and reduce inequalities in health.	20
21. To reduce poverty and social exclusion and close the gap between the most disadvantaged communities and the rest.	21

6.4 LTP3 Objectives and SEA Objectives Compatibility

Part of Stage B of the SEA involves testing of the LTP3 objectives against the SEA objectives. This is a preliminary 'assessment' of the LTP3. It is used as an indicator of consistency and to highlight any areas where there is the potential for conflict. The 'test' does not include, or take into consideration, any interventions that will be developed under the LTP3 objectives. The LTP3 interventions will be subject to a more detailed assessment as part of the SEA process, the findings of which are presented in the following sections of this report.

Table 6.3 summarise the findings from the test of the LTP3 objectives against the SEA objectives.

The criteria used to test the LTP3 against the SEA objectives comprise:

✓ = Objectives are positively compatible

✗ = Objectives are not compatible

The full compatibility matrix is included in Appendix C (Volume 3). There are some areas of incompatibility between the LTP3 objectives and the SEA objectives; mainly those objectives that may involve temporary effects from construction activities.

Table 6.3: SEA and LTP3 Objectives Compatibility Matrix

	LTP3 Objectives	Overall Compatibility with SEA Objectives	Comments
1	***Existing Networks*** Improve the performance of existing transport networks in those places that show signs of increasing congestion and unreliability	✓/✗	- Any measures involving construction (e.g. junction improvements) could result in negative impacts to biodiversity, archaeology, soil, landscape, water, flooding, noise, air and climate. - Reduced congestion would result in benefits for air quality, climate and human health.
2	***Additional Capacity*** Extend the reach of existing networks where it is needed to meet growing demand	✓/✗	- Any measures involving construction (e.g. junction improvements) could result in negative impacts to biodiversity, archaeology, soil, landscape, water, flooding, noise, air and climate. - Reduced congestion would result in benefits for air quality, climate and human health.
3	***Sustainable Travel Choices*** Deliver sustainable low carbon travel choices	✓	- Encourages modal shift to public transport resulting in benefits for biodiversity and water (less deposition of pollutants), noise (reduced traffic), air and climate (reduced emissions) and human health (more activity and better air quality).
4	***Network Resilience*** Strengthen our networks against the effects of climate change and extreme weather events	✓	- Contributes to adapting to and mitigating the effects of climate change. - Benefits in terms of flooding as transport infrastructure more resilient to effects of climate change, including flood events, which may be more frequent / severe.
5	***Vulnerable Road Users*** Improve safety of the transport network, particularly for vulnerable road users	✓	- Benefits in terms of human health due to reduced accidents.
6	***Active Travel*** Enable and encourage more physically active and healthy travel	✓	- Encourages modal shift to public transport resulting in benefits for biodiversity and water (less deposition of pollutants), noise (reduced traffic), air and climate (reduced congestion and emissions) and human health (more activity and better air quality). - People being more active will improve health and will contribute to reducing fear of crime.

Capabilities on project:
Environment

	LTP3 Objectives	Overall Compatibility with SEA Objectives	Comments
7	***Barriers to Travel*** Reduce the barriers preventing people travelling to services and facilities	✓	- Encourages modal shift to public transport resulting in benefits for biodiversity and water (less deposition of pollutants), noise (reduced traffic), air and climate (reduced emissions) and human health (more activity and better air quality). - People being more active will improve health and improved accessibility to services will contribute to reducing social exclusion.
8	***Need to Travel*** Reduce the need and distance for people to travel to access services	✓	- Reducing the need for travel, particularly car travel, will have benefits for biodiversity and water (less deposition of pollutants), noise (reduced traffic), air and climate (reduced congestion and emissions) and human health (more activity and better air quality).

7 Baseline

7.1 Introduction

This chapter of the Environmental Report sets out the baseline environment taking into account any recommendations made during consultation.

7.2 Biodiversity

Biodiversity and conservation within Northumberland is given a high level of consideration in planning and policies to ensure that there no adverse effect on the environment. There are a large number of protected sites and species within Northumberland ranging from International and National designations to Locally designated sites.

7.2.1 Natura 2000 Sites

The Habitats Directive (92/43/EEC) requires EU Member States to create a network of protected wildlife areas, known as Natura 2000, across the European Union. This network consists of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

SACs are areas which have been given special protection under the European Union's Habitats Directive (92/43/EEC). SACs provide rare and vulnerable animals, plants and habitats with increased protection and management.

SPAs are European designated sites classified under the Birds Directive (79/409/EEC). They are areas which are of European importance for the breeding, feeding, wintering or the migration of rare and vulnerable species of birds.

The SPAs and SACs in Northumberland[3] are listed in Table 7.1 and illustrated on Figure 1 (Appendix D; Volume 3). The majority of sites are concentrated along the coast and within Northumberland National Park and are designated for a range of habitat types and species.

Table 7.1: Natura 2000 Sites

Special Areas of Conservation (SACs)	Special Protection Areas (SPAs)
- Berwickshire and North Northumberland Coast* - Border Mires, Kielder-Butterburn - Ford Moss - Harbottle Moors - Newham Fen - North Northumberland Dunes - North Pennine Dales Meadows - North Pennine Moors - River Tweed - Roman Wall Loughs - Simonside Hills - Tweed Estuary - Tyne and Allen River Gravels	- Coquet Island - Farne Islands - Holburn Lake and Moss - Lindisfarne - North Pennine Moors - Northumbria Coast

* Marine SAC – also a Marine Protected Area (see below)

7.2.2 Marine Protected Areas

The Marine and Coastal Access Act 2009 strengthens the network of Marine Protected Areas in England. Marine Protected Areas (MPAs) are set up primarily for the conservation of marine biodiversity and to protect species and habitats of international

[3] Northumberland – refers to the Northumberland Unitary Council area shown in Figure 1 (Appendix C; Volume 3).

or national importance. The main types of MPA in the UK are SACs. The Berwickshire and North Northumberland Coast European Marine SAC is also a Marine Protected Area (MPA).

The Berwickshire and North Northumberland Coast MPA encompasses 115km of some of the most stunning coastline in the UK. The site stretches north from Alnmouth on the Northumberland Coast situated to the east of Alnwick to Fast Castle Head in south east Scotland, including the Farne Islands. This site covers nearly 650km^2 of shore and sea.

7.2.3 Ramsar Sites

Ramsar sites are wetlands of international importance, designated under the Ramsar Convention (1976). The Ramsar Convention is an international agreement which provides for the conservation and good use of wetlands. Ramsar sites in England are protected as European Sites under The Conservation of Habitats and Species Regulations (2010).

There are four Ramsar sites within the County. The heath bog areas of the Irthinghead Mires, Holburn Lake and Moss and the coastal edge and tidal areas around Lindisfarne have been designated as wetlands of international importance under the Ramsar Convention, as well as the Northumberland Coast. The locations of the Ramsar sites within Northumberland are illustrated on Figure 1 (Appendix D; Volume 3).

7.2.4 Sites of Special Scientific Interest (SSSI)

The notification as a SSSI gives legal protection to the best sites for wildlife and geology in England. SSSIs are managed to conserve the special features and geology which in turn protects rare and endangered species, habitats and natural features that may be supported within that area.

Natural England has responsibility for identifying and protecting the SSSIs in England under the Wildlife and Countryside Act 1981 (as amended). Coverage of SSSIs within Northumberland is shown on Figure 1 (Appendix D; Volume 3).

In Northumberland there are 114 (Natural England 2010) sites designated as SSSI but the condition of them as a whole is significantly lower than the average for the rest of England with only 28% being classed as in favourable condition. The North East Biodiversity Forum have set a target of 95% of SSSI to be maintained in, or recovering towards favourable condition by 2010. Coverage of SSSIs within Northumberland is illustrated on Figure 1 (Appendix D; Volume 3).

7.2.5 National Nature Reserves (NNRs)

National Nature Reserves (NNRs) are owned or controlled by Natural England or held by an approved body such as the Wildlife Trust. They are sites that have been designated because they are nationally important habitats and are managed primarily for nature conservation.

All NNRs are also designated as SSSIs and are protected under Section 19(1) of the National Parks and Access to the Countryside Act 1949 and Section 35(1) of the Wildlife and Countryside Act 1981.

Within Northumberland there are nine NNRs:

- Farne Islands;
- Greenlee Lough;
- Keilderhead;
- Keilder Mires;
- Lindisfarne;
- Mucklemoss;
- Newham Bog;
- Derwent George and Muggleswick Woods; and
- Whitelee Moor

7.2.6 Local Nature Reserves (LNRs)

LNRs are statutory sites designated under Section 21 of the National Parks and Access to the Countryside Act 1949, and amended by Schedule 11 of the Natural Environment and Rural Communities Act 2006, by principal local authorities. These sites are places with wildlife or geological features that are of special interest locally. They offer people special opportunities to study or learn and for recreational use, and are usually protected through local planning policy. There are 23 LNRs in Northumberland which have been illustrated on Figure 1 (Appendix D; Volume 3).

7.2.7 Non Statutory Sites

Site of Nature Conservation Importance

A Site of Nature Conservation Importance (SCNI) is a non-statutory wildlife site originating from Northumberland Wildlife Trust and recognised by District Councils. Within Northumberland, there are 213 SNCIs that have been identified, with some protected within the policies of the District Council development plans. The North East Biodiversity Forum has set a target of no net loss of SNCI. SNCIs are also known as Local Wildlife Sites or Local Sites.

Ancient Woodland

There are a number of areas of Ancient Woodland (Ancient and Semi Natural and Ancient Replanted) within Northumberland. These areas are mainly concentrated along the river valleys and their tributaries, in particular the Rivers Coquet and Font and are illustrated on Figure 1 (Appendix D; Volume 3).

7.2.8 Northumberland Biodiversity Action Plan

To certify that National targets for habitats and species are made a priority at a local level, a Local Biodiversity Plans (BAP) is developed. In addition, the Local BAP provides the opportunity to focus on conservation of locally significant habitats and species and provide a basis for monitoring progress in nature conservation. The Northumberland Local BAP identifies 24 key habitats and 22 species (Table 7.2).

Several of the habitats listed above are also identified as UK BAP Priority Habitats (Figure 2; Appendix D; Volume 3) including heathland, sand dunes and maritime cliff and slope. The North East Biodiversity Forum has set a target of no net loss in extent or quality of existing resources of UK BAP Habitats.

Table 7.2: Northumberland BAP Habitats and Species

Habitats	Species
- Blanket Bog - Brownfield Land - Built Environment - Calaminarian Grassland - Coastal Heathland - Fen, Marsh and Swamp - Gardens and Allotments - Heather Moorland - Lowland Heathland - Lowland Meadows and Pastures - Maritime Cliffs and Slopes - Native Woodland - Ponds, Lakes and Reservoirs - Recreational and Amenity Spaces - Reedbeds - Rivers and Streams - Rocky Shore, Reefs and Islands - Saline Lagoons	- Barn Owl - Bats - Black Grouse - Coastal Birds - Common Seal - Dingy Skipper - Dormouse - Farmland Birds - Freshwater Fish - Freshwater Pearl Mussel - Garden Birds - Great Crested Newt - Grey Seal - Hedgehog - Otter - Red Squirrel - River Jelly Lichen - Upland Waders

Capabilities on project:
Environment

Habitats	Species
- Saltmarsh and Mudflat - Sand Dunes - Transport Corridors - Trees and Hedges - Upland Hay Meadows - Whin Grassland	- Violet Crystalwort - Water Rock-bristle - Water Vole - White-clawed Crayfish

7.2.9 Protected Species

Northumberland has various species that are protected to varying degrees under relevant legislation from European to national and local. These include all species of bat, badger, red squirrel, otter, water vole, great crested newt, white-clawed crayfish and Young's helleborine. All birds and their eggs are protected, with rarer species receiving additional protection from deliberate disturbance during the breeding season.

European Protected Species are plants and animals that receive protection under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010.

7.3 Landscape

7.3.1 Landscape Character

Natural England has divided England into areas with similar landscape character, which are called National Character Areas (NCAs). There are 159 NCAs in England located within eight regions. Northumberland is located within the North East region which contains 11 NCAs.

North East Countryside Character
From mid-Northumberland the topography and landscape can be envisaged from the intermediate plateau of upland fringe forming a transitional area between the Pennine uplands to the west and the low-lying coastal plain to the east; a series of ridges and intimate river valleys in the northern part of the area opening out to a broader, flatter landscape in the south.

The land is used for many purposes including:

- agricultural, with arable and cattle farming on lower land merging into sheep farming on higher land and moorland to the west;
- varied woodland cover, with well-wooded valleys of the rivers Font, Wansbeck, and Coquet, mixed and ornamental woodlands of the country estates, small coniferous blocks and belts of the more open farmland to the south;
- large reservoirs and ornamental lakes provide distinctive areas of open water.

National Character Areas
The NCAs located within Northumberland are listed in Table 7.3 and shown on Figure 3 (Appendix D; Volume 3).

- North Northumberland Coastal Plain;
- Northumberland Sandstone Hills;
- Cheviot Fringe;
- Cheviots;
- Border Moors and Forests;
- North Pennines;
- Tyne Gap and Hadrians Wall;
- Mid Northumberland;
- South East Northumberland Coastal Plain;
- Tyne and Wear Lowlands; and
- Durham Coalfield Pennine Fringe.

Table 7.3: National Character Areas

National Character Area	Description
North Northumberland Coastal Plain	Narrow, low lying, windswept coastal plain with wide views east towards the sea and west to the Cheviots. Particularly striking lateral coastal views.
Northumberland Sandstone Hills	Sandstone hills forming distinctive skyline features characterised by generally level tops, north-west facing scarp slopes, and craggy outcrops. Exceptional views from the hills of the coast and across the lowland fringe to the Cheviots.
Cheviot Fringe	Broad valley and plain landscape which forms a belt of lowland wrapping around the Cheviots and separating them from the Northumberland Sandstone Hills to the east.
Cheviots	Smooth sinuous cluster of rounded hills which are geologically and topographically distinct. Wild, open, windswept landscape, dominated by broad moorland horizons, and almost totally devoid of settlement.
Border Moors and Forests	Large scale landscape of high, rolling or undulating plateau with expanses of sweeping moorland, extensive coniferous woodlands and large reservoirs, sparsely populated and with no major settlements.
North Pennines	An upland landscape of high moorland ridges divided by broad pastoral dales.
Tyne Gap and Hadrians Wall	A narrow but distinct corridor running east-west through a low lying gap between the uplands of the Pennines visible to north and south.
Mid Northumberland	Intermediate plateau of upland fringe forming a transitional area between the Pennine uplands to the west and the low-lying coastal plain to the east; a series of ridges and intimate river valleys in the northern part of the area opening out to a broader, flatter landscape in the south.
South East Northumberland Coastal Plain	Widespread urban and industrial development, extending north from the urban edge of Newcastle across the coastal plain, with mining towns and villages, merging into rural landscape towards the north.
Tyne and Wear Lowlands	An undulating landform incised by the rivers Tyne and Wear and their tributaries. Dominated by widespread urban and industrial development, and a dense network of major road and rail links.
Durham Coalfield Pennine Fringe	A rolling upland landscape of broad open ridges and valleys with a strong east-west grain. transitional landscape with pastoral farming on higher ground in the west giving way to arable and mixed farming in the valleys and to the east.

Source: Natural England (2010a)

Natural Areas

Natural Areas are sub-divisions of England, each with a characteristic association of wildlife and natural features. The Natural Areas located within Northumberland are listed in Table 7.4 and shown on Figure 4 (Appendix D; Volume 3).

Capabilities on project:
Environment

Table 7.4: Natural Areas

Natural Area	Description
North Northumberland Coastal Plain	- Comprises the belt of low-lying land running northwards from the Coquet valley to the River Tweed, and westwards to the Fell Sandstone moorland edge and low-lying land in the Tweed valley. - Overlain by glacial till and, more locally, blown sand or peaty deposits such as at Newham Fen. - Grades into a diverse coastline of the Northumberland Coast. - The Northumberland Plain is characterised by an open agricultural landscape with Whin Sill outcrops and the river valleys of the Coquet, Aln, Tweed and Till.
Border Uplands	- Comprises the upland rolling moors of Northumberland and north-east Cumbria, just south of the Scottish Border. - Much of the bedrock is covered by layers of peat and glacial drift which give rise to the extensive open landscape of moorland and blanket bog seen on the Cheviot Hills and outlying moors. - The upland area is drained by the major rivers of the Tyne, Coquet, Till, Breamish, Irthing and Lyne which are of considerable importance. - Farming is dominated by sheep and cattle, with game management becoming increasingly important at higher altitudes. - Commercial forestry is widespread.
North Pennines	- The North Pennines form a distinctive block of high, exposed moorland and sheltered lowland dales. - The variety of rocks and soils, plus rainfall and altitude, make the North Pennines unique. This, coupled with extensive human activity over thousands of years, has created the expansive moorlands, grasslands and flower-rich meadows we see today. - Upland bogs blanket the open moorland and mosaics of heather, cotton-grass, bilberry, bracken and acid grassland cover much of the area.
Northumbria Coal Measures	- Coal Measure rocks, laid down during the Carboniferous Period, underlie this lowland area that extends through the centre of County Durham, much of Tyne and Wear and the south-eastern coastal plain of Northumberland. - The area has been worked for coal and associated minerals since Roman times and industrial developments and transport routes have developed to use the local products. - The river valleys provide important wildlife refuges within an intensively managed landscape as well as being important habitat features. - Heathlands, wetlands and flower-rich grasslands are scattered through the area.

Source: Natural England (2010b)

7.3.2 Designated Landscapes

The County of Northumberland has a high conservation potential and the land management reflects this. There are management plans in place for the Northumberland National Park and the two Areas of Outstanding Natural Beauty (AONB) (North Pennines and Northumberland Coast) and Countryside Strategies produced by the County and District councils.

Areas of Outstanding Natural Beauty (AONBs)

AONBs are areas of high scenic quality that have statutory protection in order to conserve and enhance the natural beauty of their landscapes. Natural England has a statutory power to designate land as an AONB under the Countryside and Rights of Way Act 2000.

Northumberland Coast AONB

Established in 1958, the Northumberland Coast AONB (Figure 5; Appendix D; Volume 3) is a narrow coastal strip stretching from Spittal in the North to the Coquet Estuary in the south, an area of 135km^2. The area has boundaries of Alnwick District Council and Berwick-upon-Tweed Borough Council.

The area is characterised by open miles of beach that are often backed by extensive sand dunes. Lindisfarne Island is characterised by the intertidal mudflats that cut the island off from the mainland at high tide. Further south, the rock of the Farne Islands extends into the North Sea. Occasionally, the coastline is broken by the Whin Sill; here ancient basalt meets the sea in low headlands and rocky coves, and is where landmarks such as Bamburgh and Dunstanburgh Castles and shelter for working harbours such as Craster can be found.

The Coast AONB also contains designations of Ramsar, SAC, SPA, NNR and SSSI.

North Pennines AONB

The North Pennines area was designated an AONB in 1988. The North Pennines AONB is also a UNESCO Global Geopark. Geoparks are areas with an outstanding geology, where action is being taken to use this geology as a force for sustainable development.

The North Pennines AONB (Figure 5; Appendix D; Volume 3) covers most of the southern area of Tynedale and stretches through Durham and Cumbria to the border with North Yorkshire. The landscape of the North Pennines contains many habitats of exceptional conservation value, including blanket bog, upland heath, species-rich hay meadows, oak and ash woodlands, juniper scrub, flushes and springs and unimproved and heavy-metal rich grasslands. In addition, there is an array of flowering plants on the calcareous grasslands of Teesdale which is unique in the UK. Internationally important numbers of birds, including 10,000 pairs of breeding waders and 80% of England's black grouse, breed and feed on the open moors and adjacent grasslands. The AONB also includes parts of the Pennine Dales Environmentally Sensitive Area.

National Parks

National Parks are designated by Natural England under the provisions of The National Parks and Access to the Countryside Act, 1949, and have two statutory purposes:

- To conserve and enhance their natural beauty, wildlife and cultural heritage; and
- To promote opportunities for the public understanding and enjoyment of these special qualities.

Northumberland National Park (Figure 5; Appendix D; Volume 3) was designated in 1956 and has a current population of approximately 2,000 people within its 1,030km^2 boundaries, which run from Hadrian's Wall in the south to the Cheviots in the north. The landscape encompasses open moorland with wide views contrasting with an intricate pattern of enclosed farmland and is relatively undeveloped with only a few small settlements. The park contains a number of cultural heritage assets, including Hadrian's Wall, remains of ancient settlements, prehistoric and medieval landscapes and burial monuments.

Heritage Coasts

Heritage Coasts are described by Natural England as, "stretches of our most beautiful, undeveloped coastline, which are managed to conserve their natural beauty and, where appropriate, to improve accessibility for visitors. Parts of the Northumberland Coast have been designated as a Heritage Coast this is illustrated in Figure 5 (Appendix D; Volume 3).

7.3.3 Areas of High Landscape Value

Areas of High Landscape Value are areas that are of local landscape importance identified by local authorities. Although not a statutory designation, they are given some protection through the local planning system.

7.3.4 Public Rights of Way and Cycle Routes

For local residents and visitors to experience the countryside and environmental aspects Northumberland has to offer, it is vital that there is adequate access around towns and in rural areas. In Northumberland there the Rights of Way network (Figure 6;

Appendix D; Volume 3) is made up of footpaths, bridleways, byways open to all traffic (BOATS) and restricted byways. The number and total length of Rights of Way in Northumberland is given in Table 7.5.

Table 7.5: Rights of Way in Northumberland

Right of Way Type	Number of paths	Kilometres
Footpath	3,503	3,323
Bridleway	998	1,453
Byway	189	203
Restricted Byway	3	1

Source: Northumberland Rights of Way Improvement Plan (NCC 2007)

There are three National Cycle Routes and two Regional routes within Northumberland:

- The Coast and Castles cycle route (National Route 1) starts at Tynemouth and goes up the coast to Berwick-on-Tweed and on into Scotland.
- The Pennine Cycleway (National Route 68) from Cumbria goes to Berwick-on-Tweed via Haltwhistle, Bellingham and Wooler.
- The Hadrian's Cycleway (National Route 72) is open from Ravenglass to South Shields via the Cumbrian Coast, Carlisle and Hexham.
- The Walney to Wear (W2W) cycle route (Regional Route 20) is now open from Barrow-in-Furness to Sunderland via Barnard Castle and Bishop Auckland.
- The Reivers Cycle Route (Regional Route 10) is a signed 170 mile 'coast to coast' route between Tynemouth and Whitehaven via Kielder Forest and Carlisle (Source: Sustrans 2010).

7.4 Archaeology and Cultural Heritage

The historic environment and cultural heritage are important features in Northumberland, especially as they can act as a catalyst for economic regeneration and improved quality of life. As such it is recognised that sustainable development must incorporate protection and enhancement of the historic environment and cultural heritage.

7.4.1 Historic Environment Record

The primary source of information about the historic environment in Northumberland is the Historic Environment Record (HER). It is a database that contains more than 22,000 records with information about archaeological and historic remains as diverse as prehistoric settlements and Hadrian's Wall to historic gardens and the defences of World War II. Some of the monuments, landscapes and buildings are designated sites, which includes Scheduled Monuments, Listed Buildings, Registered Parks and Gardens, Registered Battlefields, and World Heritage Sites. There are 22,511 records currently in the HER.

7.4.2 World Heritage Site

A World Heritage Site is a place of outstanding international importance for the conservation of our universal cultural and natural heritage. The World Heritage List includes a wide variety of exceptional cultural and natural sites, such as landscapes, cities, monuments, technological sites and modern buildings. The World Heritage Convention was established in 1972 by UNESCO (United Nations Educational, Scientific and Cultural Organisation) and set up this list. There is one World Heritage Site in Northumberland (Hadrian's Wall), this and its associated features are the most complex and best preserved of all the frontier works of the Roman Empire. This is illustrated on Figure 7 (Appendix D; Volume 3).

7.4.3 Scheduled Monuments

'Scheduling' is shorthand for the process through which nationally important sites and monuments are given legal protection by being placed on a list, or 'schedule'. English Heritage takes the lead in identifying sites in England which should be placed on the schedule by the Secretary of State for Culture, Media and Sport. A schedule has been kept since 1882 of monuments whose

preservation is given priority over other land uses. The current legislation, the Ancient Monuments and Archaeological Areas Act 1979, supports a formal system of Scheduled Monument Consent for any work to a designated monument. Scheduling is the only legal protection specifically for archaeological sites. Nationally, the schedule has about 19,446 entries. There are 923 Scheduled Monuments in Northumberland (Figure 7; Appendix D; Volume 3).

7.4.4 Listed Buildings

Listing marks and celebrates a building's special architectural and historic interest, and also brings it under the consideration of the planning system so that some thought will be taken about its future. There are three grades of listing:

- Grade I buildings are of exceptional interest, sometimes considered to be internationally important. Just 2.5% of listed buildings are Grade I.
- Grade II* buildings are particularly important buildings of more than special interest. 5.5% of listed buildings are Grade II*.
- Grade II buildings are nationally important and of special interest. 92% of all listed buildings are in this class and it is the most likely grade of listing for a home owner.

There are 5,565 listed buildings in Northumberland (Figure 7; Appendix D; Volume 3). Of these 172 are Grade I (3.1%), 269 are Grade II* (4.8%), and 5,102 are Grade II (91.6%). Listed buildings are protected under the Planning (Listed Buildings and Conservation Areas) Act 1990.

7.4.5 Registered Parks and Gardens

Registered Historic Parks and Gardens are a fragile and finite resource: they can easily be damaged beyond repair or lost forever. In order to recognise the existence of those sites which are of particular historic importance, English Heritage is enabled by Section 8C of the Historic Buildings and Ancient Monuments Act 1953 (inserted by section 33 of, and paragraph 10 of Section 4, to the National Heritage Act 1983) to compile the *Register of Parks and Gardens of special historic interest in England*. There are 17 Registered Parks and Gardens in Northumberland (Figure 7; Appendix D; Volume 3).

7.4.6 Registered Battlefields

The English Heritage Register of Historic Battlefields identifies 43 important English battlefields. Its purpose is to offer them protection and to promote a better understanding of their significance. Each Register entry is based on the available evidence and includes a map of the battlefield area showing the position of the armies and features which were part of the original battleground. These maps are intended to be the starting point for battlefield conservation and interpretation by identifying the most visually sensitive areas. There are four Registered Battlefields in Northumberland (Figure 7; Appendix D; Volume 3) that are national important in terms of both English and Scottish heritage.

7.4.7 Conservation Areas

Conservation Areas vary greatly in their nature and character. They range from the centres of our historic towns and cities, through fishing and mining villages, 18th- and 19th-century suburbs, modal housing estates, and country houses set in their historic parks, to historic transport links and their environs, such as stretches of canal.

The special character of these areas does not come from the quality of their buildings alone. The historic layout of roads, paths and boundaries; characteristic building and paving materials; a particular 'mix' of building uses; public and private spaces, such as gardens, parks and greens; and trees and street furniture, which contribute to particular views - all contribute to the local character of the area. Conservation Areas give broader protection than listing individual buildings: all the features, listed or otherwise, within the area, are recognised as part of its character. There are 71 Conservation Areas in Northumberland.

7.4.8 Heritage at Risk

Heritage at Risk is English Heritage's ground-breaking new programme, which seeks to identify the parts of the nation's historic environment that are endangered, and to rectify this status. There are 1,051 buildings and monuments at risk in Northumberland.

Capabilities on project:
Environment

7.5 Water

7.5.1 Surface Water Quality

The Northumbria River Basin District (RBD) covers an area of 9,029km^2. The RBD includes Northumberland and County Durham, with small areas of North Yorkshire and Cumbria. The RBD is divided into four catchments: Northumberland, Tyne, Wear and Tees. The Tees is the longest river in the RBD, and the Tyne has the largest catchment area. Other major rivers include the Wear, Aln and Coquet rivers. The RBD has 170km of coastline (much of which is designated as SAC, SPA and Ramsar) 25km^2 of estuaries and 34 designated bathing waters, as well as many important marine species and habitats.

There are a number of challenges for water quality in the RBD, including:

- point source pollution from water industry sewage works;
- physical modification of water bodies;
- disused mines, point and /or diffuse pollution source;
- diffuse pollution from agricultural activities; and
- diffuse pollution from urban sources.

As a result of these pressures on water quality, only 43% of surface waters are currently classified as good or better ecological status/potential. Predicted ecological status and potential for surface water bodies in 2015 is shown in Figure 8 (Appendix D; Volume 3).

The Water Framework Directive (WFD) was transposed into law in England and Wales by the Water Environment Regulations 2003. These regulations implement a holistic approach to the management; protection and monitoring of the water environment, requiring that all water bodies achieve good status by 2015. Good status comprises either good ecological status or good ecological potential (if the water body is heavily modified or artificial) and good chemical status.

7.5.2 Reservoirs

Kielder reservoir, located within the Northumberland National Park, is the largest man made lake in Northern Europe, covering an area of 11km^2.

7.5.3 Flood Risk

The Environment Agency has developed Catchment Flood Management Plans (CFMPs) for four Catchment Flood Management Areas (CFMAs) in the Northumberland: the Till and Breamish, North East Northumberland, River Tyne and Rivers Wansbeck and Blyth catchment areas. The flood risk and number of properties at risk of flooding within these catchment areas is shown in Table 7.6.

In total, there are over 11,000 residential and commercial properties at risk of flooding (1% AEP flood event) in CFMAs shown below. The flood risk varies throughout the region, with generally a lower risk in some rural areas and a higher risk in urban areas. Some areas are also at risk of tidal flooding.

Table 7.6: Properties at Risk of Flooding

Catchment Flood Management Plan (CFMP) Area	No. properties at risk*		Flood Risk
	Residential	Commercial	
Till and Breamish	281	18	The risk of flooding is low in the Till and Breamish CFMP area due to the rural nature of the catchment.
North East Northumberland	349	-	In the lower reaches of the Coquet and Aln there are some areas which are at risk from tidal flooding.
River Tyne	4,930	2,000	Low risk of flooding to the rural parts of the CFMP area, but there is higher risk in the urban areas. There is risk of flooding from rivers in Haydon Bridge, Hexham and Corbridge. There is a risk of tidal flooding in the Lower Tyne.
Rivers Wansbeck and Blyth	3,000	500	Main consequences of flooding occur in the urban areas of Morpeth, Ponteland and around Blyth.
Total	**8,560**	**2,518**	

Source: Environment Agency (2010)

* At risk of flooding at the 1% AEP (Annual Exceedance Probability) flood.

7.6 Noise

The main trunk roads in the County include the:

- A1, which travels north to south;
- the A69, which provides an east to west route into Cumbria; and
- the A1 into Scotland.

Much of the traffic on the trunk roads is long distance en route to and from Scotland and the Cumbria region. This is particularly so of freight and tourist traffic. The trunk roads are also used extensively by local traffic as a route between the County and Tyneside. In addition to industrial areas, these road corridors are the main source of noise pollution in the area. Noise from Newcastle International Airport affects only small areas of Castle Morpeth, Tynedale and Blyth Valley Districts.

Northumberland contains a large area of the tranquil space found in England. The criteria for tranquil areas must be taken into consideration when developing transport polices ad plans as they cannot be within 3km from the most highly trafficked roads from large towns i.e. Newcastle and from major industrial estates; 2km from most other motorways and major trunk roads such as the A1 and from the edge of smaller towns; and 1km from medium disturbances roads and some main rail lines.

7.7 Air

The Air Quality Strategy for England, Scotland and Wales sets objectives for air pollutants, nine of which are health based and two are for the protection of ecosystems. NCC has a statutory duty to review and assess local air quality against seven of these pollutants. Where it is found that objectives for the pollutants are unlikely to be met an Air Quality Management Area (AQMA) is declared and an Action Plan must be prepared to set out how the problems will be addressed. Road traffic is one of the main sources of air pollution and so it is for the County Council as the Highway Authority to manage air quality in the county. Northumberland has good air quality in most areas but there are locations where problems have been identified for future action. An analysis of the problems and opportunities related to air quality in the County is discussed below.

There are some pockets of less good air quality associated with industrial and urbanised areas and domestic coal burning in rural areas but there is only one area in the county where an AQMA has been declared, which is Blyth Town Centre. The Council must carry out annual Air Quality Reviews and Assessments as required by the Environment Act 1995. The County Council undertakes these reviews by collecting, analysing and providing details of traffic flows and in particular, the locations where the annual average daily volume of traffic exceeds (or is predicted to exceed) 25,000 vehicles. Blyth town centre was declared at

AQMA in December 2004 due to a breach of the standard for particulates (PM10) caused by traffic. In addition, recent monitoring shows that a breach of the standard for Nitrogen Dioxide, also attributable to traffic, is likely in the near future. Elsewhere in the county the Air Quality Standards attributable to traffic have not been exceeded, nor is this predicted.

European sites in the region may be affected by both local and diffuse air pollution through acid and nitrogen deposition. Nitrogen oxides are mostly produced in combustion processes and around one half of the UK's emissions is from motor vehicles. Table 7.7 shows the where the deposition / critical load has been exceeded.

Table 7.7: European Sites Affected by Air Pollutants

European site name	Feature most sensitive to Nitrogen and acid deposition	Critical load exceeded	
		Acid Deposition	Nitrogen deposition
Border Mires Kielder – Butterburn SAC	Blanket Bogs	Exceeded	Exceeded
Castle Eden Dene SAC	*Taxus baccata* woods	Exceeded	Exceeded
Harbottle Moors SAC	European Dry Heaths	Exceeded	Not exceeded
Moor House- Upper Teesdale SAC	Alpine and Boreal Heaths	Exceeded	Exceeded
North Northumberland Dunes SAC	Fixed dunes with herbaceous vegetation (`grey dunes`), Embryonic shifting dunes	Not exceeded	Exceeded
North Pennine Dales Meadows SAC	Mountain hay meadows	Exceeded	Exceeded
North Pennine Moors SAC	European Dry Heaths	Exceeded	Exceeded
	Blanket Bogs	Exceeded	Exceeded
North York Moors SAC	European Dry Heaths	Exceeded	Exceeded
	Blanket Bogs	Exceeded	Exceeded
Simonside Hills SAC	European Dry Heaths	Exceeded	Not exceeded
	Blanket Bogs	Exceeded	Exceeded
Tyne and Allen River Gravels SAC	Calaminarian grasslands of the *Violetalia calaminariae*	Not exceeded	Exceeded
Tyne and Nent SAC	Calaminarian grasslands of the *Violetalia calaminariae*	Not exceeded	Exceeded
North Pennine Moors SPA	Threat to the upland moor habitat on which *Pluvialis apricaria* breeds and feeds	Exceeded	Exceeded
North York Moors SPA	Threat to the upland moor habitat on which *Pluvialis apricaria* breeds and feeds	Exceeded	Exceeded
Teesmouth and Cleveland Coast SPA	N Deposition may contribute to increased vegetation cover on dunes. This may adversely affect breeding sites of *Sterna albifrons*	Not exceeded	Exceeded

Source: ONE North East (2008)

7.8 Climatic Factors

Climate change is a topical concern with global attention and could have significant impacts in Northumberland through weather changes and sea level rises. Transport has an important role to play in tackling climate change, principally through addressing the emission of transport related greenhouse gases.

Although some areas of Northumberland have seen a percentage decrease in their CO_2 emissions due to increases in emissions from road transport in Alnwick and Berwick-upon-Tweed from road transport, the percentage of total emissions across the county has actually increased. Only in Tynedale where emissions are higher has the figure remained the same. These changes are illustrated in Table 7.8.

Capabilities on project:
Environment

Table 7.8: CO_2 Emissions by Road Transport, Northumberland (kilo tonnes)

Authority	Base Year (2005)	% of Total Emissions	2007	% of Total Emissions	% Increase
Alnwick	77	30%	80	32%	4%
Berwick-upon-Tweed	91	32%	93	33%	2%
Blyth Valley	111	22%	109	23%	-1%
Castle Morpeth	127	31%	124	34%	-2%
Tynedale	185	24%	185	24%	0%
Wansbeck	71	9%	71	10%	0%
Northumberland	662	22%	663	23%	0%
North East England	4,782	23%	4,783	23%	-1%
England	86,090	24%	84,976	24%	-1%

Table 7.9 shows CO_2 emissions by road transport per head of population for the three year period between 2005 and 2007. This allows for a comparison to be made between different spatial areas. The data shows that in 2007 Northumberland had an emissions per capita total which was higher than both the regional and national figures. It is likely that this is the result of the higher than average car ownership levels in Northumberland. It will also have been impacted by the rural nature of the county which leads to the resident population needing to travel further distances to access key services and facilities.

Within Northumberland it is Wansbeck which had the lowest levels of emissions per head of population in 2007 at 1.16 tonnes. This was much lower than both the regional and national averages. Wansbeck has the lowest car ownership levels in Northumberland.

Berwick-upon-Tweed and Tynedale had the highest levels of CO_2 emissions by road transport per capita in 2007 at 3.58 and 3.11 tonnes respectively. Both of these districts are located in more rural areas of Northumberland where public transport is often not commercially viable and the need to travel is often increased.

Table 7.9: CO_2 Emissions by Road Transport, Northumberland (tonnes per capita)

Authority	Base Year (2005)	2006	2007	% Increase
Alnwick	2.4	2.37	2.47	3
Berwick-upon-Tweed	3.5	3.47	3.58	2
Blyth Valley	1.36	1.33	1.35	-1
Castle Morpeth	2.57	2.50	2.50	-3
Tynedale	3.11	3.05	3.11	0
Wansbeck	1.15	1.16	1.16	1
Northumberland	2.13	2.10	2.41	0
North East England	1.88	1.84	1.85	-1
England	1.71	1.66	1.66	-3

Capabilities on project:
Environment

7.9 Soil

7.9.1 Geology

The geology of Northumberland is a rich and varied mix. In the south are the mineral-bearing limestones of the carboniferous era, while farther north is the ragged line of the Great Whin Sill, exposed most notably along the course of Hadrian's Wall and on Holy Island. Igneous and sedimentary rocks which are the oldest rocks to the northwest and progressively younger rocks to the east and south east. The underling geology is dominated by sedimentary Carboniferous rocks which form many of the distinctive landscapes in Northumberland.

Designated geological sites have been previously discussed under the heading of SSSI where sites are designated, partly or wholly due to geological interest. For example, Cheviot hills SSSI displays volcanic rocks with craggy outcrops of lava and tors of granite found on some hills in the range in addition to glacial and postglacial features.

The North Pennines AONB is also a European Geopark, highlighting its globally important earth heritage.

7.9.2 Agricultural Land Classification

Agricultural land in England is classified under the Agricultural Land Classification (ALC) into five grades, with Grade I being the best quality and Grade 5 the poorest quality (Figure 9; Appendix D; Volume 3). Planning Policy Statement 7 (PPS7) Sustainable Development in Rural Areas (August 2004) paragraphs 28 and 29 sets out the Government's policy on best and most versatile land, which is defined as Grades 1, 2 and 3a.

The majority of the County is classified as Grade 3 under the ALC, with areas of Grade 4 and 5 in the more upland areas in the west of the Country. There is very little Grade 2 and no Grade 1 land within the County.

7.9.3 Land Contamination

Northumberland has a number of sites classed as contaminated, the majority due to former industrial activities including chemical and gas works, quarries, tanneries and landfills of which the majority are located in the south east of the county in north Tyneside. As a result, the districts have formed Contaminated Land Strategies which forms a database based on historical OS maps and directories from industry and commercial uses.

7.10 Population

7.10.1 Population

Northumberland is the sixth largest county in England by size with a land area of 500,000 ha. With a population of approximately 310,600 it is also the least densely populated. There is an uneven distribution of population with over half living in the urbanised south east which covers only 5% of the County's area. There is a very low population density in the rural north and west which creates particular challenges for the delivery of services.

Northumberland has seen a steady increase in its total population. The most recent population estimates suggest that the former Alnwick District[4] has seen the biggest increase in population. The south east of the county, which currently comprises the former Wansbeck and Blyth Valley districts and the eastern coastal villages of the former Castle Morpeth District, contains the three largest towns: Ashington, Blyth and Cramlington (originally a new town that has been a sub regional focus for housing and employment since the 1960's).

The rural north and west currently comprises the former districts of Alnwick, Berwick-upon-Tweed, north and west Tynedale and the rural west of Castle Morpeth. There are four market towns, Alnwick, Berwick-upon-Tweed, Hexham and Morpeth, and many

[4] A new unitary council (Northumberland County Council) has is a new unitary council from 1st April 2009. It continues to deliver some services provided by the former Northumberland County Council as well as all of the services previously provided by Alnwick, Berwick, Blyth, Castle Morpeth, Tynedale and Wansbeck District Councils.

other dispersed small towns and villages. The Northumberland National Park and two Areas of Outstanding Natural Beauty lie within this area.

The Tyne Valley runs west from Newcastle on Tyne to Hexham. The area has an attractive environment and good road and rail links to Tyneside. Much of the area is covered by Green Belt and has come under particular pressure for commuter led housing development arising from Tyneside.

Northumberland has an ageing population which puts pressure on services. Whilst Northumberland as a whole appears to have a similar percentage breakdown across the age groups as the rest of the North East and England, two of the former districts are slightly different. Berwick-upon-Tweed and Alnwick both have much higher proportions of people in the older age group: 27.9% and 24.2% respectively (Table 7.10). The working age population accounts for 63.8% of the Northumberland population. Males outnumber females before retirement age in both groups, whereas females significantly outnumber males in the oldest age bracket. This number is enough to ensure that females outnumber males in the total population of Northumberland.

Northumberland has a small percentage of people from minority ethnic groups compared to England as a whole. In the 2001 Census, 98.09% of the population in Northumberland gave their ethnic origin as White British compared to 86.99% in England. Approximately 93.3% gave their country of birth as England and a further 4.5% as other parts of the UK.

Table 7.10: Population Change 2001 to 2007

District	Total Population 2001 Census	Total population 2007 estimates	Population Change 2001 – 2007 (%)
Alnwick	31,033	32,300	3.92%
Berwick-upon-Tweed	25,948	26,000	0.20%
Blyth Valley	81,265	81,300	0.04%
Castle Morpeth	49,011	49,800	1.58%
Tynedale	61,124	61,700	0.93%
Wansbeck	58,805	59,500	1.17%
Northumberland	307,186	310,600	0.93%

Source: Census 2001/ONS mid-year estimates for 2007

7.10.2 Housing

There are 142,732 dwellings in Northumberland (Table 7.11). Semi-detached properties predominate, accounting for over a third of the housing stock. Two thirds of Northumberland's housing stock is owner occupied. There are differences in tenure characteristics within Northumberland. The former District of Castle Morpeth has the greatest percentage of owned property (75.5%) and the least amount of rented property (24.3%). The former borough of Berwick-upon-Tweed has the greatest amount of rented property (42.4%) and the least amount of owned property (57.4%) (Table 7.12).

Table 7.11: Dwelling Stock 2007

District	Total dwelling stock	Local Authority Stock		RSL stock and other public sector stock		Other public sector stock		Owner occupied and private rented	
	No.	No.	%	No.	%	No.	%	No.	%
Alnwick	15,731	1,788	11.4	641	4.1	702	4.5	12,600	80.1
Berwick-upon-Tweed	14,164	1,977	14.0	383	2.7	0	0	11,804	83.3
Blyth Valley	36,101	6,867	19.0	1,846	5.1	89	0.2	27,299	75.6
Castle Morpeth	21,727	2,359	10.9	408	1.9	82	0.4	18,878	86.9
Tynedale	28,312	5,531	19.5	563	2.0	0	0.0	22,218	78.5
Wansbeck	26,697	0	0	3,847	14.4	13	0.0	22,837	85.5
Northumberland	142,732	18,522	13.0	7,688	5.4	886	0.6	115,636	81.0

Source: Composite from information retrieved from *http://neighbourhood.statistics.gov.uk*

Table 7.12: Housing Stock by Tenure

	Owner occupied (%)	Rented (%)			
		Council (%)	Housing Association or Registered Social Landlord (%)	Private landlord or letting agent (%)	Other (%)
Alnwick	62.41	15.15	4.77	10.39	7.28
Berwick-upon-Tweed	57.54	18.99	2.75	13.10	7.61
Blyth Valley	66.82	21.64	5.10	4.12	2.31
Castle Morpeth	75.56	11.90	1.87	6.20	4.48
Tynedale	65.08	22.98	3.82	5.68	2.44
Wansbeck	69.73	8.25	7.39	9.93	4.69
Northumberland	67.07	17.00	4.53	7.30	4.10
North East	67.07	22.38	5.26	6.28	2.45

Source: ONS Census 2001

There is a low proportion of flatted accommodation (10.5%) compared to both the North East and national averages. The composition of the housing stock varies across the former districts. Rural areas such as Alnwick, Castle Morpeth and Tynedale have high proportions of detached properties whilst in Wansbeck, terraced housing is prevalent.

House prices in Northumberland have increased more in the last ten years than in the region and country as a whole. The mean house price in 2007 in Northumberland was £178,371, compared to £142,218 in the North East and £219,804 in England and Wales. Alnwick District has experienced the biggest house price increases in Northumberland (224%). Prices vary considerably across Northumberland. Castle Morpeth is the most expensive of the former districts with a mean house price of £258,075 whilst Wansbeck is the cheapest at £119,053.

The ratio of median house price to median earnings was higher in 2007 in Northumberland (6.82) than the figure for the North East (5.71) but less than for England (7.26). Some areas of Northumberland have a particularly significant disparity between income and house price. This is a major housing issue for Northumberland. The highest ratio of median house price to median earnings in 2007 was in Alnwick District (9.75). In all districts this figure has gone up in 2007 which reflected the national trend.

7.10.3 Education and Employment

For many years, the economy of Northumberland has experienced fundamental economic restructuring. Jobs have been lost in the traditional industries, particularly deep coal mining and agriculture. Whilst job losses have been partially offset by the creation of new jobs in manufacturing and the service sector, unemployment rates in some of areas of Northumberland are significantly higher than the national average.

The percentage of males of working age seeking Job Seekers Allowance in Wansbeck is 6.0% compared to a national figure of 3.5%. Maintaining and increasing the number and diversity of jobs in Northumberland, particularly in those areas suffering high unemployment, continues to be a major issue for Northumberland Country Council.

In Northumberland as a whole, 79.8% of the working age population is economically active, higher than both the region (76.4%) and country as a whole (78.6%). The percentage of women economically active is particularly high at 76.7% compared to 72.6% in the region and 73.5% in Great Britain. The percentage of males economically active (82.6%) is lower than the national average of 83.2%. The former Tynedale District has the highest percentage of persons overall economically active (82.0%). The former districts of Alnwick and Berwick upon Tweed have relatively high percentages of males economically active (88.6% and 88.5% respectively) (Table 7.13).

Table 7.13: Economically Active

	Males (%)	Females (%)	Total (%)
Alnwick	88.6	74.3	81.8
Berwick-upon-Tweed	88.5	71.4	81.1
Blyth Valley	81.0	78.0	79.6
Castle Morpeth	80.5	72.8	76.9
Tynedale	82.1	82.0	82.0
Wansbeck	81.3	75.8	78.7
Northumberland	82.6	78.7	79.8
North East	79.8	72.6	76.4
Great Britain	83.2	73.5	78.6

Source: NOMIS official labour market statistics

Northumberland differs from the North East and the rest of England in its low percentage of jobs in finance, IT and business activities. Northumberland has 10.1% of jobs in the sector compared to the North East where the percentage is 16.1 % and Great Britain where it is 21.2%. On the other hand, Northumberland has a higher percentage (37.8%) of jobs in the public administration, education and health sector than the North East (32.5%) and Great Britain (26.9%). Tourism also makes an important contribution to the Northumberland economy, accounting for 11.6% of jobs (Table 7.14).

Northumberland has a higher percentage of part-time jobs (40%) than either the North East (32.3%) or Great Britain (31.1%). Average earnings for employees working in Northumberland are lower than regionally or nationally for both full-time and part-time workers and both male and female workers (Table 7.15).

Table 7.14: Employment by Occupation (Jan 2007 – Dec 2007)

Occupation	Northumberland %	North East %	Great Britain %
Managers and senior officials	15.0	12	15.3
Professional occupations	13.1	11.9	13.0
Associate professional and technical	13.4	13.9	14.6
Administrative and secretarial	11.6	11.9	11.7
Skilled trades occupations	10.2	10.9	10.8
Personal service occupations	10.6	8.0	8.0
Sales and customer service occupations	7.6	9.1	7.6
Process, plant and machine operatives	7.6	9.2	7.2
Elementary occupation	10.9	12.6	11.4

Source: ONS annual population survey

Table 7.15: Employee Jobs by Industry

Occupation	Northumberland %	North East %	Great Britain %
Manufacturing	11.3	12.5	10.9
Construction	6.5	5.7	4.8
Services:	80.9	80.5	10.9
- Distribution, hotels and restaurants	23.7	22.3	23.5
- Transport and communications	3.4	4.2	5.9
- Finance, IT, other business activities	10.1	16.1	21.2
- Public admin, education and health	37.8	31.8	26.9
- Other services	6.0	5.1	5.3
- Tourism-related†	11.6	8.5	8.3

Source: ONS annual business inquiry employee analysis

† Tourism consists of industries that are also part of the services industry

Capabilities on project:
Environment

Northumberland performs above the average for the country and region in terms of the numbers of people holding a qualification. Only 11.3% of the working age population do not hold a qualification of any type (Table 7.16). Within Northumberland, the former Wansbeck District has the highest percentage of working age people with no qualifications (15.9 %). In terms of the percentage of people with the highest level of qualification, NVQ4 or above, Northumberland performs less well. Only 24.0% of working age people have achieved qualifications at this level compared to the average for the region of 24.3% and 28.6% in Great Britain. The former districts of Castle Morpeth and Tynedale, however, have above average percentages of people holding qualifications at NVQ4+ level (35.5% and 34.2%).

Table 7.16: No. of Working Age People with No Qualifications

Occupation	% No qualifications
Alnwick	10.4
Berwick-upon-Tweed	12.1
Blyth Valley	12.6
Castle Morpeth	7.2
Tynedale	8.1
Wansbeck	15.9
Northumberland	11.3
North East	13.8
Great Britain	13.1

Source: ONS annual population survey

7.10.4 Tourism and Recreation

Northumberland has a wealth of natural and historic features that make it a popular tourist destination and recreational resource for visitors and residents alike. The area also has an extensive Public Right of Way network used for walking, cycling and riding, which supports the tourism industry. The needs of the tourism industry must be integrated with those of the natural and historic environment to ensure a balance between promoting the attractions to visitors and ensuring their future protection.

Some of the main attractions within the County include Northumberland National Park, which attracts over 1.4 million visitors a year and Hadrian's Wall, which has 1 million visitors a year. Other key attractions include the Northumberland Coast, Keilder Water, Cragside Park, Bamburgh, Alnwick and Warkworth Castles

Tourism in Northumberland makes a significant contribution to the economy of the area. In 2007 it was estimated that tourism accounted for 11.8% of employment in Northumberland – placing tourism in the top three employment sectors in the area. The importance of tourism in Northumberland is expected to grow in the coming years with the current economic climate seeing UK residents opting to holiday domestically or make only day trips to tourist attractions.

7.11 Human Health

7.11.1 Health

Health problems are greatest in areas of Northumberland where levels of social and economic deprivation are higher. Although health is improving and the health gap between communities is being closed, there is still much room for improvement.

The Department of Health Northumberland Health Profile 2010 (Department of Health 2010) reports that overall, the health of people in Northumberland is generally similar to the England average and levels of deprivation are lower than average. Life expectancy for men are similar to the England average, however, life expectancy for women is lower than average. Inequalities exist in terms of life expectancy e.g. for men living in the most deprived areas is eight years lower than for men living in the least deprived areas. This difference in life expectancy is five years for women.

The Index of Deprivation 2007 (IMD 2007) produced by the Department for Communities and Local Government (DCLG 2007) highlights the variation across the County in terms of the incidence of deprivation and social disadvantage. The IMD brings

together 37 different indicators which cover specific aspects or dimensions of deprivation: Income, Employment, Health and Disability, Education, Skills and Training, Barriers to Housing and Services, Living Environment and Crime.

Northumberland is ranked the 87th most deprived county/unitary authority in England (where 1 = the most deprived and 149 = least deprived). It is the least deprived of all countries or unitary authorities in the North East.

There are, however, concentrations of deprivation within certain areas of the County. South East Northumberland has the greatest overall concentrations of deprivation. There are 15 Lower Super Output Areas (LSOAs) in South East Northumberland ranked amongst the most 10% of all LSOAs in England. The Hirst LSOA in Ashington has the greatest overall concentration of deprivation within the County ranked 243 out of 32,482 LSOAs in England (where 1 = the most deprived and 32,482 = least deprived). Ponteland South has the least concentration of deprivation in the County being ranked 31,653 out of 32,482.

The northern and western parts of Northumberland have low population densities which are also impacted by seasonal trends in holiday and second home occupation. Reduced accessibility to services and higher living costs are not assessed in traditional indicators of deprivation, which underestimate rural isolation as a factor in deprivation.

7.12 Material Assets

7.12.1 Transport and Communications

The development of an efficient and sustainable transport system is essential to the future prosperity of Northumberland but the rural nature of much of the area and the incidence of daily commuting of many residents to jobs in Tyneside creates particular challenges. The principal roads in Northumberland are the A1, A69, and A19 trunk roads and the A68/A696, A697 and A189 county roads. The main East Coast and the Newcastle to Carlisle passenger railway lines pass through Northumberland and provide limited local services and access to the inter-city routes serving the rest of the country. There are no passenger rail services in South East Northumberland but it has been a long standing ambition in Northumberland to secure the reintroduction of services on rail lines retained in the area for freight traffic.

The East Coast Mainline Railway also serves the area with regular passenger services that travel between London and Scotland. More locally, the Tyne Valley Railway line connects the west of the county with Gateshead and Newcastle City Centre.

Local bus services form a network throughout south east Northumberland linking the main towns of Blyth, Cramlington, Ashington, Bedlington and Morpeth to each other and Newcastle upon Tyne. In addition there are express bus services to other Northumberland towns, including Alnwick, Berwick-upon-Tweed and Hexham to Newcastle upon Tyne. Some areas of rural Northumberland are considered unviable for the supply of commercial bus services, although a public bus service is created during term time in these areas with school buses being made available for public uses.

Northumberland does not have its own International airport but the A1 provides access to Newcastle International Airport in the south and Edinburgh International Airport in the north. Similarly, there are no ports in Northumberland which provide passenger services but the Port of Tyne located in North Tyneside can be easily accessed from Northumberland by road. The ports of Amble, Blyth and Berwick-upon-Tweed also contribute to the transport network and play an important role in the local economy.

7.12.2 Car Ownership

Car ownership in Northumberland is slightly higher than the national average and much greater than in the North East as a whole. Car ownership is particularly high in Alnwick, Castle Morpeth and Tynesdale. However, there are districts within the region where car ownership levels are much lower than the national average, namely Wansbeck and to a lesser extent Blyth.

Car ownership levels are often indicative of the levels of deprivation in an area. Increasing wealth is linked to higher levels of car ownership and although congestion may not be such an issue for Northumberland at present, increasing car ownership levels could lead to it being a concern in the future.

7.12.3 Mode of Journey to Work

In terms of commuting to work, the dominant mode of trips originating in Northumberland is the car, with 58% of commuter trips being made by car where the person being surveyed is the driver. This figure is slightly higher than the national average, although this is to be expected in rural counties where distances to work are likely to be longer and public transport options are not always available.

Public transport usage in the county is low with only 6% of commuters travelling by bus and 1% of commuters by train. This could be reflective of the rural nature of the county and dispersed population settlements meaning public transport is often not commercially viable for the provider or convenient for the passenger. Nationally, 8% of people take the bus to work with 4% of people taking the train. Non motorized forms of transport account for 14% of journey to work trips in Northumberland. These are split between walking and cycling, 12% and 2% respectively.

7.12.4 Distances Travelled to Work

In total 21% of the population of Northumberland live within 2km of their workplace which is considered a suitable distance for walking to work. The figures vary amongst the districts within Northumberland with 36% of the population of Berwick living within 2km of their workplace compared to only 16% in Castle Morpeth. An additional 11% of the population of Northumberland live within 5km of their workplace which is also considered a suitable distance for cycling to work.

Within Northumberland, there are more people travelling 10-30km than in both the North East and England. This is to be expected given that the county is rural in nature with a dispersed settlement pattern requiring residents to travel further to work. In Castle Morpeth, 15% of the population commute 20-30km to their place of work.

Capabilities on project:
Environment

8 Key Issues

8.1 Introduction

This chapter of the Environmental Report presents a summary of the key environmental/sustainability issues or considerations that have been identified for Northumberland, following an evaluation of the baseline situation and through scoping / consultation.

8.1.1 Environmental Considerations:

- Mainly rural County with some densely populated and urban areas.
- High quality environment of international importance in landscape, heritage and biodiversity e.g. Northumberland National Park.
- Large proportions of Northumberland are designated areas of nature conservation importance (International to Local level designations).
- Diverse landscape large proportions of which are of very high quality (AONB).
- Rich and diverse cultural heritage.
- Total CO_2 emissions in Northumberland have increased between 2005 and 2007.
- CO_2 emissions from road transport in the North East are set to increase.
- Designated Air Quality Management Area (AQMA) in Blyth Town centre.

8.1.2 Social Considerations

- There are areas of high deprivation and high wealth in Northumberland.
- Population growth is expected to be concentrated in rural areas, putting increased pressure on transport networks between rural areas and urban centres.
- Increasing proportion of elderly residents resulting in a requirement for increased transport to health facilities.
- Growth in number of households predicted – their location could put pressure on the existing transport network.
- Employment growth in the North East is centred in Tyne and Wear despite housing growth points being established in neighbouring authorities, resulting in a need to commute.
- Private car use is higher than the national average and car ownership in Northumberland is forecast to increase.
- Public transport usage in Northumberland is lower than national average.

8.1.3 Economic Considerations

- Population density is highest in South East of the County on the periphery of Tyne and Wear, where employment opportunities are located.
- There are insufficient jobs within many areas of Northumberland to support the population. People are required to commute to neighbouring areas, such as Tyne and Wear.
- Areas of low population density means that essential services and facilities are not commercially viable – leads to an increased need to travel.
- Tourism makes a significant contribution to the economy of the area, but the majority of tourist use private car to access the region which is affecting a number of tourist destinations including Northumberland National Park.

9 Assessment Methodology

9.1 Introduction

This chapter of the Environmental Report sets out how the SEA has informed the development of Northumberland's LTP3 and provides details of the methodology that has been used to deliver this SEA.

The approach to the SEA of the LTP3 is set out in a series of tasks (Table 9.1) that relate to the stages B and C of the SEA process. Stage A is outlined in Chapter 5 of this report.

Table 9.1: Approach to the SEA

Tasks			Description
Stage B: SEA Assessment			
Task B1	Review findings from previous SEAs		- Review the previous SEA of the LTP2. - Identify key findings/issues from that SEA.
Task B2	Assessment of alternatives		- Identify strategic alternatives/policies. - Assess alternatives. - Provide justification/information to support selection of the preferred policies and alternatives.
Task B3	Identification of key priorities/issues (areas of focus for the assessment)		- Review proposed policies/proposals within the LTP3. - Identify from initial assessment where significant potential effects could occur. - Provide clear justification/information to support identification of policies that could have significant adverse effects and therefore taken forward for more detailed assessment.
Task B4	**Assessment Workshop**	Predict and Evaluate the effects	- Focus on key policies/proposals within the LTP3 where significant adverse effects are likely to occur. - Workshop with LTP authors, Council officers, statutory consultees and other key stakeholders. - Predict how the policies that are likely to have significant adverse effects presented within the LTP3 will affect the baseline situation. - Assess the direction of change, the magnitude, the geographical scale of the effect, the timescale over which the effect will occur/last for and assess whether the effect is direct or indirect. - Develop significance criteria to evaluate the significance of the effect of the LTP3 policies on the baseline situation. - Consider any cumulative effects associated with other policies.
Task B5		Mitigation Measures	- Identify during the workshop sessions measures to mitigate any significant negative effects. - Identify during the workshop sessions measures to improve/enhance the sustainability of policies.
Task B6	Proposing measures to monitor the significant effects of implementing the LTP3		- Suggest measures for monitoring the effects of the LTP3 using the indicators identified in the previous LTP2 and Sustainability Appraisals (SAs) of Development Plan Documents (DPDs). - Make recommendations for updating and reviewing the baseline data to ensure that the effects of the LTP3 can be monitored effectively. - Make recommendations for addressing any 'adverse' effects identified during monitoring. - Make recommendation for incorporating the results of monitoring into future LTPs and other related plans.

Capabilities on project:
Environment

Tasks		Description
Stage C: Prepare Environmental Report		
Task C1	Prepare Environmental Report for client review	- Issue Environmental Report (ER) to council for internal review.
Task C2	Issue ER for Consultation	- Issue ER for consultation.
Stage D: Public Consultation		
Task D1	Public Consultation	- Issue ER with the draft LTP3 for consultation. - Review comments from consultation and implications for the SEA and the LTP3. - Prepare report on implications of the comments from consultation on the LTP3.
Task D2	Revisit Environmental Report (may not be required)	- Should the LTP3 have to be changed significantly, as a result of consultation, then the main ER may also have to be reviewed and updated accordingly.
Task D3	Prepare SEA Statement	- Prepare an SEA Statement following adoption of the LTP3 that concludes how the LTP3 incorporated the findings of the SEA and consultation responses.

9.2 Assessment Methodology

The assessment process comprises a series of four stages, the output from each informing the following stage as set out below. These stages include:

1. Establishing the baseline and subsequently highlighting any key issues (informed from the scope).
2. Assessing the effects of the proposed policies on the environment.
3. Assessing the cumulative and in-combination effects of the LTP3.
4. Identification of appropriate mitigation measures to avoid, reduce or offset any adverse effects that are identified and opportunities for improving the effectiveness of the LTP3.
5. Setting out any monitoring requirements as a consequence of this assessment.

9.2.1 Establishing the Baseline and Identifying the Key Issues

A summary of the relevant baseline data is presented in Chapter 7 of this Environmental Report. Key environmental issues for consideration have been identified from the analysis of this data are presented in Chapter 8 of this report.

9.2.2 Assessing the Effects of the LTP3

SEA is an iterative process which can be used to inform selection of the preferred policies. Figure 2 below illustrates how the SEA process has informed the development of the LTP3 policies and the selection of the preferred policies to ensure they are environmentally sustainable.

The assessment did not involve any weighting of the SEA topics and each topic has been considered in terms of its own value. The main purpose of the SEA is to provide guidance and advice on where potentially significant adverse effects could occur and how these can be avoided or reduced. It is not the role of the SEA to determine which of the topics assessed are of greater or lesser value than others.

Capabilities on project:
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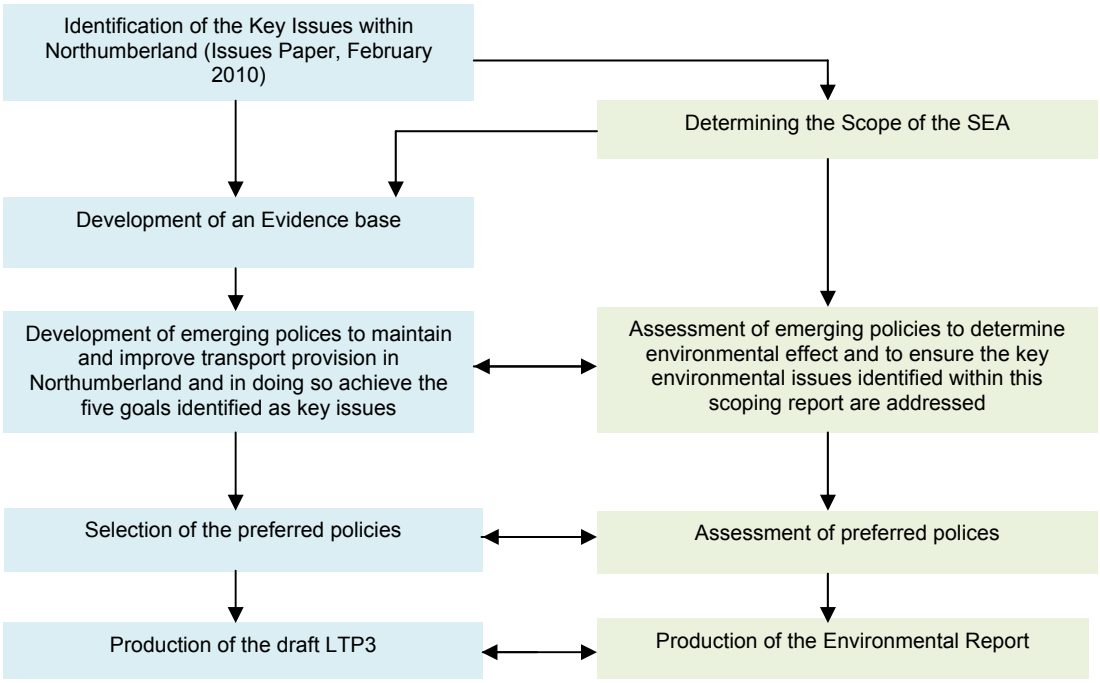
Figure 2: The SEA process in the development of the LTP3



9.2.3 Predicting the effects of the LTP3

In identifying changes to the baseline and describing the magnitude of these changes the following criteria have been applied to the prediction of potential effects:

- Whether a potential effect is positive or negative, temporary or permanent, short or long term;
- Whether a potential effect will occur during construction or installation, operation, ongoing maintenance or during decommissioning;
- The geographical scale of a potential effect– local (area of development) regional or national; and
- Whether a potential effect is direct or indirect, secondary, cumulative or synergistic.

9.2.4 Evaluation Criteria

The evaluation criteria that have been used in the assessment of the LTP3 reflect the strategic high level nature of this SEA.

Significance is a measure of the magnitude of a potential effect compared to/in relation to the sensitivity or importance of the receptors. An accurate and robust determination of effect magnitude or sensitivity of a receptor requires a certain level of qualification or quantification. This is generally based on the information contained within the plan, programme or strategy being assessed and the information contained within the baseline review.

Table 9.2 sets out the evaluation criteria that have been used to assess the effects of the LTP3 interventions on the receptors that have been identified in Table 6.2

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Environment

Table 9.2: Evaluation Criteria

Potential Effect		Evaluation Criteria
Significant Adverse	--	The precise measure for a significant adverse effect will vary across the different SEA topics. However, in general, the key factors influencing the potential for a significant adverse effect to occur are likely to include: - Permanent, long term or irreversible change in baseline conditions e.g. reduction in quality of baseline environment or effect on baseline features (receptors) - Direct and indirect effect on baseline features of international or European importance e.g. habitats, species and sites designated under the EU Habitats or Birds Directives. - Direct effect on baseline features of national importance (e.g. habitats or species of national value/importance)
Slight Negative	-	As above, the measure of a slight negative effect will vary across the different SEA topics. However, in general, the key factors influencing the potential for a slight negative effect to occur are likely to include: - Temporary, short term or reversible change in baseline conditions e.g. reduction in quality of baseline environment or effect on baseline features (receptors) - Indirect effect on baseline features of national importance (e.g. habitats or species of national value/importance) - Direct effect on baseline features that are not designated under international, European or national legislation
No Impact	=	The will be no interaction between the LTP3 policies and the baseline environment / feature.
No Change From Baseline	~	There will be no change in baseline environment/features resulting from the implementation of the LTP3 policies.
Slight Beneficial	✓	The implementation of the LTP3 policies will have a slight positive effect on the baseline environment/features.
Beneficial	✓✓	The implementation of the LTP3 policies will have a positive effect on the baseline environment/features.

9.3 Consultation Workshop

An SEA workshop was held on 16 September 2010. A number of delegates were invited from Northumberland County Council, the Environment Agency, Natural England, English Heritage, National Parks, Institute of Occupational Medicine, Strategic Health Authority and the Care Trust.

The aim of the Workshop was to discuss the initial assessment of the Northumberland LTP3 and was used to collate the delegate's views and comments based on their local knowledge and expertise to ensure the assessment was appropriate to both the plan and had considered the local environment.

The workshop included a presentation to the attendees, which included an overview of the SEA process, work undertaken to date and the next steps. Attendees were split into groups to discuss the results of the preliminary assessment of each of the LTP3 interventions and were given an opportunity to provide comments on any other unidentified effects, key issues or alternatives.

One of the key outcomes of the consultation workshop was the feedback received in terms of presentation of the results; in particular the presentation of potential temporary short term construction impacts.

Interventions that involved construction activities were assessed as having a potential temporary negative impact on most SEA topics. Whilst it is important to highlight where temporary effects could occur, with good practice and appropriate construction mitigation, these effects can be avoided.

It was felt that the presentation of construction effects was masking the key issues and therefore, a two stage assessment process has been applied. Potential construction effects have been assessed initially and following that an assessment of the potential permanent effects was undertaken. Chapter 10 discusses temporary construction impacts and mitigation in more detail.

10 Construction Impacts and Mitigation

10.1 Introduction

This chapter outlines the typical construction related impacts and mitigation for each SEA topic.

10.2 Construction Impacts and Mitigation

Some interventions are predicted to have potential temporary negative effects on the environment as a result of construction activities. However, the majority of these effects are temporary in nature and the potential impact can be avoided or reduced through mitigation. There are 13 interventions that have been identified as having the potential for temporary negative environmental effects as a result of construction activity (Table 10.1).

Table 10.1: Interventions Potentially Resulting In Construction Impacts

Intervention *(as assessed in SEA)*		**Intervention** *(as presented in LTP3)*
Highway Capacity Interventions	1 (A1 Dualling)	A1 Improvements
	2 (Morpeth Northern Bypass)	Morpeth Northern Bypass
	3 (A19 Junction Improvements)	Increasing Network Capacity - *A19 (T) Junction improvements*
	4 (Telford Bridge Junction Improvements)	Increasing Network Capacity - *Telford Bridge, Morpeth*
	5 (Blyth Central Link Road)	Blyth Central Link Road
	6 (A193 Cowpen Road Corridor, Blyth)	A193 Cowpen Road Corridor, Blyth
	7 (A189 to Battleship Wharf)	A189 to Battleship Wharf
	8 (General Highway Capacity Improvement)	Managing and Maintaining the Network - *Transport asset management*
Public Transport Interventions	18 (Improved coach parking)	Improving facilities for coach travel
Freight Interventions	1 (Efficient rail freight network operation)	Freight / Intra Modal Freight Transport
	2 (Promote rail freight)	Freight / Intra Modal Freight Transport
Non Motorised Users Interventions	5 (Continuous walking/cycling routes)	Active Travel Choices/ Promote Walking
Climate Change Interventions	1 (Capital programme to strengthen infrastructure)	Capital programme to strengthen infrastructure

Table 10.2 details the potential negative effects on each of the SEA topics that may arise from construction activities associated with the interventions above. For each of these negative effects, recommended mitigation measures are shown. These mitigation measures given in Table 10.2 have been taken into account in the assessment of construction effects. Provided that further environmental assessment is undertaken (whether this be a full Environmental Impact Assessment (EIA) or specific air quality, noise and protected species surveys) for those interventions that are likely to have potential adverse effects during construction, no adverse effects are predicted.

For the larger schemes a Construction Environmental Management Plan (CEMP) will be developed and fully implemented prior to construction. This will ensure that proposed mitigation measures and good practice measures are adhered to.

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Table 10.2: Typical Construction Impacts and Mitigation

SEA Topic	Potential Impacts	Mitigation
Biodiversity	- Vegetation removal - Loss of habitat	- Minimise tree/vegetation/topsoil removal - Habitat restoration
	- Loss of protected species	- Protected species surveys - Timing of construction - Footbridges and underpasses
	- Hedgerow removal	- Avoid/ minimise removal - Replanting of hedgerows
	- Impacts on breeding / wintering birds	- Site clearance outside the bird breeding season - Breeding bird surveys
Landscape	- Visual impacts of construction activities	- Techniques to integrate the scheme into the surroundings - Visual barriers (fencing /hedge planting) - Retain and manage existing vegetation
Archaeology and Heritage	- Impacts on Scheduled Monuments, listed buildings or structures	- Consult with Country Archaeologist prior to construction - Minimise and monitor ground disturbance
	- Impacts on unknown archaeology due to excavation work	- Geophysical surveys - Archaeology watching brief
Water	- Temporary discharges/ risk of pollution	- Use of construction SUDS and adoption of best practices to avoid pollution of watercourses
	- Pollution incidents and run off	- Consultation with the Environment Agency and obtaining the necessary temporary discharge consents - Adoption of best practices to avoid pollution of watercourses e.g. Construction Pollution Prevention Guidelines - Monitoring of Private Water Supplies - Appropriate storage of fuels and solvents.
Noise	- Noise and vibration resulting from construction activity (machinery, construction traffic)	- Restrict hours of operation - Use of Best Practicable Means, such as low noise emission machinery - Erection of temporary noise screens where required
Air	- Dust and particulates	- Follow appropriate guidelines for construction dust management - Implementation of construction traffic management plans
Climatic Factors	- Emissions from construction vehicles	- Types of vehicles used - Implementation of construction traffic management plans which should also include guidelines for good practice such as ensuring the ignition is turned off when not in use
Soil	- Erosion or damage to soil	- Implement soil erosion prevention measures outlined in Best Practice Guidance
	- Land contamination	- Pre-construction surveys and application of Good Practice Guidelines

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SEA Topic	Potential Impacts	Mitigation
Population	- Nuisance (noise odour, dust)	- Good Practice Guidelines - Consultation with the Environmental Health Officer (EHO)
	- Changes to public transport timetables	- Liaise with residents
	- Construction traffic	- Traffic management and calming - Limit construction working hours
Material Assets	- Damage to existing infrastructure	- Regular inspections
	- Demand for construction materials	- Reuse of materials where appropriate
Human Health	- Accidents from construction traffic - Poor air quality due to construction dust - Noise from construction traffic and machinery	- Noise insulation - Appropriate construction methods - Speed regulations - Consultation with the EHO - Follow appropriate guidelines for construction dust management
All Topics	- Various	- Development of a CMP

Capabilities on project:
Environment

11 Assessment Results

11.1 Introduction

The following chapter of the Environmental Report provides of a summary of the key findings from the assessment of the interventions on the SEA topics. This chapter deals with the operational effects of the interventions only. Temporary construction effects have been dealt with in Chapter 10 - Construction Impacts and Mitigation.

The assessment of construction impacts (Chapter 10) concluded that as long as appropriate pre-construction surveys (or EIA for larger schemes) are carried out and that the other recommended mitigation measures are implemented , all temporary construction effects can be adequately mitigated and no residual construction effects are predicted.

The detailed results tables for the assessment of operational effects are presented in Appendix E (Volume 3). The key findings from the assessment matrices are summarised below, according to each intervention group. The results are those prior to mitigation; residual (after mitigation) results are presented in Chapter 13.

11.2 Summary of Potential Negative Effects

A summary of potential negative effects that could result from the interventions is listed below. Beneficial effects are discussed in section 11.3 below. Those interventions marked with an asterix (*) have both beneficial and negative effects on the same SEA topic and are listed in Table 11.1.

Highway Capacity Interventions
Biodiversity: Interventions 1 to 3 and 5 to 8 could potentially have a **Slight Negative** effect on biodiversity due to the associated land take and habitat loss.

Landscape: Interventions 1 to 3 and 6 and 7 could potentially have a **Significant Adverse** effect on landscape as a result of the visual impact of the new infrastructure with interventions 4 and 5 potentially having a **Slight Negative** effect. Intervention 4 has the potential for a **Slight Negative** effect on landscape through the inappropriate use of new street furniture.

*Archaeology and Heritage*Intervention 4 has the potential to have a **Slight Negative** impact on heritage due to increased street furniture.

Soil: Interventions 1 to 3 and 5 to 8 could potentially have a **Slight Negative** effect on soil due to associated with the excavation requirements.

Population: Intervention 2 could potentially have a **Slight Negative** effect associated with the removal of passing trade through Morpeth town centre.

Public Transport Interventions
Landscape: Intervention 8 has the potential for a potential **Slight Negative** effect and Intervention 18 has the potential for a potential **Significant Adverse** effect on landscape, if the additional parking facilities are located in a more rural location. Negative effects on landscape are not expected if the parking facilities are located in an urban area as improved facilities may actually provide a beneficial visual impact if the area is currently derelict.

Noise: Interventions 1 and 2 are expected to have a potential **Slight Negative*** effect due to an increase in noise.

Soil: Interventions 1 and 2 are expected to have a potential **Slight Negative** effect on soil due to the potential risk of contaminated land due to use of diesel trains.

Material Assets: Intervention 2 is expected to have a potential **Slight Negative** effect on material assets associated with the potential for increased maintenance due to an increased frequency of train services.

Smarter Choice Interventions
No negative effects are predicted for any of the Smarter Choice interventions.

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Freight Interventions

Noise: Interventions 1 and 2 could have a potential **Slight Negative*** effect on people who live near railways associated with a change in freight practices. Intervention 5 is expected to have a **Slight Negative*** effect resulting from increased noise due to deliveries outside of the regular working day.

Population: Interventions 1 and 2 could have a potential **Slight Negative** effect on population associated with any potential disruption to passenger services as a result of increased freight on the railways.

Material Assets: Interventions 1 and 2 have the potential for a potential **Slight Negative*** effect on material assets associated with the potential for increased maintenance to railway line.

NMU Interventions

Biodiversity: Interventions 5 has the potential to result in a **Slight Negative*** effect on biodiversity associated with the land take that could be required for the creation of footpaths/cycle routes. Intervention 10 has the potential for a potential **Slight Negative** effect on biodiversity as a result of the use of inappropriate lighting on certain species e.g. bats.

Landscape: Interventions 5, 8 and 9 are expected to have a potential **Significant Adverse** effect on landscape if street furniture is located inappropriately.

Archaeology and Heritage: Interventions 8 and 9 are expected to have a potential **Significant Adverse** impact on heritage due to increased street furniture.

Road Safety

No negative effects are predicted for any of the Road Safety interventions.

Miscellaneous

Climatic Factors: Intervention 1 has the potential for a **Slight Negative*** effect on climatic factors. This would result from a greater number of people working from home, which would result in an increased use of energy for heating and lighting a household that may not otherwise be occupied during the working day.

11.3 Summary of Potential Beneficial Effects

Highway Capacity Interventions

All of the Highway Capacity interventions are expected to have a **Slight Beneficial** effect on noise, air and climate (reduced emissions), material assets (improved infrastructure) and population and human health (more predictable journey times to services and employment). For some interventions, potential **Slight Beneficial** effects are also expected for water, associated with the integration of treatment / improved treatment measures into the schemes.

Public Transport Interventions

Almost all of the Public Transport Interventions are expected to result in a **Slight Beneficial** effect on population due to improved public transport, better accessibility and people being more active. Intervention 15 – Improve vehicle quality, which involves providing more accessible buses is expected to have a **Beneficial** effect on population and human health, as this intervention would be particularly beneficial to less mobile people, such as the elderly, disabled or those with young children. A **Slight Beneficial** effect could result on properties close to highways as a result of fewer cars on the road.

Slight Beneficial effects are expected, for some interventions, on biodiversity, water, noise, air and climate due to there being fewer cars on the road and /or the encouragement of a modal shift to public transport. However, many of the Public Transport interventions would not encourage a modal shift alone, and would need to be combined with other interventions to result in beneficial effects.

Smarter Choice Interventions

Slight Beneficial effects are expected to human health due to increased flexibility and people being more active. For those interventions that contribute in reducing the number of cars on the road **Slight Beneficial** effects are predicted on noise, air and climate (due to reduced congestion) and biodiversity and water (due to reduced deposition of pollutants).

Freight Interventions

The Freight Interventions are predicted to have a **Slight Beneficial** effect on population and human health due to reduced congestions and reduced emissions. Most of these interventions are predicted to have a **Slight Beneficial** effect on biodiversity, water, air and climate associated with a modal shift to freight/ in freight.

NMU Interventions

Slight Beneficial effects are predicted on population and human health due to people being more active. **Slight Beneficial** effect are expected on biodiversity, water, noise, air and climate associated with a modal shift to alternative means of transport, such as walking and cycling.

Road Safety

All Road Safety interventions could have a **Slight Beneficial** effect on human health due to a potential reduction in accidents. Some of the interventions could also have a **Slight Beneficial** on population due to improved accessibility.

Climate Change

Each of the Climate Change interventions are predicted to have **Slight Beneficial** effects on material assets due to improved infrastructure. Some are also predicted have a **Slight Beneficial** effects on population (better accessibility to services) and water quality and flood risk (improved drainage).

Miscellaneous

The Miscellaneous interventions vary greatly in terms of their beneficial effects. The majority are expected to have **Slight Beneficial** effects on population and human health due to a combination of improved public transport, increased flexibility and people being more active. Many of these interventions are predicted to have a **Slight Beneficial** effect on biodiversity, water, noise, air and climate due to there being fewer cars on the road and /or the encouragement of a modal shift to public transport.

11.4 Summary of Potential Effects by SEA Topic

11.4.1 Summary of Potential Negative Effects

Biodiversity:

- Most of the interventions in the Public Transport Interventions group are expected to have a potential **Slight Negative** effect due to land take and habitat loss.
- Interventions 5 (NMU Interventions) has the potential for a **Slight Negative*** effect due to development of footpaths/cycle routes.
- Intervention 10 (NMU interventions) has the potential for a **Slight Negative** effect as a result of lighting on certain species e.g. bats.

Landscape:

- Interventions 1 to 3 and 6 and 7 (Highway capacity interventions) are expected to have a potential **Significant Adverse** effect as a result of the visual effect of the infrastructure improvements. Interventions 5 and 8 are expected to have a potential **Slight Negative** effect.
- Intervention 4 (Highway Capacity interventions) has the potential for a **Slight Negative** effect due to increased street furniture.
- Intervention 8 (Public Transport interventions) is expected to have a potential **Slight Negative** effect and Intervention 18 (Public Transport Interventions) is expected to have a potential **Significant Adverse** effect if the additional parking facilities are located in a more rural location.
- Interventions 5, 8 and 9 (NMU interventions) are expected to have a potential **Significant Adverse** effect due to increased street furniture.

Archaeology and Heritage:

- Intervention 4 (Highway Capacity interventions) has the potential for a potential **Slight Negative** effect due to increased street furniture.
- Interventions 8 and 9 (NMU Interventions) are expected to have a potential **Significant Adverse** effect due to increased street furniture.

Capabilities on project:
Environment

Noise:
- Interventions 1 and 2 (Public Transport interventions) are expected to have a potential **Slight Negative*** effect due to an increase/decrease in noise.
- Intervention 5 (Freight) is expected to have a potential **Slight Negative*** effect resulting from increased noise due to deliveries outside of the regular working day.

Climatic Factors:
- Intervention 1 (Miscellaneous interventions) has the potential for a potential **Slight Negative*** effect on climatic factors resulting from an increased use of energy for heating and lighting.

Soil:
- Interventions 1 and 2 (Public Transport interventions) are expected to have a potential **Slight Negative** effect due to the potential risk of contaminated land due to use of diesel trains.
- Most of the interventions in the Highway Capacity interventions group are expected to have a potential **Slight Negative** effect on soil due to the need for soil resources during construction.

Population:
- Intervention 2 (Highway Capacity interventions) is expected to have a potential **Slight Negative** effect on the vitality of Morpeth town centre.
- Interventions 1 and 2 (Freight interventions) are expected to have a potential **Slight Negative** effect as a result of disruption to passenger services due to more freight on the railways.

Material Assets:
- Intervention 2 (Public Transport interventions) is expected to have a potential **Slight Negative** effect associated with the potential for increased maintenance due to an increased frequency of train services.
- Interventions 1 and 2 (Freight interventions) are expected to have a potential **Slight Negative*** effect associated with the potential for increased maintenance to railway line.

11.4.2 Summary of Potential Beneficial Effects

Biodiversity:
- Benefits to biodiversity associated with a reduction in deposition of pollutants associated with fewer cars on the road/ modal shift to public transport.

Water:
- Benefits to water associated with a reduction in deposition of pollutants associated with fewer cars on the road/ modal shift to public transport and also integration of treatment into the schemes.

Noise:
- Benefits to noise due to reduced congestion and fewer cars on the road.

Air:
- Benefits to air quality associated with a reduction congestions/ emissions due to fewer cars on the road/ modal shift to public transport.

Climatic Factors:
- Benefits to climate associated with a reduction congestions/ emissions due to fewer cars on the road/ modal shift to public transport.

Population:
- Benefits to population due to improved public transport, better accessibility, increased flexibility, more predictable journey times to services and employment and people being more active.

Material Assets:
- Benefits to material assets due to improved infrastructure.

Human Health:

- Benefits to human health due to more predictable journey times, reduced congestions and emissions and people being more active.

11.5 Summary of Interventions with Potential Beneficial and Negative Effects

As indicated above, some of the interventions assessed have both beneficial and negative effects on the same SEA topic; these are summarised in Table 11.1

Table 11.1: Summary of Interventions with Potential Beneficial and Negative Effects on the Same SEA Topic

Intervention			**SEA Topic**	**Potential Effects**	
(as assessed in SEA)		*(as presented in LTP3)*			
Public Transport Interventions	1 (Reopening of the Ashington Blyth and Tyne Railway Line) and 2 (More local train services on the East Coast Main Line)	South East Northumberland Public Transport Corridor/ Improving Rail Travel	Noise	**Slight Negative** effect to properties close to the railway line due to increase in noise.	**Slight Beneficial** effect to other properties due to fewer cars on the road.
Freight Interventions	1 (Efficient rail freight network operation) and 2 (Promote rail freight)	Freight/ Intra Modal Freight Transport	Noise	**Slight Negative** effect on people who live near main roads/railways associated with a change in freight practices e.g. increase/decrease in noise.	**Slight Beneficial** effect on people who live near main roads/railways associated with a change in freight practices.
	1 (Efficient rail freight network operation) and 2 (Promote rail freight)	Freight/ Intra Modal Freight Transport	Noise	**Slight Negative** effect due to increased noise due to deliveries outside of the regular working day.	**Slight Beneficial** effect due to a reduction in noise due to reduced congestion.
	5 (Develop freight quality partnerships)	Freight	Material Assets	**Slight Negative** effect on material assets associated with the potential for increased maintenance to railway line.	**Slight Beneficial** effect as using existing assets.
NMU Interventions	5 (Continuous walking/cycling routes)	Active Travel Choices/ Promote Walking	Biodiversity	**Slight Negative** effect due to development of footpaths/cycle routes and increased street furniture.	**Slight Beneficial** effect associated with a modal shift to public transport.
	10 (Improvements to security and maintenance of footpaths and cycleways)	Hard Surfacing and Improved Drainage on Footpath and Cycleways	Biodiversity	**Slight Negative** effect to biodiversity resulting from lighting on certain species e.g. bats. .	**Slight Beneficial** effect associated with a modal shift to public transport.
Miscellaneous	1 (Improve broadband connectivity and telephone communications)	Reduce the Need and Distance for People to Travel to Access Services	Climatic Factors	**Slight Negative** effect due to increased use of energy for heating and lighting.	**Slight Beneficial** effect due to fewer cars on the road.

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12 Cumulative Effects

12.1 Introduction

This chapter of the Environmental Report sets out any cumulative effects of implementing the interventions identified within the LTP3. The cumulative effect of multiple interventions on a SEA topic as well as the cumulative effect between SEA topics has been considered.

12.2 Cumulative Effects

12.2.1 Construction Effects

Negative cumulative effects are possible on a number of SEA topics if two major schemes (such as the Highway Capacity interventions) were to be constructed at the same time and in the same general area. This could result in disturbance to the local population in terms of noise and traffic. Cumulative effects on the natural environment are also possible, particularly for water and biodiversity. However, provided that the mitigation measures in Chapter 10 are implemented and consideration is given to appropriate timing of works, there are unlikely to be any negative cumulative effects.

12.2.2 Operational Effects

Although the majority of interventions presented within the LTP3 (and therefore the LTP3 as a whole) are likely to have predominantly positive effects, there are requirements for infrastructure improvements to support greater use of public transport (e.g. rail and road) and to support more sustainable freight transport (e.g. port infrastructure and rail/road/sea interchanges). The placement of significant infrastructure is likely to give rise to significant adverse effects on landscape and negative effects on most SEA topics if not designed appropriately and if mitigation measures are not put in place.

Through appropriate mitigation measures, compliance with legislative requirements and application of best practice these effects can be reduced, although there are likely to be some residual negative effects on climate and landscape (Chapter 13).

Overall, with the exception of some residual negative effects, it is expected that the cumulative effect of the implementation of all groups will have a positive effect on environmental, social and economic outcomes.

Table 12.1 below presents a summary of the overall cumulative effects of the LTP3 on the SEA topics. Both beneficial and negative cumulative effects have been considered.

Table 12.1: Summary of Cumulative Effects

SEA Topic	Potential Effects	Cumulative Effect on SEA Topic (resulting from combination of effects across interventions)	Related SEA Topics
Biodiversity	- Some of the road improvements proposed (Highway Capacity interventions) have the potential for negative effects on biodiversity due to the associated land take and habitat loss. - *However, provided that the mitigation measures in Chapter 10 are implemented and consideration is given to appropriate design and timing of works and where necessary additional habitat creation, there are unlikely to be any negative cumulative effects on biodiversity.* - Beneficial effects on biodiversity are associated with a decrease in deposition of pollutants due to a modal shift from reliance on the private car to more sustainable forms of transport. A reduction in deposition of pollutants is also expected to have a beneficial effect on water quality and associated aquatic habitat.	✓	*Water*

Capabilities on project:
Environment

SEA Topic	Potential Effects	Cumulative Effect on SEA Topic (resulting from combination of effects across interventions)	Related SEA Topics
Landscape	- Some of the road improvements proposed (Highway Capacity interventions) have the potential for negative effects on landscape due to the visual impact of new infrastructure. - *These interventions will be subject to further environmental assessment (EIA or equivalent) during which a landscape architect will work with and influence the design to minimise effect on landscape. Provided that these further assessments are implemented, there are unlikely to be any significant cumulative effects on landscape.*	-	-
Archaeology and Heritage	- Potential for cumulative negative effects due to increased and inappropriate street furniture from the implementation of a number of interventions. - *Provided that the mitigation measures in Chapter 10 are implemented and the street furniture used is appropriate to the surrounding character, there are unlikely to be any cumulative effects on archaeology and heritage.*	-	-
Water	- Some of the road improvements proposed (Highway Capacity interventions) have the potential for beneficial effects on water due to increased dilution of routine runoff and potential to integrate treatment (SUDS) into the proposed scheme. - There is also the potential for beneficial effects on water associated with a decrease in deposition of pollutants as a result of a proposed modal shift. A reduction in deposition is also expected to have a beneficial effect on aquatic biodiversity.	✓	*Biodiversity*
Noise	- Overall, there are predicted to be cumulative beneficial effects to noise. This is associated with a reduction in congestion from both highway capacity improvements and the interventions which seek to encourage a modal shift towards more sustainable forms of transport. - There is predicted to be an associated beneficial effect on population.	✓	*Population*
Air	- Benefits to air quality associated with a reduction congestion/ emissions due to fewer cars on the road (modal shift to public and sustainable forms of transport) and highway capacity improvements. - There is predicted to be an associated beneficial effect on human health and climatic factors.	✓	*Climatic Factors* *Human Health*
Climatic Factors	- Benefits on climate associated with a reduction congestion/ emissions due to fewer cars on the road (modal shift to public and sustainable forms of transport) and highway capacity improvements - Reduced emissions has benefits for air quality and human health also.	✓	*Air Quality* *Human Health*
Soil	- Some of the road improvements proposed (Highway Capacity interventions) have the potential for cumulative negative effects on soil due to the need for soil resources during construction. - *Provided that the mitigation measures in Chapter 10 are implemented and consideration is given to minimising waste, there are unlikely to be*	-	-

Capabilities on project:
Environment

SEA Topic	Potential Effects	Cumulative Effect on SEA Topic (resulting from combination of effects across interventions)	Related SEA Topics
	any cumulative effects.		
Population	- The beneficial effects on population include improved public transport, better accessibility, increased flexibility, more predictable journey times to services and employment and people being more active. - Many of the interventions that are beneficial to population are also beneficial for human health e.g. reduced congestion means better air quality and better health. Improved public transport means people are more like to use public transport and use more sustainable modes of transport such as walking or cycling for part of their journey.	✓	*Human Health* *Air Quality*
Material Assets	- There is likely to be a cumulative effect on material assets due to improved infrastructure. - An improvement in maintenance of the transport network has an associated beneficial effects on road safety and therefore also on human health.	✓	*Human Health*
Human Health	- There are beneficial health effects associated with the majority of interventions. Benefits to human health are possible due to more predictable journey times to services, reduced congestion, decreased emissions and interventions which encourage people being to be more active. - Improved maintenance of the transport network is expected to have an associated beneficial effect on road safety and therefore on human health.	✓	*Population* *Air Quality* *Material Assets*

13 Mitigation

13.1 Introduction

The chapter of the Environmental Report identifies the mitigation measures required where effects cannot be avoided. It also presents opportunities for enhancements that have been suggested to increase the overall 'sustainability' of the LTP3.

13.2 Mitigation Measures

Part of the SEA assessment process requires the identification of measures to prevent, reduce or offset any significant adverse effects likely to occur as a result of implementing the LTP3 and to maximise the plans performance in terms of sustainability. These are commonly referred to as mitigation measures, and include both the proactive avoidance of adverse effects as well as the identification of actions to be taken once effects are identified. Measures also often include recommendations for improving beneficial effects.

A number of negative effects have been identified as a result of the assessment of the LTP3. The majority of these relate to proposed large scale infrastructure developments e.g. interventions within the Highway interventions group. It is likely that most significant negative effects would occur during construction and are likely to be short term and localised. Construction effects and mitigation have been discussed within Chapter 10. It was concluded in Chapter 10 that for the major schemes further assessments (EIAs) will be undertaken and for those which are not subject to EIA further surveys including pre construction surveys will be carried out where necessary. These will identify appropriate construction mitigation such as that detailed in Table 10.1, therefore no negative construction effects have been identified by this SEA.

However, there are also likely to be longer term (operational) effects associated with the use of any new infrastructure, in particular on landscape, biodiversity, noise and water quality/flood risk. It is expected that the majority of the potential environmental effects can be avoided or minimised through the implementation of appropriate mitigations measures. The mitigation measures suggested for the LTP3 are based upon:

- Level of detail provided in the intervention;
- Scale of the potential effect (e.g. local authority wide or site specific);
- Level of detail in the baseline information (e.g. scale of coverage);
- Understanding of the environmental and sustainability issues affecting the area; and
- Requirements/deliverable of the LTP3.

The interventions provided within the LTP3 are generally very high level policies or schemes which, with the exception of the Highway Capacity interventions (which are location specific) could be applied to all areas across the Northumberland region. Consequently the lack of spatial reference (e.g. identification of specific sites or locations for development) limits the accuracy by which their effect on the environment can be predicted and evaluated. Without knowledge of the exact area that will be affected by an intervention, it is also difficult to accurately identify the receptors that will affected, their relative importance and how the baseline will change (magnitude).

As a consequence of this lack of spatial reference, some of the findings of the SEA are not based upon specific baseline data, but on a detailed understanding of the characteristics of Northumberland, and an understanding of how the interventions are likely to interact with the surrounding environment.

With regard to the identification of the mitigation measures, whilst it is necessary for these to be developed in the context of the LTP3 and the SEA process, in the absence of development or site specific proposals it is not practical to identify specific mitigation measures. The approach to the identification of the mitigation measures is therefore based on general understanding and appreciation of the types of measures that can be applied at a project level.

Whilst this approach has been adopted for a number of SEAs, concerns have been raised as to whether the SEA process is simply deferring responsibility for environmental protection to the project level EIA process. Whilst it is not intentional for this to be the case, it inevitably occurs due to a lack of detail in high level strategic plans. It is not always practical or appropriate to

amend or delete an intervention if the SEA process is unable to accurately determine if that intervention will have significant adverse effects. In most situations it will only be possible to determine whether significant adverse effects are likely to occur once a number of detailed options or a specific site/development design has been identified.

Proposed mitigation measures for operational effects are listed in Table 13.1 below:

Table 13.1: Proposed Mitigation Measures

SEA Topic	Mitigation Measures and Enhancement
Biodiversity	- All schemes with the potential to affect sites of international nature conservation importance (SPAs, SACs and Ramsar Sites) will be subject to an Environmental Impact Assessment (EIA) and an Appropriate Assessment, as required under the Habitats Directive and Regulations. - Scheme or initiatives that are likely to affect one or more of the Northumberland SSSIs will be subject to a formal screening exercise prior to development to determine the need for an EIA. - Appropriate surveys will be carried out where there is potential for a programme of action or major scheme to have an adverse effect on Protected Species (under the Habitats Directive), European Species (under the Wildlife and Countryside Act 1981) or Priority BAP species. - Appropriate surveys will be carried out where there is potential for a programme of action or major scheme to have an adverse effect on priority BAP habitats or sites of local wildlife importance. - Appropriate surveys will be carried out where there is potential for schemes or initiative to have an adverse effect on badgers as required under the Badger Act 1992. - Appropriate surveys will be carried out where there is potential for schemes or initiative to have an adverse effect on bats as required under the Conservation (Natural Habitats &c) Regulations 1994. - Biodiversity and geodiversity enhancements will be implemented where appropriate e.g. use of wildflower mixes on grass verges and in other landscape schemes, use of native tree species in landscape schemes, creation of new habitats for protected species e.g. ponds (great crested newts), and the creation of 'green ways' and wildlife corridors along footpaths and cycleways, to encourage the movements of species.
Landscape	- Carry out an EIA for any scheme that will potentially have an effect on Areas of Outstanding Natural Beauty (AONBs), National Park or Heritage Coasts. - Landscape assessment will be carried out for large schemes (as part of the EIA) to determine the exact effect of the scheme on landscape character, quality and key landscape features. - High quality design and construction principles will be applied to all new developments and scheme involving modifications and improvements. - Refer to the Countryside Agency Design Guide for Roads in Rural Areas. - All schemes will be appropriately designed for the location. - All schemes will be maintained to ensure that they remain in good condition. - Landscaping schemes will be implemented in sensitive landscape areas. - All schemes will retain key landscape features (e.g. footpaths, hedgerows, trees) where possible. - Where key landscape features have to be removed/modified or landscape character will be temporarily altered Landscape Management Plans will be produced highlighting how the affected areas will be restored, replaced and enhanced. - All landscape schemes will incorporate biodiversity enhancements where appropriate e.g. use of native species, creation of greenways and green networks. - The LTP3 will improve the quality and appropriateness of street furniture (e.g. bins), lighting, public transport facilities and signage to ensure that they are appropriate to the location and do not have a negative effect on streetscape. - Improve and maintain the quality of existing roads, footpaths and cycleway. - Ensure that all new transport schemes in conservation areas of a high quality and are appropriate to the character of the conservation area and its setting.

SEA Topic	Mitigation Measures and Enhancement
	- Ensure that pedestrianised areas are of a high quality design that enhances the appearance of the location. - Ensure streetscape improvements, where possible incorporate measures to protect and enhance biodiversity e.g. ensure that street lighting schemes do not have adverse effects on bats; identify opportunities for the creation of habitats in pedestrianisation schemes; or create greenways along new and existing public rights of way.
Archaeology and Heritage	- Surveys will be undertaken prior to the implementation of a scheme to determine the whether it will effect sites or areas of archaeological importance. - New transport schemes that are likely to generate an increase in traffic (road or rail) will be assessed prior to installation to determine whether the vibrations that would be generated from the traffic would cause damage to listed buildings. Where the levels of vibration would have adverse effects on a listed building the scheme may require modification or removal. - Adverse effects on the character and quality of conservation areas will be avoided or reduced by improving the quality, design and appropriateness of street furniture, lighting, road signs, safety features, public transport facilities (bus stops) and by reducing street clutter. Improvements to the quality and design of new and existing highways, footpaths and cycleways will also have positive effects on the character and quality of conservation areas. - By reducing congestion the LTP3 will also have a positive effect on the character and quality of conservation areas by reducing or removing the intrusion of road traffic.
Water	- Ensure that all new transport schemes and transport improvement works involving construction activities adhere to appropriate environmental protection standards, good codes of practice, construction principles and design guides to ensure that the correct measures are implemented to prevent the pollution of surface water and groundwater. - Ensure all new transport schemes and transport improvement works will implement appropriate measures to minimise pollution from surface water runoff e.g. oil separators and silt traps. - Where new transport schemes and transport improvement works are likely to cause disturbance to contaminated land, advice will be sought from the Environmental Health Departments of the relevant Local Planning Authority. Where necessary PPC (Pollution Prevention Control) Permits will be obtained from the Environment Agency. - In areas where there are high water tables surveys will be required prior to the implementation of schemes involving construction activities to ensure that the there are no breaches of the groundwater and there are not future risks of groundwater pollution from road drainage schemes. - Where a scheme may effects sensitive wetlands (SPAs, Ramsar Sites, SSSIs) an EIA and Appropriate Assessment will be required to ensure that any changes to water quality or drainage patterns do not have adverse effects on the integrity of the wetland. - In accordance with Planning Policy Statement 25: Development and Flood Risk, and on advice of the Environment Agency, Flood Risk Assessments will be carried out for all new schemes and transport infrastructure improvements that are to be located in 'flood risk zones 2 or 3' or by their nature have to the potential to cause flooding. - All new transport schemes and transport infrastructure schemes that are located in coastal areas will be assessed prior to implementation to ensure that they do not compromise existing coastal flood defences and do not prevent the installation of future coastal flood defences. - All new transport schemes and transport infrastructure schemes that are located in coastal areas will be assess prior to installation to ensure that they will not increase risk, or current rates of coastal erosion. - Promote the implementation of Sustainable Urban Drainage Schemes (SUDS) in all new transport developments.

SEA Topic	Mitigation Measures and Enhancement

Noise	- Carry out noise impact assessments involving:
	  - Ambient noise survey at identified noise sensitive locations
	  - BS 5228 assessment and mitigation
	  - Development of noise mitigation based on BS 4142
	  - Traffic assessment in accordance with CTRN
	- Implement appropriate noise attenuation measures where there is potential for schemes or initiatives to have an adverse effect on noise levels.

Air	- Carry out air quality assessment where new developments, infrastructure schemes are likely to lead to a localised increase of traffic e.g. park and ride schemes. - Carry out air quality assessments to determine need for dust abatement measures to be implemented during construction of new infrastructure. - Work in partnership with Local Planning Authorities to ensure public transport improvements and infrastructure improvements target areas of highest demand/need. - Ensure that annual traffic monitoring is carried out to identify areas of traffic increase and congestion as they develop so that measures can be taken to reduce congestion and manage traffic growth as it occurs. - Ensure that the interventions to improve the sustainable road freight network, sustainable freight management and rail freight schemes are implemented effectively to promote rail/sea as an attractive and viable alternative mode of transport for moving freight and to improve the efficiency of road freight to minimise adverse effects on the environment.
Climatic Factors	
Soil	- Develop partnership working to ensure that the all new developments located on areas of previously developed land are accessible by public transport. - Investigate the implementation of schemes that will encourage and support future economic growth and the reuse of previously developed land. - Where new transport schemes and transport improvement works are likely to cause disturbance to contaminated land, advice will be sought from the Environmental Health Departments of the Local Planning Authorities. Where necessary PPC (Pollution Prevention Control) Permits must be obtained from the Environment Agency. - Develop partnership working to ensure that new transport schemes minimise the use of greenfield land and the severance of agricultural land holdings.
Population	- Ensure adequate consultation is carried out with rail passengers and other stakeholders with regards to any disruption of rail timetables due to implementation of any intervention.
Material Assets	- Ensure appropriate measures are put in place to mitigate any impact associated with the increased maintenance that may result from an increased frequency of train services.
Human Health	- No specific mitigation measures identified.

13.3 Enhancement Opportunities

One of the outcomes of the consultation workshop was that there is a need to combine certain interventions with others in order to encourage a modal shift to public transport. Beneficial effects are possible for a number of SEA topics (biodiversity, water, noise, air and climate) if certain interventions are combined with others to result in a modal shift.

This applies particularly to the Public Transport interventions group and Some Smarter Choice interventions. The following interventions (Table 13.2) would help contribute towards a modal shift if combined with other interventions:

Capabilities on project:
Environment

Table 13.2: Enhancement Opportunities

Intervention *(as assessed in SEA)*		**Intervention** *(as presented in LTP3)*
Public Transport Interventions	4 (Up to date timetabling at stations and stops)	Improving Local Bus Travel/ Improving Rail Travel
	5 (Passenger Assistance Personnel)	Improving Rail Travel
	6 (Fast ticketing machines at stations and stops)	Improving Local Bus Travel/ Improving Rail Travel
	11 (Improve station and stop security)	Improving Local Bus Travel/ Improving Rail Travel
	12 (Improve safety onboard public transport)	Increasing Personal Safety and Security
	16 (Public Transport Marketing)	Widening Travel Choice
	19 (Strengthened relationships between NCC and operators)	Improving Local Bus Travel
Smarter Choice Interventions	1 (Local Authority monitoring and support for Travel Plans)	Travel Planning
	2 (Travel awareness campaigns)	Marketing and Branding- *Travel awareness campaigns*
	3 (Cycle/walking education in schools, workplaces and communities)	Travel Planning - *Workplace Travel Plans* Promote Walking

13.4 Summary of Residual Effects

The recommended mitigation measures for potential negative operational effects identified in Chapter 11 are summarised above. After these mitigation measures are accounted for, the potential negative residual effects that remain are shown in Table 13.3.

Intervention 1 (Miscellaneous interventions) was assessed as having a potential negative effect on climatic factors resulting from an increased use of energy for heating and lighting within private homes during the day which would not normally be consumed. No mitigation measures have been identified for this potential effect and therefore, the residual effect remains as **Slight Negative**. However, although this intervention would have a negative effect on Climatic Factors, there are beneficial effects also, resulting from the reduced the need to travel and the associated benefits this has on air quality, climate, noise, and human health.

Overall, the residual beneficial effects of the LTP3 (section 11.3) far outweigh the negative residual effects (see Appendix E: Volume 3 for full results tables). Many of the interventions will contribute to encouraging a modal shift to more sustainable modes of transport. A modal shift will have a beneficial effect on noise, quality, climatic factors and human health due to a reduction congestions/ emissions due to fewer cars on the road. A reduction in deposition of pollutants associated with fewer cars on the road will have positive effects on biodiversity and water. Benefits to population include improved public transport, upgraded transport infrastructure, better accessibility, increased flexibility, more predictable journey times to services and employment and people being more active.

Capabilities on project:
Environment

Table 13.3: Summary of Residual Effects

Intervention *(as assessed in SEA)*		**Intervention** *(as presented in LTP3)*	**Potential Effect** *(pre-mitigation)*	**Residual Effect** *(after mitigation)*
Highway Capacity Interventions	1 (A1 Dualling)	A1 Improvements	These interventions will be subject to further environmental assessment (EIA or equivalent) at which stage a residual effect can be appropriately determined.	
	2 (Morpeth Northern Bypass)	Morpeth Northern Bypass		
	3 (A19 Junction Improvements)	Increasing Network Capacity - *A19 (T) Junction improvements*		
	5 (Blyth Central Link Road)	Blyth Central Link Road		
	n/a	A193 Cowpen Road Corridor, Blyth		
	n/a	A189 to Battleship Wharf		
Miscellaneous Interventions	1 (Improve broadband connectivity and telephone communications)	Reduce the Need and Distance for People to Travel to Access Services	Slight Negative	Slight Negative

14 Monitoring

14.1 Introduction

This chapter of the Environmental Report presents a proposed monitoring framework for the implementation of the Northumberland LTP3.

14.2 Monitoring

Monitoring is an ongoing process that is undertaken continuously for the duration of the LTP3 implementation. Monitoring is a means of checking whether the LTP3 is performing as predicted by measuring how the baseline situation changes following implementation of the LTP3.

14.3 Importance of Monitoring

Monitoring allows the actual significant effects of implementation of the LTP3 to be tested against those predicted in the SEA. In the event that adverse effects are identified then these need to be addressed. Northumberland Country Council (NCC) should be able to produce contingency measures to address any adverse effects through implementation of the mitigation measures suggested in Chapter 13 of this Report.

Monitoring helps to ensure that problems which arise during implementation can be identified and future predictions made more accurately. It can also be used to collect baseline information for future LTPs.

14.4 The Monitoring Framework

Monitoring usually involves the use of indicators or targets. An 'indicator' is a measure of how the 'baseline' has changed. SEA indicators are used to monitor whether the LTP3 is performing as predicted. However there are a number of potential limitations associated with the reliance of certain indicators for the purpose of monitoring these are mainly in relation to:

1) Indicators that are not based on information / data / environments that will be directly affected by the implementation of the plan.
2) Data available is not always kept up to date and therefore will not identify any significant changes.
3) Collection of specific data is often the responsibility of a range of different organisations consequently this can lead to:
    a. Data being collected for different areas over different timescales;
    b. Data collection methods and techniques changing to reflect different requirements for data or availability of funding for data collection; and
    c. Data sets not being updated.
4) Some indicators are only relevant where specific receptors are present.

The monitoring framework present in Table 14.1 includes a number of possible indicators that could be used to monitor the implementation of the LTP3. However, taking into account the limitations associated with this approach it is suggested that monitoring is tied into the future reviews of the LTP and is related to monitoring the number and type of schemes that have been implemented during the year. This would include a review of the environmental works / studies and assessments undertaken to support these schemes as suggested as part of the mitigation in Chapter 13.

The monitoring framework set out in Table 14.1 below is preliminary and will be confirmed at the time of the adoption of LTP3. During public consultation additional data sources may be indentified which should be incorporated into the monitoring framework.

Capabilities on project:
Environment

Table 14.1: Suggested Monitoring Framework

SEA Topics	SEA Objectives	Indicators	Responsibility/ Source	Suggested Review Timescale
Biodiversity	1. To protect and enhance Northumberland's biodiversity and geodiversity and to safeguard protected species.	- % of SSSIs in 'favourable' or 'unfavourable recovering condition	NCC/ Natural England	Annual
		- Change in area (ha) of designated biodiversity sites	NCC/ Natural England	Annual
		- Proportion of local sites where active management is being achieved	NCC/ Natural England	Annual
		- Area of ancient woodland removed due to transport schemes	NCC/ Natural England	Annual
Landscape	2. To maintain and enhance the local distinctiveness, character and appearance of Northumberland's rural and urban land and landscapes, including the public realm.	- Change in area (ha) of designated landscapes e.g. AONB	NCC/ Natural England	Annual
		- Number of new/ proposed transport schemes in areas of land designated for its landscape quality or amenity value (AONB), national parks etc.	NCC	Annual
		- Number of schemes promoting landscape enhancement in urban fringe landscapes	NCC	Annual
Archaeology and Heritage	3. To protect and enhance Northumberland's buildings, sites, areas and features of historic, archaeological and architectural interest and diversity.	- Number of applications for listed building consent (including demolitions) and scheduled monument consent associated with transport projects	NCC/ National Monuments Record	Annual
		- Number of transport schemes affecting historic parks and gardens	NCC/ National Monuments Record	Annual
		- Number of transport schemes located within or affecting conservation areas	NCC	Annual
Water	4. To reduce the risk of flooding. 5. To protect and enhance the quality of Northumberland's ground, river and sea waters.	- Number of new transport infrastructure developments located in Flood Zones 2 & 3	NCC/ Environment Agency	Annual
		- % of new transport infrastructure developments incorporating SUDS features	NCC	Annual
		- % river length within Northumbria River Basin District achieving Good Ecological Potential	NCC / Environment Agency	Annual
Noise	6. To reduce transport related noise.	- Levels of noise pollution	NCC	Annual
		- Number of complaints received/resolved with regard to noise	NCC	Annual

Capabilities on project:
Environment

SEA Topics	SEA Objectives	Indicators	Responsibility/ Source	Suggested Review Timescale
Air	7. To ensure good local air quality.	- Number of Air Quality Management Areas	NCC	Annual
		- European Sites Affected by Air Pollutants (Critical load exceeded)	NCC/ Natural England	Annual
		- Annual average concentration of NO_2 (Local Air Quality Management Progress Report)	NCC	Annual
		- Annual average concentration of PM_{10} (Local Air Quality Management Progress Report)	NCC	Annual
		- Volume of traffic in billion vehicle kilometres (bvk)	NCC	Annual
Climatic Factors	8. To reduce the causes of climate change. 9. To adapt to and mitigate for the effects of climate change.	- Transport related CO_2 emissions	NCC	Annual
		- Number of buses and Local Authority vehicles with Euro 3 or above	NCC	Annual
		- Proportion of people travelling to work by car	NCC/ Census data	Annual
		- Proportion of people walking/cycling to work	NCC/ Census data	Annual
		- Proportion of children travelling to school by car	NCC/ Census data	Annual
		- Distances travelled to work	NCC/ Census data	Annual
		- Amount of freight using rail	NCC	Annual
		- Amount of freight using water	NCC	Annual
Soil	10. To reduce the amount of waste produced and increase the amount recycled and composted.	- Proportion of materials used in transport developments that are from secondary and recycled sources	NCC/ Contractor	Annual
		- Proportion of construction and demolition waste that is reused and recycled	NCC/ Contractor	Annual
Population	11. To ensure good accessibility for all to jobs, facilities, goods and services in Northumberland. 12. Conserve and enhance opportunities for sustainable public access to the natural environment. 13. To reduce road traffic and congestion through reducing the need to travel by	- The percentage of persons overall economically active	NCC/ Census data	Annual
		- The percentage of f working population age seeking Job Seekers Allowance	NCC/ Census data	Annual
		- Bus patronage levels	NCC/ Census data	Annual
		- Rail patronage	NCC/ Census data	Annual
		- Ward unemployment levels	NCC/ Census data	Annual

SEA Topics	SEA Objectives	Indicators	Responsibility/ Source	Suggested Review Timescale
	car and improving travel choice. 14. To increase public involvement in decision-making and civic activity.	- % of schools with Travel Plans.	NCC/ schools	Annual
		- No. of employees working for businesses with Travel Plans.	NCC	Annual
		- % of people travelling to work in private car involved in carshare schemes.	NCC	Annual
Material Assets	15. To increase the vitality of town centres. 16. To make better use of our resources. 17. To improve efficiency in land use through the re-use of previously developed land and existing buildings, and encourage urban renaissance. 18. Adopt a strategic approach to planning and provision of multi functional green infrastructure	- Amount (ha) of best and most versatile land lost to development	Natural England/ NCC	Annual
		- Number of new developments completed on previously developed land.	NCC	Annual
Human Health	19. To reduce crime and the fear of crime. 20. To improve health and reduce inequalities in health. 21. To reduce poverty and social exclusion and close the gap between the most disadvantaged communities and the rest.	- % of SOAs in lowest 20% IMD Health Domain.	Communities and Local Government: The English Indices of Deprivation 2007: Summary	Annual or when next Index of Deprivation released 2007
		- % of residents feeling 'safe' or 'fairly safe' outside in the local authority area after dark.	NCC	Annual

15 Conclusions

15.1 Introduction

This chapter of the Environmental Report summarises the conclusions of the assessment and sets out any recommendations.

15.2 SEA Conclusions

This Environmental Report was prepared as part of the SEA of Northumberland Country Council's (NCC) 3rd Local Transport Plan (LTP3). The LTP3 for Northumberland sets out the long term plans of the local authority for maintaining and improving transport provision in the area between 2011 and 2026.

The LTP3 seeks to address the five national DfT goals: Support Economic Growth; Reducing Carbon Emissions; Improving Access to Services; Safer and Healthier Travel; and Quality of Life. Based on these goals, NCC developed a set of objectives for the LTP3 and identified a range of interventions to address the key challenges identified from the LTP3 evidence base.

An SEA of these interventions has been undertaken in order to identify likely significant construction, operation and cumulative effects on the environment. An assessment of the alternatives (Do Nothing and Continuation of the LTP2) was also undertaken.

A number of the LTP3 interventions were predicted to have potential temporary negative effects on the environment as a result of construction activities; however, the majority of these effects are temporary in nature and can be avoided or reduced through mitigation.

A number of operational negative effects (landscape, biodiversity, noise and water quality/flood risk) have been identified as a result of the assessment of the LTP3. The majority of these relate to proposed large scale infrastructure developments.

As the interventions provided within the LTP3 are generally very high level policies or schemes and without site specific proposals it is not practical to identify specific mitigation measures. However, these interventions will be subject to further environmental assessment (EIA or equivalent) at which stage a residual effect can be appropriately determined

The assessment concluded that provided that the recommended mitigation measures are implemented and additional assessments are undertaken where required, there should be no significant adverse residual effects on the environment, with only one intervention assessed as having a residual negative effect from the potential increased use of energy from increased amounts of home working. However, this intervention also has beneficial effects resulting from the reduced the need to travel and the associated benefits this has on air quality, climate, noise, and human health.

Overall, the residual beneficial effects of the LTP3 far outweigh the negative residual effects. Many of the interventions will contribute to encouraging a modal shift to more sustainable modes of transport. The majority of beneficial effects are associated with a modal shift to public and sustainable forms of transport and highway capacity improvements. A modal shift will have a beneficial effect on noise, quality, climatic factors and human health due to a reduction congestions/ emissions due to fewer cars on the road. A reduction in deposition of pollutants associated with fewer cars on the road will have positive effects on biodiversity and water. Benefits to population include improved public transport, upgraded transport infrastructure, better accessibility, increased flexibility, more predictable journey times to services and employment and people being more active.

Further beneficial effects are possible if some interventions are combined with other measures to aid a modal shift from reliance on the private car to more sustainable forms of transport without further severing accessibility for rural communities.

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