Northumberland LTP3 Evidence Base

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Northumberland LTP3 Evidence Base

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Table of Contents

1 Introduction

1.1 Introduction

This document sets out an evidence base for Northumberland which will be used to inform the third Local Transport Plan (LTP) for the period 2011-2026. It identifies not only the transport situation in Northumberland but also the economic, social and environmental situation, as it is recognised that transport is inextricably linked to all three sections of society. Throughout the document the challenges Northumberland is facing are identified and will be used in the development of interventions which will be implemented throughout the period of LTP3.

1.2 Local Transport Plan Three

The Transport Act 2000 introduced a statutory requirement for local transport authorities to produce a Local Transport Plan every five years and keep it under review. The first two LTP's for Northumberland covered the periods 2001-2006 and 2006-2011 with the third LTP to be implemented by the local transport authority no later than April 2011.

Amendments to the Transport Act in 2008 have increased the flexibility over timescales for the third LTP with the local authority allowed to replaces the LTP as they see fit. The third LTP for Northumberland will therefore run from 2011-2026. The document will set out the Council's vision, aims, objectives, policies and targets for transport over this period.

The five DfT national transport goals which were developed as part of the Towards a Sustainable Transport System Study will underpin the development of LTP3. These goals replace the five shared priorities from the second LTP and are identified in the paragraph below.

- To support national economic competitiveness and growth, by delivering reliable and efficient transport networks;
- To reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of tackling climate change;
- To contribute to better safety, security and health and longer life-expectancy by reducing the risk of death, injury or illness arising from transport and by promoting travel modes that are beneficial to health;
- To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society; and
- To improve quality of life for transport users and non-transport users, and to promote a healthy natural environment.

1.3 Evidence Base Report

This evidence base report is to be read in conjunction with LTP3 for Northumberland and provides a comprehensive review of the evidence associated with transport related issues and challenges in Northumberland. These challenges are then distilled into a set of objectives for LTP3 which will be used to inform the intervention development. Following this introductory section, the report has been prepared with the following structure;

- **Study Area**: An introduction to the Northumberland area, it's demographics and the policy context it operates within;
- **Northumberland Transport Network**: A summary of the transport networks in Northumberland and the key movements that take place;
- **Transport Problems**: An introduction to some specific transport problems Northumberland is facing;
- **Northumberland Portrait – Economy, Society and Environment:** A summary of the economic, social and environmental situation in Northumberland and how this is linked to transport;
- **Emerging Challenges:** A set of rationalised emerging challenges which have been prioritised and distilled into a set of LTP objectives.

2 Study Area

2.1 Introduction

This section of the report focuses on the profile of Northumberland and details its characteristics in terms of the physical development, population and policy context. Transport challenges are identified throughout this chapter and summarised at the end.

2.2 The 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 5000km^2. Demographically however, it is one of the smallest counties in England with a population in 2008 of only 311,000 inhabitants. This has led to a low population density across much of Northumberland causing issue for the commercial viability of key services and facilities.

Northumberland is predominantly rural in nature with an urban concentration in the south east corner of the county. The problems Northumberland is facing stem from its large spatial area and vary between the sections of the county being analysed. The rural areas are characterised by low population densities, remote communities and accessibility issues. In contrast, South East Northumberland accounts for just less than 50% of the population of Northumberland with its main priorities being economic and social exclusion.

The economy of Northumberland has undergone significant changes in the last 30 years with a national decline in the agricultural and manufacturing sectors. Whilst these sectors still form an integral part of the local economy, the area is now heavily dependent on the service industries. Tourism and the public sector are particularly important to Northumberland and account for just under 12% and 33% of employment in Northumberland respectively.

Despite the lower than average levels of unemployment in Northumberland, the area still lags behind the national economy when GVA is used as a measure of economic success. Given the aspirations of the current government administration, this is something which could be affected by the recent announcement of job cuts in the public sector. Since a key component of LTP3 is to encourage economic growth, an understanding of how transport can contribute to economic growth is needed.

Inextricably linked to the economic problems in Northumberland are the social issues facing the area. Northumberland has a very diverse society characterised by both areas of significant deprivation and areas of considerable wealth. Some areas of Northumberland are quantified as being the most deprived in England with high unemployment, poor levels of health and low educational attainment. Contrastingly, other areas within the county are considered to be the least deprived in England but still suffer from problems including accessibility issues and barriers to housing. Transport has a role to play in tackling these problems by addressing accessibility issues and facilitating social inclusion.

2.3 The Areas of Northumberland

Following the unitary reform in 2009, the unitary authority combined the former districts of Northumberland to create three service areas; North Northumberland, South East Northumberland and West Northumberland.

2.3.1 North Northumberland

North Northumberland is the second largest of the three areas in Northumberland and covers an area of 2455km^2. It is a traditionally rural area centred on the main towns of Alnwick, Berwick-upon-Tweed and Morpeth. The area is sparsely populated with a population density of 36 people per km^2.

The area is typical of many other rural areas and has a high proportion of older people. Within Northumberland it is the service area with the highest proportion of older people (25.3%), the lowest percentage of working age people (58.8%) and the lowest percentage of children (15.9%).

North Northumberland performs relatively well in the index of multiple deprivation being above the national average for many different indicators. The unemployment rate in North Northumberland, at 3.2% in April 2009, is lower than the average for Northumberland (4.1%) for the same period. The dominant employment sectors are retail (15.3%), health and social care (13.1%) and manufacturing (10.9%).

Barriers to housing and services however, is one aspect of the index of multiple deprivation where North Northumberland does not perform well. House prices in

North Northumberland are the highest in Northumberland and have been increasing in recent years at a greater percentage than the national average. This has been brought about through an increase in demand from people looking for a better quality of life and those people in search of a second home.

Due to the sparse population density in the area, many key services are not commercially viable and are instead concentrated in the main urban areas, often outside of the North Northumberland boundary.

The main towns of North Northumberland are located adjacent to the A1 trunk road, which runs north to south through the eastern side of the service area, and the East Coast Main Line which has services stopping at Morpeth, Alnmouth and Berwick. Despite, the availability of road and rail links within the area, these connections are not without their problems. In the peak hour both the highway and rail networks suffer from congestion and overcrowding.

Bus services provide the only public transport link away from the urban centres of Morpeth, Alnwick and Berwick. One of the greatest problems facing the area however, is the lack of network coverage in many areas, particularly in the evening and at weekends. A separate issue is the cost of public transport with ticket prices often reflecting the higher operating costs of public transport in rural areas. This is reflected in the fact that only 41.2% of the population of North Northumberland is satisfied with their local bus service. It often leaves people having to be reliant on their car to access the services and facilities they desire.

2.3.2 South East Northumberland

South East Northumberland is the smallest of the three service areas in Northumberland covering an area of only 155km^2. It 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 at 951 people per km^2.

Many of the urban areas of South East Northumberland were built around the ship building and mining industries which have seen a significant decline over the last 30 years. This has led to the area being characterised by high levels of unemployment and considerable pockets of deprivation, ranking it below the national average for many aspects of the index of multiple deprivation.

South East Northumberland is positioned adjacent to Tyne and Wear and due to a lack of jobs in the local area, many inhabitants commute into Tyne and Wear for work purposes. Despite the strong linkages between the two areas, the public transport network is limited with a small passenger rail network and time consuming bus journeys. The cost of public transport between South East Northumberland and Tyne and Wear is also an issue with high public transport costs restricting access to the poorest of people. In addition to problems with public transport provision, the highway network is exhibiting areas of extreme stress on the approaches into Tyne and Wear.

2.3.3 West Northumberland

West Northumberland is the largest of the three Northumberland areas covering 2468km^2. The area is predominantly rural in nature but is pocketed by a number of small towns; Hexham, Prudhoe, Ponteland and Haltwhistle. Despite its large surface area, the population density of West Northumberland is the lowest of the three service areas at only 30 people per km^2.

Similarly to North Northumberland, West Northumberland performs well against many of the indicators of the index of multiple deprivation and has the lowest levels of unemployment in Northumberland. The dominant employment sectors for residents of West Northumberland are retail (14.7%) and health and social care (14.2%).

West Northumberland is situated to the west of Tyne and Wear and there are important economic linkages between these two areas. The Tyne Valley Rail Line offers an important public transport connection into Tyne and Wear with frequent services to towns situated along this line. Further afield, bus services connect West Northumberland with Tyne and Wear but bus journeys are often time consuming and, depending on the destination, can require a number of interchanges.

2.4 Policy Context

It is important to understand the policy and administrative framework within which Northumberland currently operates which in turn provides a backdrop for how LTP3 will develop. National, regional and local policy are briefly described in this section of the report as it is recognised that transport problems have varying degrees of intensity across different spatial areas.

2.4.1 National Policy

A number of national policy documents have been reviewed and are summarised in the section below.

2.4.1.1 The Local Transport Act 2008

Local authorities have a statutory obligation, under the Transport Act 2008, to develop a transport strategy. The new LTP3 will be developed to address the challenges faced by the transport infrastructure in and around Northumberland.

The Local Transport Act 2008 has also provided local authorities with greater flexibilities in how they develop and review their LTPs. For instance, the next LTP:

- Can be reviewed as required by the local transport authority and not necessarily every five years as with the first two LTPs;
- Will need to include a distinct long-term strategy with details of transport objectives and approaches; and
- Should provide details of a shorter duration implementation plan showing how the long-term strategy will be delivered over a three to five year period.

2.4.1.2 Delivering a Sustainable Transport System (DASTs)

As a derived demand, transport is inextricably linked to, and influenced by, other areas of policy including the economy, spatial planning, health, education and the environment. The development, management and maintenance of an efficient transport system is therefore essential to social well-being and can be either an enabler or a constraint on activity and all the benefits which flow from such activity. The need to ensure both connectivity and accessibility between different geographies and different groups of people is therefore central to the economic and social functioning of the UK and an imperative which, through time, will continue to demand a complex, complementary and integrated palette of interventions. Regardless of economic or other conditions prevailing at the time, failure to deliver this will progressively erode the pivotal enabling role which transport is required to provide.

Against this background, two major pieces of work in recent years, the Eddington Study and the Stern Review, have challenged existing practices and perceptions in a number of ways. Amongst other things, Eddington insisted that the impact of transport intervention be measured across a comprehensive range of social, economic and environmental outcomes whilst Stern emphasised the need for a transition to a low carbon economy if climate change were to be avoided.

These two studies provoked a critical review of how transport supports other activities in society and how we can best measure its contribution. Most importantly, it has forced practitioners to think more carefully about how we migrate from our current position towards a system that maintains or improves accessibility and connectivity but which is less reliant on new infrastructure, less reliant on fossil fuels and more focussed on behavioural change as the pivotal mechanism for achieving greater transport efficiency. Any approach, either within or outside the transport sector and whether traditional, radical or innovative will require a firm basis of evidence and understanding about movements currently being made on the network, by whom, for what purpose and at what time. It requires, in addition, an understanding of the underlying 'drivers' of movement, the options available to satisfy transport needs and the reasons which underpin the preferred choice. This is the basis of DaSTS, to develop a comprehensive and detailed understanding of what movement is occurring and why, before considering the widest possible palette of interventions for modifying undesirable behaviour towards a more sustainable outcome as reflected in the overarching DfT goals for the transport sector.

As part of this process, the National Networks study programme has been commissioned by DfT to examine some of the most pressing transport problems in England at the present, taking account the key role that transport plays in helping to deliver economic competitiveness and regeneration, environmental improvements and wider social benefits. The one study of particular relevance to Northumberland is the ongoing '*Access to Tyne & Wear City Region Study*' which aims to identify a package of measures which improves performance of the A1 Newcastle – Gateshead Western Bypass, as well as

addressing a series of challenges within the City Region and its environs.

Alongside the programme of National Networks studies, DfT has also made funding available to the English Regions to undertake further studies of transport priorities in their areas. In the North East of England this programme has been led by ONE North East in close co-operation with a range of regional transport partners. Of these studies, of particular relevance to Northumberland are:

A study of *Strategic Connections in the North East*, examining transport network deficiencies and the case for transport investment to links between the City Regions in the North East, and links to other Regions in the UK;

- A study of *Rural Transport Issues* that examines through case studies (including a case study of the Berwick area) the particular transport challenges faced by rural communities in the North East, and measures that can help to tackle these challenges.

2.4.2 Regional Policy

Several key regional policy documents for the North East have been reviewed as it is recognised that any solutions or interventions developed as part of LTP3 for Northumberland will need to be compatible with other policies in the region. It is noted that the weight given to regional strategy documents may diminish in the light of governance changes proposed by the new Government formed in May 2010.

2.4.2.1 Regional Spatial Strategy

There are four themes underlying the Regional Spatial Strategy for the North East;

- Delivering economic prosperity and growth;
- Creating sustainable communities;
- Conserving and enhancing the built and natural environment of the region together with its heritage and culture; and
- Improving connectivity within and beyond the region.

In line with these key themes, the following transport priorities, relevant to Northumberland, have been extracted from the strategy;

- Strategies, plans and programmes should develop public transport provision that encourages a rebalancing of the transport system in favour of more sustainable modes. Local Transport Plans and other strategies, plans and programmes should support that action;
- The performance and safety of the A1 North of Newcastle should continue to be monitored and a Regional Network Report approach should be adopted for all strategic highways;
- Local Transport Plans and other strategies, plans and programmes should:
    - develop core networks of public transport links focused on key hubs, and in particular on the rural service centres, with frequent services from these centres to the Conurbations and Main Settlements within the two city-regions;
    - develop feeder public transport services from surrounding rural areas to the Rural Service Centres, ensuring integration with core network services;
    - in more remote rural areas, seek to develop innovative demand responsive public transport, rather than rely on more traditional forms of public transport; and
    - support the introduction and concept of Community Rail Development, such as the Esk Valley pilot, to offer vital services for passengers and freight enabling them to improve accessibility and contribute towards a modal shift away from private motor vehicles, particularly for commuting.

Although the Regional Spatial Strategies have now been revoked under coalition government policy, there is still a need to ensure that land use and local transport plans are mutually consistent, and deliver the most effective and sustainable development for their area.

2.4.2.2 Regional Economic Strategy

The Regional Economic Strategy recognises the role that transport has to play in the growth of the regional economy and recommends that transport investment is designed to support increased economic activity, business competitiveness and sustainable communities. With this in mind, the strategy outlines a number of challenges which need to be met with the core theme underlying these challenges being connectivity. A number of priorities for investment have been identified including, improvements to the A1, a key strategic link for Northumberland.

2.4.3 Local Transport Policy

The Local Transport Plan for Northumberland will be developed alongside other statutory documents for the authority.

2.4.3.1 Local Development Framework

The Local Development Framework (or LDF) is a collection of planning policy documents which will guide future development and regeneration in Northumberland. Policies should reflect the vision for Northumberland set out in the Sustainable Community Strategy.

Alongside regional planning policies set out in the Regional Spatial Strategy, the Local Development Framework is the development plan for Northumberland.

2.4.3.2 Sustainable Communities Strategy

Sustainable Community Strategies (SCS) are key long-term planning documents for improving the quality of life and services in a local area. It is from these that local area agreements (LAA) are developed.

Northumberland articulates its ambition and vision through the Sustainable Communities Strategy (SCS), which is currently being refreshed. The current SCS vision is:

"*That we work together to release the strength of all our communities so that everyone in Northumberland has the same life opportunities, is broadly satisfied with the quality of their lives and is able to influence decisions that affect them*."

Emerging work on the new SCS is establishing what is distinctive about Northumberland and how thematic areas can contribute to maintaining and improving environmental, community, economic and social well being. A sustainable transport network will be central to achieving the aims of the SCS by assisting in:

- **Responding to climate change** by offering alternatives to the private car;
- **Affording equality of opportunity** by affording safe and quality accessibility to key services;
- **Narrowing the poverty gap** by providing access for all to a range of education and employment opportunities;
- **Supporting the vulnerable people**
- **Fostering confident young adults** again through the provision of access to education, training and employment.

2.4.3.3 Economic Strategy

The Economic Strategy supports delivery of the SCS and is set within the context of the existing Regional Economic Strategy. The aim of the economic strategy is:

'*To maintain and improve economic growth and performance whilst ensuring that all residents can share in high living standards'*

The focus of the strategy is therefore on sustainable economic growth and the development of a low carbon economy developed around eight thematic priorities:

- A working economy;
- A skilled economy;
- An inclusive economy;
- A competitive economy;
- A resilient and diverse economy;
- An enterprising economy;
- A vibrant economy; and
- A connected economy

Northumberland's economy cannot be divorced from that of Tyneside – almost a third (28%) of the workforce commute to Tyne and Wear on a daily basis although a greater proportion live and work within the county's boundaries. Therefore, developing the region's economy must focus on both the connections within Northumberland but also beyond the region's boundary, in particular south to Tyne & Wear.

2.4.3.4 Housing Strategy

Northumberland County Council is now a statutory housing authority with a statutory duty to identify housing need and publish a housing strategy to meet those needs. The Northumberland Housing Strategy will be an Interim Strategy in 2010 to be updated following the adoption of the Sustainable Communities Strategy (SCS) and Economic Strategy, subsequently informing the Local Development Framework (LDF).

The strategy is focussed around 5 objectives:

- Rejuvenating the housing stock;
- Providing choice through the type and mix of new housing;
- Improving and maintaining existing housing; and
- Addressing specific community and social needs.
- Reducing the impact of climate change

With the focus of these objectives being on housing stock and reducing the impact of climate change, there is a close correlation with the intended outcomes of the Local Transport Plan.

2.4.3.5 Emerging Tyne and Wear City Region Transport Strategy

The Tyne and Wear City Region covers the five districts of Tyne and Wear as well as the travel to work areas of South East Northumberland, the Tyne Valley in Northumberland and Northern County Durham. Northumberland will therefore be directly impacted by the emerging Tyne and Wear City Region Transport Strategy which is due to be published in 2011. This strategy has the following vision for transport within the Tyne and Wear City Region;

'*To provide a transport network that is modern, seamless, efficient reliable and sustainable*.'

The Tyne & Wear City Region Transport Strategy will be the mechanism for delivering this vision for transport and contribute towards the high level DfT goals of tackling climate change, supporting economic growth, promoting equality of opportunity, contributing to better safety, security and health, and improving quality of life.

2.5 Spatial Distribution of Land Use

The spatial distribution of development is an important driver of transport demands and behaviour. This section of the report focuses on the current distribution of population and employment across Northumberland in order to better understand the key generators of trips.

Figure 1 shows the population density of Northumberland by lower super output area (LSOA); the average population of a lower super output area nationally is 1500.

It is evident from the plan that population density is highest in the South East corner of Northumberland, particularly around Blyth, Cramlington, Ashington and Wansbeck. Many of these settlements were formed around the old heavy industries of shipbuilding and mining but are now located on the periphery of Tyne and Wear where they can take advantage of employment opportunities in the neighbouring authorities.

In the wider Northumberland area, the population density is low with many LSOA's having a population density of 0-75 people per square kilometre. If population density is low, it will often mean essential services and facilities are not commercially viable leading to an increased need to travel.

Figure 2 shows the job density per working age population for each LSOA. It shows that there are 28 LSOAs in Northumberland which have a job density per head of working age population of one or above. This means that people must be travelling into these areas to fill the jobs. Similarly to population density, many of the areas of highest job density are located in the South East corner of Northumberland. Hexham, Berwick and Alnwick also have areas of high job density.

171 LSOAs in Northumberland have a job density per head of working age population between 0 and 1. This means that if every person of the working age population in these areas wants to work, some must commute to other areas where employment is more readily available. Whilst in some areas this is because the LSOA is small in area and only covers a residential location, in many of the rural LSOAs this is due to a lack of local jobs. People are likely to commute into South East Northumberland, other small towns in Northumberland or further afield into Tyne and Wear. It is therefore essential that there is good provision of transport to access these locations.

Emerging Challenges

The population density of Northumberland is low. This will mean that key services and facilities will not be commercially viable in some locations leading to an increased need to travel.

There are insufficient numbers of jobs in many LSOAs in Northumberland to support the population that live there. People will therefore be required to travel to neighbouring LSOAs to gain employment.

Future changes in the spatial distribution of development will have a big impact on the operation of the transport network in Northumberland and ultimately on the progress of LTP3. For this reason, where available, information has been gathered on proposed developments across Northumberland.

Capabilities on project:
Transportation

Figure 1: Population Density of Northumberland 2008

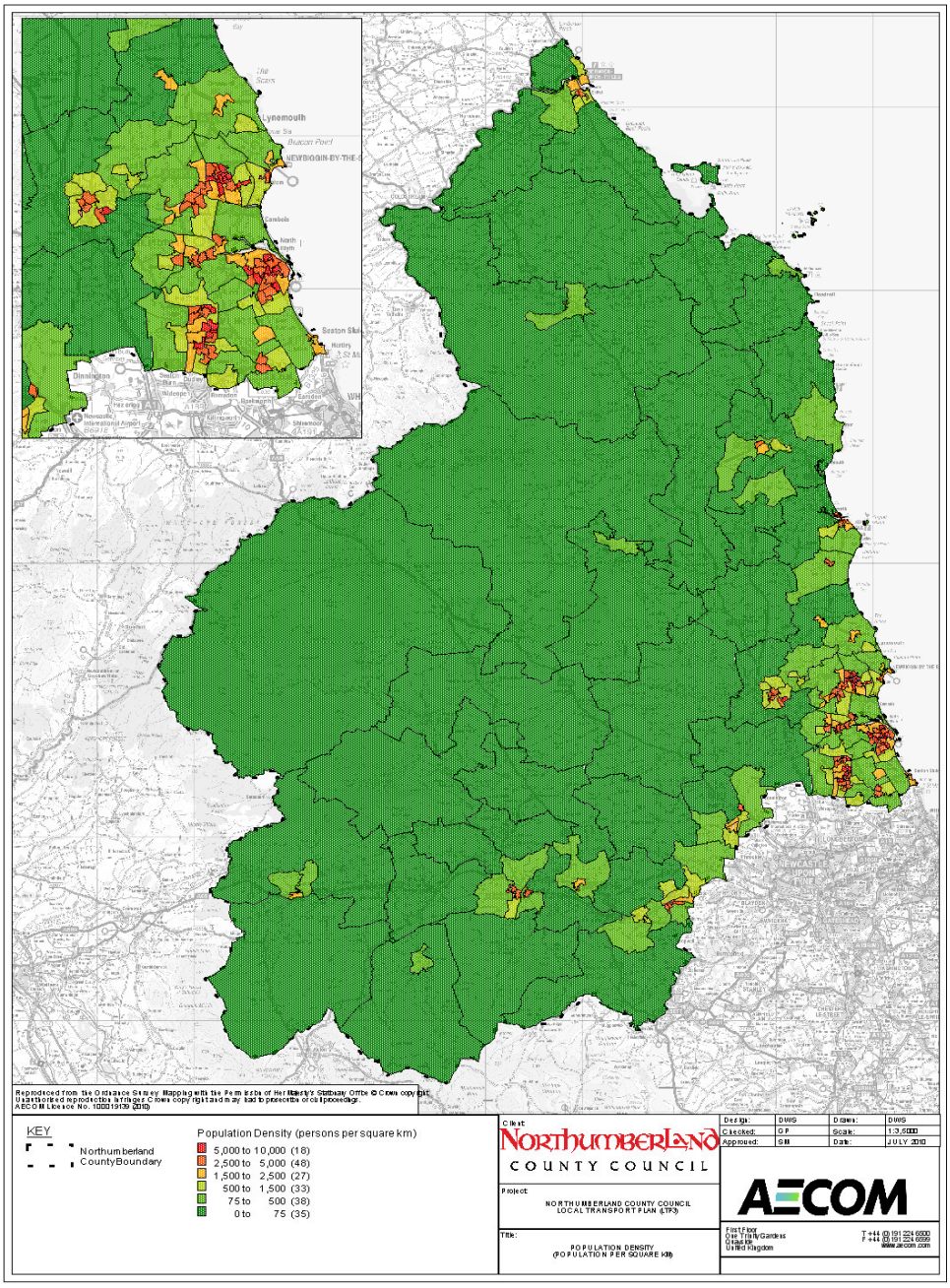
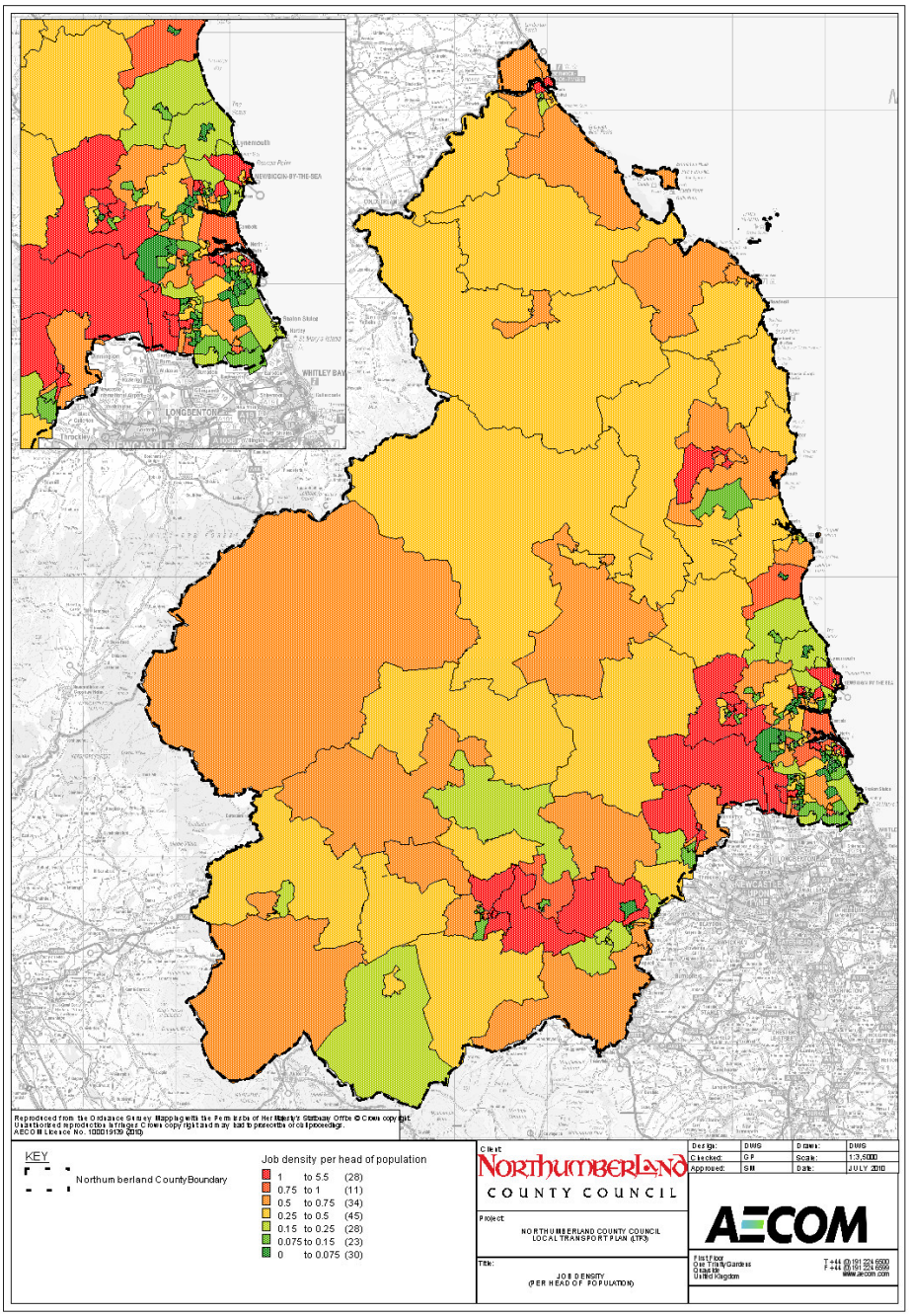


Figure 2: Job Density of Northumberland 2008



Capabilities on project:
Transportation

Figure 3: Housing Growth Point Sites

2.6.1 Housing

The Housing Growth Point initiative is likely to have a big impact on the population density of Northumberland. South East Northumberland achieved Growth Point status in July 2008 following which a Programme of Development was prepared that set out how the Growth Point Partnership's growth ambitions might be realised. Growth Point status represents a joint commitment between government and the new Growth Point Partnership to increase the level of housing provision in the sub region and accelerate its delivery. However it is not solely about housing numbers; it is also about:

- Improving the quality of the housing and the design of new development;
- Widening housing choice;
- Providing "greener" housing (the Housing Green Paper agenda);
- Improving the quality of life for local people.

The vision for the South East Northumberland New Growth Point states that:

"*Our vision is to create a strengthened network of sustainable communities in South East Northumberland's Corridor of Opportunity through broadening the range and improving the quality of housing, regenerating town centres, and supporting new economic enterprise and employment*"

The Growth Point area comprises the whole of the former districts of Blyth Valley and Wansbeck; extends northwards into the former Rural Coalfield area and westward to include the market town of Morpeth; its main settlements are Ashington, Blyth, Cramlington and Morpeth. Growth point sites are shown in **Figure 3.**

Providing an efficient and sustainable multi-modal transport network will be key to facilitating successful delivery of the Growth Point Programme.

2.6.2 Employment

The RSS for the North East recognises the need for suitable employment land if the economic growth aspired to in the RSS is to be achieved. The strategy does however suggest that much of this growth will be focussed on Tyne and Wear with an emphasis on developing offices and knowledge based industries in the city centres and using out of town locations, with good public transport and road connections, for manufacturing and logistics developments. This suggests that whilst Northumberland will be the focus of increased housing provision in the form of housing growth point sites, many of the new jobs will be located in Tyne and Wear. It is therefore essential that transport provisions between these two counties are maintained, if not improved.

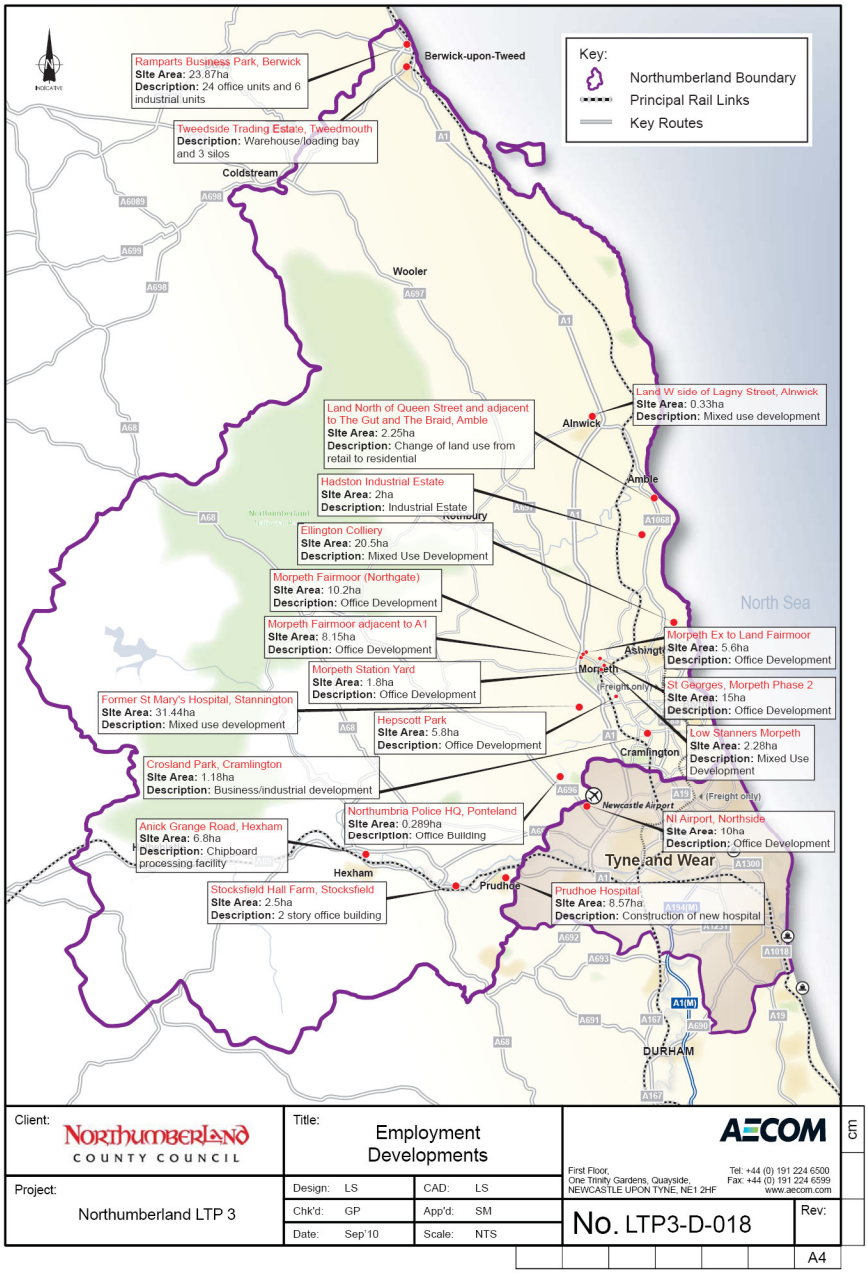
That said, employment sites will be developed in Northumberland and an understanding of the transport implications these developments may have needs to be understood. Allocated and committed employment developments in Northumberland which are likely to have a significant impact on the transport network are shown in **Figure 4**.

2.6.3 Other Public Services

Government cuts in public spending have led to many public services schemes being put on hold. This has impacted on the development aspirations of both the health and education sectors.

Emerging Challenge
There is an emphasis on employment growth in the North East being centred on Tyne and Wear despite housing growth points being established in neighbouring authorities.

Figure 4: Employment Developments in Northumberland



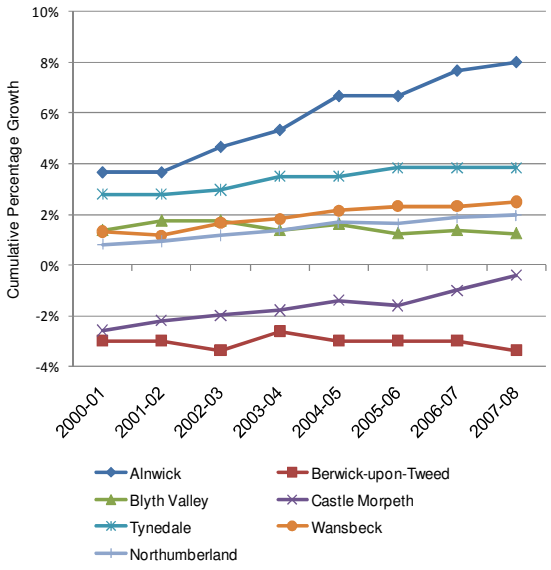
2.7 Population Characteristics

Population trends for the Northumberland area will have a direct impact upon transport demands, both in terms of the overall levels of population and the spatial distribution of population within the districts of Northumberland.

2.7.1 Population Trends

Historically the North East region has had a declining population. Northumberland however has had an increasing population with population projections suggesting that this trend is set to continue. There are however spatial variations within the local authority and these variations are illustrated in **Figure 5** below.

Figure 5: Population Growth in Northumberland



Source: Annual Population Survey 2008

Figure 5 demonstrates that, although Northumberland as a whole has seen an increase in its population between 1990 and 2008, some areas of Northumberland have been experiencing a decline in population. Berwick-upon-Tweed has seen the greatest percentage decline in its population between 1990 and 2008 at -3%. Castle Morpeth, until recently, was seeing a decline in population but this trend appears to have reversed with 2008 population levels being only slightly lower than 1990 levels. Alnwick has seen the greatest percentage increase in population over the 18 year period at 8%.

Whilst the evidence is not available to draw any firm conclusions as to the cause of population growth in Northumberland, it is unlikely that it is all attributable to natural growth, whether through increasing birth rates or through an ageing population. It is however likely that, with an increase in economic wealth and an acceptance to travel further, people have migrated into Northumberland in search of a better quality of life.

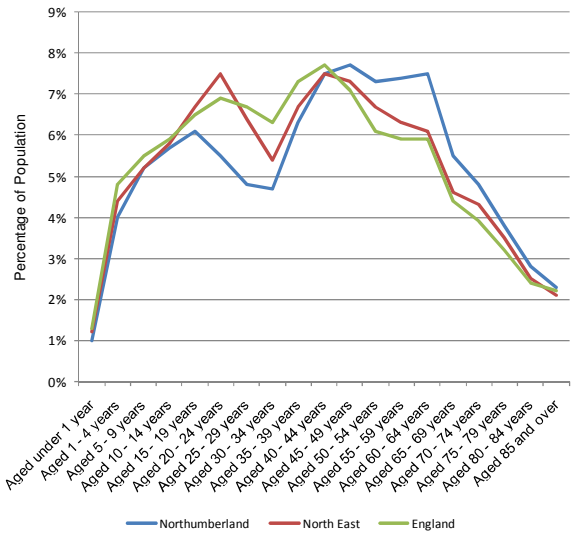
Emerging Challenge
The population of Northumberland is increasing, particularly in rural areas such as Alnwick and Tynedale. This will put increased pressure on the transport network between these rural areas and the urban centres.

2.7.2 Age Profile

The age structure of the Northumberland population will have serious implications for transport provision in the region. Of particular issue will be concessionary travel for the young and the elderly, accessibility to key services and facilities and car ownership levels.

Mid-year population estimates for 2008 highlight that Northumberland deviates from national trends in that it has a higher percentage of elderly residents with a lower percentage of working age residents. This is illustrated in **Figure 6**.

Figure 6: 2008 Mid Year Population Estimates, Age Profile



Source: Office of National Statistics

Within Northumberland individual districts generally follow the same broad pattern as depicted in **Figure 6** above for Northumberland.

The data in **Figure 6** suggests that Northumberland will be at a disadvantage to other areas nationally in its ability to grow economically due to the lower proportion of working age residents in the region. The higher proportion of elderly people in the area will lead to an increasing need for transport provision to health facilities and hospitals as well as additional funding for concessionary travel.

Emerging Challenge
Northumberland has an increased proportion of elderly residents compared to the regional and national averages. This will lead to a need for transport to health facilities and hospitals as well as additional funding for concessionary travel.

2.7.3 Future Trends in Population

TEMPRO software version 6.1 has been used to assess future trends in population for Northumberland. This is shown in **Table 1**.

Table 1: Future Trends in Population Growth

Area	< 16	16 to 64	65+	2011-2026 Households	Jobs	Total Population
GB	4.1%	1.3%	15.0%	6.3%	5.1%	4.0%
North East	1.4%	-1.3%	12.4%	4.0%	2.4%	1.5%
Northumberland	1.4%	-3.7%	19.5%	4.5%	1.0%	1.7%
Alnwick	-1.4%	-4.2%	22.7%	4.6%	1.7%	2.2%
Berwick-upon-Tweed	1.4%	-5.9%	22.1%	5.2%	1.5%	2.3%
Blyth Valley	1.5%	-3.8%	24.2%	5.2%	0.7%	1.9%
Castle Morpeth	3.3%	-3.5%	15.7%	4.2%	-0.2%	1.7%
Tynedale	0.6%	-4.3%	17.6%	3.1%	1.4%	1.0%
Wansbeck	2.2%	-2.2%	15.4%	4.7%	2.0%	1.8%

TEMPRO data shows that between 2011 and 2016 the population of Northumberland is forecast to increase by 1.7%. This is lower than the 4% forecast for Great Britain but higher than the 1.5% forecast for the North East. There is much spatial variation within Northumberland with Berwick-upon-Tweed having the highest predicted growth in population at 2.3%, and Tynedale having the lowest predicted growth in population at 1%. This is a complete reversal to recent trends with Tynedale having one of the highest percentage growths in population compared to a decline in population for Berwick-upon-Tweed. An increase in the population will put added pressure on the transport network although the demographic structure of the increase in population will be more useful in identifying any resultant problems.

The growth in the over 65's age bracket for Northumberland is expected to be 19.5%; this is significantly higher than the growth in over 65's for the North East at 12.4% and also higher than the figure for Great Britain at 14%. As previously mentioned, an increasingly ageing population will lead to an increasing need for transport provision to health facilities and hospitals. A higher proportion of elderly residents will also put added pressure on the local authority in the provision of concessionary travel.

Northumberland as a county is also expected to see a small growth in its younger dependents, those people under the age of 16. During the period of the plan, the growth rate is expected to be 1.4%. This is similar to the figure for the North East also at 1.4% but substantially lower than Great Britain at 4.1%. The only area within Northumberland which is not expected to see a growth in its younger dependents is Alnwick. This growth in under 16s is contrary to growth factors which were used to inform LTP2 which suggested that there would be a decline in the number of under 16s. This was expected to be a problem for access to education as declining numbers would lead to the closure of some education establishments increasing the need for students to travel. Whilst the growth factors extracted from the more recent edition of TEMPRO are more positive, the rural

nature of the Northumberland County suggests that the need for travel to access education establishments will still be an issue throughout the period of LTP3 that needs to be addressed.

TEMPRO growth figures predict that the working age population will decrease in all areas of Northumberland between 2011 and 2016 with a percentage decrease of 3.7%. This is also true of the working age population for the North East region although the percentage decrease for the region will be slightly lower at 1.3%. Great Britain however, is predicted to see an increase in its working age population of 1.3%. Within the Northumberland region, Berwick-upon-Tweed is expected to see the biggest decline in its working age population between 2011 and 2016 at just under 6%. A decline in the working age population will have implications on economic growth in Northumberland with the contribution people are making to the economy being reduced.

The data in **Table 1** shows that there is forecast to be a growth in the number of jobs in five of the six districts of Northumberland throughout the period of LTP3. This is despite the decline in the working age population as identified in the preceding paragraph. This could reduce the need for residents to commute into neighbouring authorities in search of employment which could in turn have positive implications on air quality and traffic congestion.

It is notable from the TEMPRO data that there is expected to be a much greater increase in the number of households compared to the increase in the population. Northumberland is predicted to see a 4.5% increase in the number of households during the period of the plan in contrast to a 1.7% increase in the population. This is not dissimilar from other trends nationally with the North East expected to see a 4% increase in households but only a 1.5% increase in population and Great Britain expected to see a 6.3% increase in households but a population growth of only 4%. The districts within Northumberland all follow a similar trend. This increase in the number of households above an increase in the population is suggestive of the society we currently live in with more single occupancy households. In terms of the transport implications, it is important to understand the location of these new households to identify whether the transport network is sufficient to cope with an increase in trips and whether sustainable transport options are available.

Emerging Challenges
The elderly population of Northumberland is forecast to increase. This will lead to a need for transport to health facilities and hospitals as well as additional funding for concessionary travel.

The number of households in Northumberland is forecast to increase at a higher rate than the population. The location of these new households could put added pressure on the transport network if a sustainable transport network is not in place.

2.8 Emerging Challenges

From this section of the report, the following important challenges have emerged that will impact on the objectives of LTP3.

- **Current developments**: Northumberland has a low population density which means that key services and facilities will not be commercially viable in some locations. This will lead to an increased need to travel. Residents will also be required to travel for employment as many areas within Northumberland have a jobs density per head of working age population which is below 1.
- **Future developments**: Growth in employment is expected to be focussed on Tyne and Wear. This is despite South East Northumberland having a number of housing growth point areas. It will increase the need to travel between the two authorities.
- **Population trends:** High population growth is concentrated in rural areas. This will put increased pressure on the transport network between these rural areas and the urban centres.
- **Age structure**: Northumberland has an ageing population which is forecast to increase in the future. This will lead to different demands on the transport network as well as increasing the demand for concessionary travel.
- **Future population trends**: The number of households in Northumberland is forecast to increase at a higher rate than the population. The location of these households could put added pressure on the transport network if a sustainable transport system is not in place.

3 Northumberland Transport Networks

3.1 Introduction

This section of the report provides a detailed description of the transport networks currently in place in Northumberland as well as analysing the transport movements which take place in the county. An understanding of traffic movements from within and beyond Northumberland is necessary to ensure that the current transport network is adequate and that it gets people to the places they want to get to. Understanding the means by which people travel will be essential for developing interventions aimed at influencing a modal shift and reducing carbon emissions within the authority.

3.2 General context

Northumberland is the most northerly county in England and provides an important access route into Scotland. The main trunk road network which runs through the county consists of the A1 running north to south from Edinburgh to London and the A69 running east to west from Newcastle through to Carlisle.

The East Coast Main Line 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 and a network of bus services connects areas within Northumberland and Tyne and Wear.

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. Approximate journey times and distances to both airports are shown in **Table 2** for car and public transport.

Table 2: Approximate Journey Time and Distances to Newcastle and Edinburgh Airports

Origin	Newcastle Airport			Edinburgh Airport		
	Distance	JT by Car	JT by Public Transport	Distance	JT byCar	JT by Public Transport
Alnwick	35 miles	50 mins	90 mins	95 miles	140 mins	120 mins
Berwick-upon-Tweed	65 miles	90 mins	90 mins	65 miles	90 mins	90 mins
Blyth	15 miles	30 mins	70 mins	120 miles	180 mins	210 mins
Morpeth	15 miles	30 mins	60 mins	100 miles	160 mins	200 mins
Hexham	20 miles	30 mins	90 mins	100 miles	160 mins	180 mins
Wansbeck	20 miles	35 mins	75 mins	120 miles	180 mins	210 mins

Source: Transport Direct online journey planner

Table 2 shows that it is generally quicker for people to travel to the airport using the car than by public transport. Whilst there are some comparable journey times between the car and public transport, especially for Berwick-upon-Tweed, table 2 does not provide information on the need for interchange when using public transport. This is particularly relevant when considering passengers are likely to be carrying luggage.

The Port of Blyth and Port of Berwick are operational commercial ports for freight transport located in Northumberland. There are no ports in Northumberland however, which provide passenger services but the Port of Tyne located in North Tyneside can be easily accessed from Northumberland by road.

The transport networks across Northumberland are illustrated in **Figure 7**.

3.2.1 Highway Network

The highway network within Northumberland is vast with over 5080km of roads spread across the county. Given the County's relatively small population, Northumberland has a large network of roads to operate and maintain with the little funding that will be recouped through council tax.

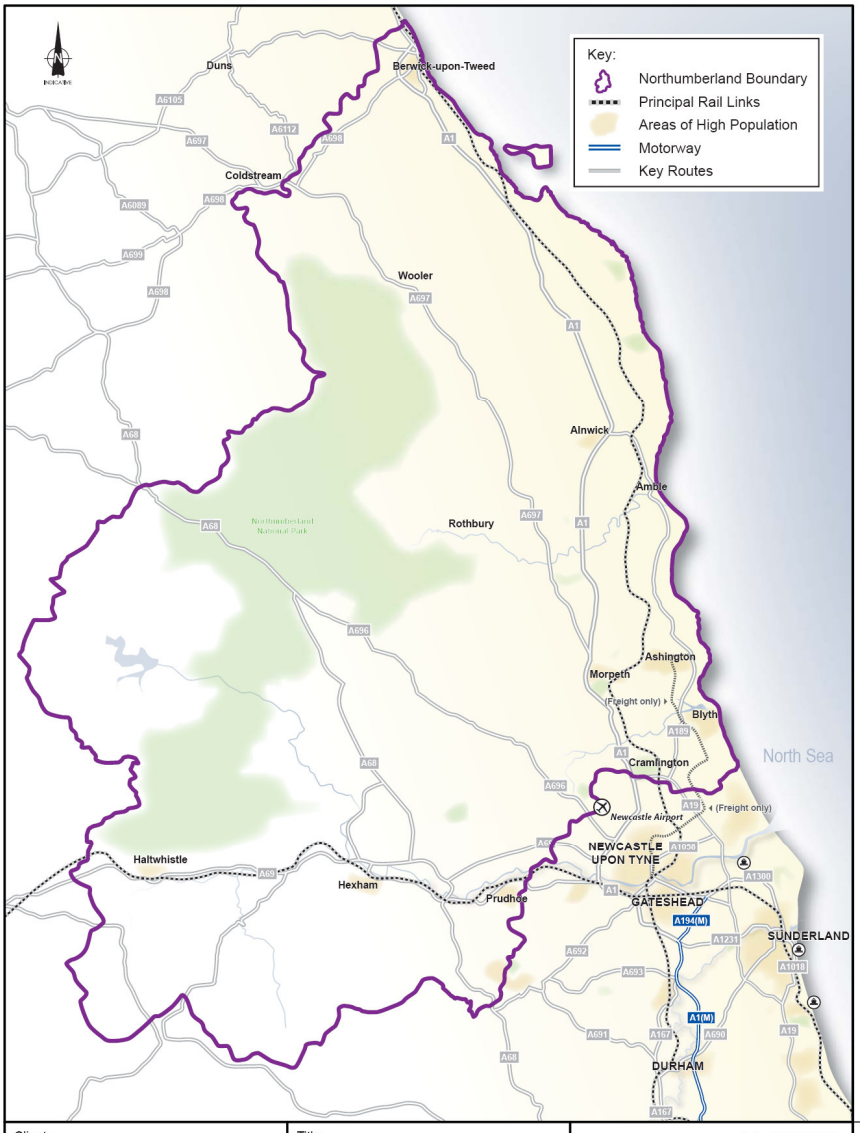
The main trunk road network in Northumberland consists of the A1 running north to south and the A69 running east to west.

The A1 connects Edinburgh in the north with London in the south and is a predominantly single carriageway route through the county of Northumberland. Whilst there has always been an aspiration by Northumberland County Council to dual the A1, the road was previously categorised as a road of regional importance and regional funding was not available for the full cost of the scheme. Consultation is currently ongoing to decide whether the road should be categorised as a road of national importance which would open up the way for the route to be fully dualled.

The A69 is a Cross-Pennine route running along the Tyne Valley between Newcastle in the east and Carlisle in the west. The road is predominantly single carriageway with the section between Newcastle and Hexham being dual carriageway. The road serves the main towns of Corbridge and Hexham as well as numerous smaller villages and settlements.

Capabilities on project:
Transportation

Figure 7: Transport Networks in Northumberland



Client: Northumberland County Council	Title: Transport Network	AECOM	cm
Project: Northumberland LTP 3	Design: LS / CAD: LS	First Floor, One Trinity Gardens, Quayside, NEWCASTLE UPON TYNE, NE1 2HF Tel: +44 (0) 191 224 6500 Fax: +44 (0) 191 224 6599 www.aecom.com	
	Chk'd: GP / App'd: SM	No. LTP3-D-001	Rev:
	Date: June '10 / Scale: NTS		A4

The A189 leading onto the A1068 is one of the major roads in Northumberland and runs up the east coast between Alnwick in the north and the A19 in the south. It is an mportant commuter route into Tyne and Wear for communities to the east of Northumberland including Blyth, Ashington and Wansbeck. The road is dual carriageway between Newcastle and Ashington and single carriageway between Ashington and Alnwick.

3.2.2 Rail Network

The two main passenger railways running through Northumberland are the East Coast Main Line running north to south and the Tyne Valley Line running east to west. The Ashington, Blyth and Tyne railway is a freight link connecting South East Northumberland.

East Coast trains provide fast and frequent services to Scotland, the Midlands and London using the East Coast Main Line. Stations within Northumberland which are served by East Coast trains are Berwick-upon-Tweed, Alnmouth and Morpeth. At least one service an hour runs between London and Edinburgh with most of these services calling at Berwick-upon-Tweed. Four trains every day serve Alnmouth in both directions with one train every day serving Morpeth in both directions.

Cross Country services also use the East Coast Main Line between York and Edinburgh. These trains provide links to Yorkshire, the North West, the Midlands, the South East and the South West. Cross Country services between Newcastle and Edinburgh run approximately once an hour. In many cases the service runs close to the East Coast Edinburgh service so that in some hours there is a 50 minute gap in trains between Newcastle and Edinburgh. Cross Country services run approximately every two hours from/to Berwick-upon-Tweed with a shorter headway during peak hours. Seven Cross Country trains a day serve Alnmouth northbound with six trains a day southbound; three Cross Country trains a day serve Morpeth northbound with two trains a day southbound.

Northern Rail also runs a local service between Newcastle and Northumberland which utilises the East Coast Main Line. This service stops at Cramlington and Morpeth and runs approximately once every hour in both directions. A separate Northern Rail service runs between Chathill and

Newcastle twice daily. This service provides the total daily service at Chathill, Acklington, Widdrington and Pegswood.

Services on the Tyne Valley Line connect Carlisle in Cumbria with Newcastle-upon-Tyne in Tyne and Wear. They serve all stations in between including the following nine stations in Northumberland;

- Wylam;
- Prudhoe;
- Stocksfield;
- Riding Mill;
- Corbridge;
- Hexham;
- Haydon Bridge;
- Bardon Mill; and
- Haltwhistle.

Trains from Hexham and Prudhoe run approximately every 30 minutes. There is a less frequent service from smaller stations of approximately once an hour although some stations (Wylam and Stocksfield) have a shorter headway during peak hours.

3.2.3 Cycle Network

The network available to cyclists in Northumberland is shown in **Figure 8**.

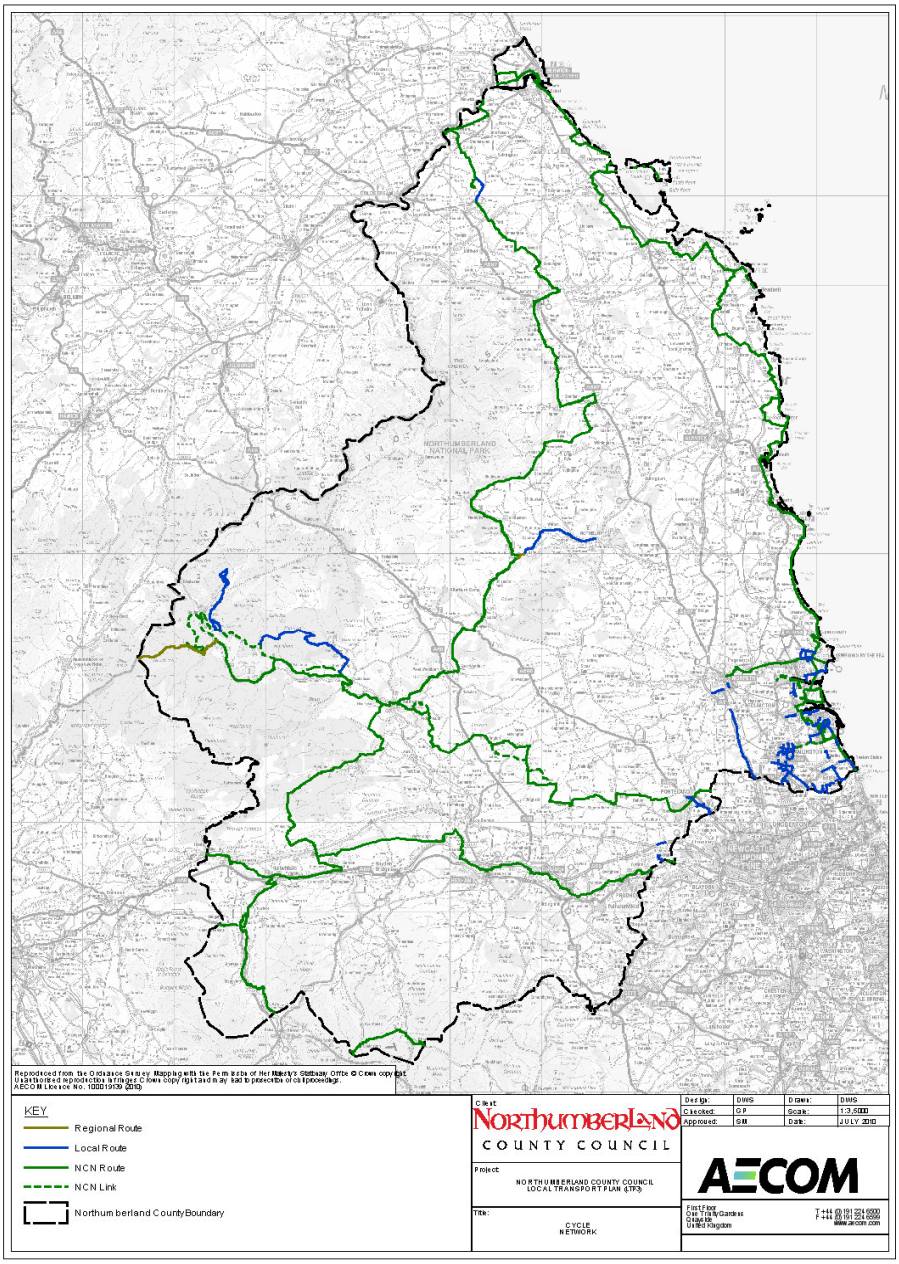
Four national network routes pass through Northumberland;

- Coast and Castles Cycle Route: A route running along the Northumberland coastline between Tynemouth and Berwick-upon-Tweed. Due to its relatively flat topography, the route is very attractive to cyclists;
- Hadrian's Cycleway: The Hadrian's Cycleway runs along the line of Hadrian's Wall and connects the Cumbrian Coast with the North Sea Coasts;
- Pennine Cycleway: The Pennine Cycleway is part of National Cycle Network Route 68 and enters Northumberland through the South Tyne Valley and connects up to Berwick; and
- Reivers Cycleway: This route connects Tynemouth to Whitehaven via Kielder Water.

The national network cycle routes form the backbone to cycle routes in Northumberland and help to encourage additional cycling in the county. They are an important

Capabilities on project:
Transportation

Figure 8: Cycle Network in Northumberland



attractor of tourist's to the area and help to bring in essential revenue for the tourism industry. It is essential that these routes are maintained and improved throughout the period of LTP3 to encourage greater cycle use in the county.

It is evident from looking at **Figure 8** that within Northumberland cycle routes are concentrated in the South East corner of Northumberland. Within this network however, a fragmented network of cycle routes still exists. The western and northern areas of Northumberland have limited cycling routes with almost no additional local links provided to complement the national network.

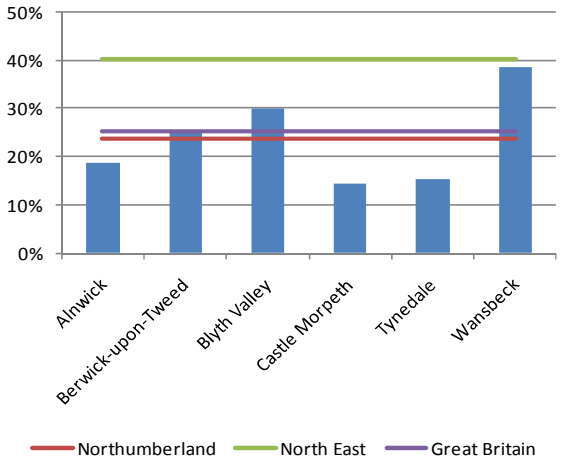
3.3 Northumberland Context

In this section, data sources are drawn upon in order to illustrate the important transport features in Northumberland, and how these features may differ from the national picture. The transport features illustrated relate to car ownership, modal share and trip distances.

3.3.1 Car Ownership in Northumberland

Vehicle ownership will be an influential factor in determining the choice of travel destinations, the frequency of journeys and the mode of travel chosen, for any trip purpose. Ownership levels, as established in the Census 2001, vary across the authority as illustrated in **Figure 9** below.

Figure 9: Households that do not own a Car



Source: 2001 Census

Figure 9 shows that in 2001, the percentage of Northumberland households which did not own a car was lower than the national average. There were however districts within the region where car ownership levels were low, namely Wansbeck and to a lesser extent Blyth.

Car ownership levels are often indicative of the levels of deprivation in an area and it is therefore no surprise that car ownership levels are lowest in the most deprived areas of Northumberland. This is described in greater detail in **Section 5** of this report. The concern arises however that, with an increase in wealth in these areas, there will be an aspiration to own a car. Whilst 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. The projected car ownership levels for the period of the plan are outlined in **Table 3**.

Table 3: Future Projections for Car Ownership

Area	2011-2026				
	No Car	1 Car	2 Cars	3+ Cars	Total Cars
GB	1.7%	17.7%	22.1%	26.8%	21.1%
NE	-4.3%	16.2%	23.3%	22.5%	19.7%
Northumberland	-4.4%	14.4%	16.1%	11.6%	14.7%
Alnwick	-5.9%	13.3%	17.6%	13.0%	15.1%
Berwick-upon-Tweed	-5.3%	16.2%	20.9%	13.3%	17.4%
Blyth Valley	-2.4%	16.1%	18.6%	14.7%	17.0%
Castle Morpeth	-4.3%	14.3%	12.4%	7.8%	12.2%
Tynedale	-8.0%	9.4%	11.5%	9.1%	10.3%
Wansbeck	-4.2%	16.5%	21.1%	17.0%	18.4%

Source: TEMRPO v6.1

Table 3 shows that the number of households without a car is set to decrease in Northumberland over the 15 year period by just under five percent. This is against an increase in the number of households without a car across the whole of England. In addition, there will also be an increase in the number of households having one or more cars across Northumberland with the greatest increases occurring in Wansbeck, the district with the lowest car ownership levels in the Census 2001 data.

Although the number of cars in Northumberland is expected to increase throughout the period of LTP3, the level of increase is projected to be lower than that for Great Britain or the North East. This is likely a result of the current higher than average levels of car ownership in the region. That said, car ownership is going to increase and this could prove problematic for the operation of public transport in the county which is already not commercially viable in many areas. The challenge therefore lies in encouraging new car

owners to continue making use of alternative modes of travel in order to manage transport demands and reduce carbon emissions.

Emerging Challenges
Car ownership in Northumberland is forecast to increase, particularly in the rural areas and South East Northumberland. This has potential implications for the commercial viability of public transport and modal share in the future.

3.3.2 Modal Share

The Stern Report emphasised the need for a transition to a low carbon economy if climate change were to be limited. Transport was identified as one of the market sectors where attention should be focussed since it is the fastest growing source of emissions. Key to achieving this will be influencing a modal shift from the private motor car to a more sustainable mode of transport. Understanding the current modal share in Northumberland is therefore essential in order to develop an appropriate set of options. This has been analysed using the 2001 Census journey to work data.

Figure 10 shows the modal split of all journey to work trips that originate in the Northumberland area extracted from the Census data 2001.

Figure 10: 2001 Census, Mode Share for Journey to Work Trips

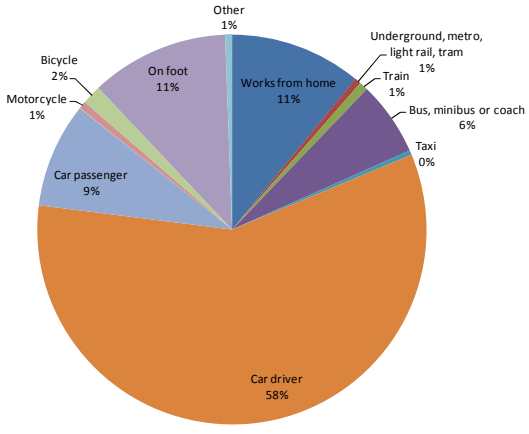


Figure 10 shows that the dominant mode of transport for trips originating in Northumberland is the car; 58% of commuter trips are made using the car where the person being surveyed is the driver. As shown in **Table 4**, this is slightly higher than the national figure although this is to be expected in rural counties where distances to work are likely to be longer and public transport options are not always available.

Table 4: 2001 Census, Mode Share for Journey to Work Trips

Mode	Northumberland	North East	England
Works from home	11%	8%	9%
Underground, metro, light rail, tram	1%	2%	3%
TralN	1%	1%	4%
Bus, minibus or coach	6%	11%	8%
Taxi	0%	1%	1%
Car driver	58%	55%	55%
Car passenger	9%	9%	6%
Motorcycle	1%	1%	1%
Bicycle	2%	2%	3%
On foot	11%	10%	10%
Other	1%	0%	0%

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. 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 split between walking and cycling, 12% and 2% respectively. It is recognised that whilst these forms of transport will only be suitable for journeys to work that are within a given distance; they are wholly sustainable modes of transport and as such, should be encouraged where appropriate. Additionally, walking and cycling also have health benefits associated with them. The IHT acceptable walking distances are given in **Table 5** whilst PPG13 guidelines state that cycling has the '*potential to replace short car journeys particularly those under 5km*'.

Table 5: IHT Recommended Walking Distances

Criteria	Commuting/School	Elsewhere (Other than Town Centre)
Desirable	500m	400m
Acceptable	1000m	800m
Preferred Maximum	2000m	1200m

What is notable from the data in **Figure 10** is the number of residents of Northumberland who work at, or mainly from, home. This stood at 11% of the population in the 2001 Census which was higher than the national average of 9%. Working from home removes trips from the network which will help free up capacity for other road users. The high number of people who work from home in Northumberland is likely reflective of the dispersed nature of developments in the county which increases distances to work making travelling into work less desirable. Where possible, flexible working, such as working from home, should be encouraged to minimize traffic on the network in congested locations or during peak hours. It is essential that this is made possible in rural counties like Northumberland through effective communication systems.

Whereas the previous information focussed on the Northumberland area as one, differences in mode share become apparent when smaller spatial areas are analysed. This is shown in the table below.

Table 6: 2001 Census, Mode Share for Journey to Work Trips

Mode	Alnwick	Berwick-upon-Tweed	Blyth Valley	Castle Morpeth	Tynedale	Wansbeck
Works from home	15%	17%	7%	12%	15%	7%
Underground, metro, light rail, tram	0%	0%	1%	1%	0%	0%
Train	1%	0%	0%	1%	2%	0%
Bus, minibus or coach	4%	6%	9%	5%	3%	8%
Taxi	0%	0%	1%	0%	0%	0%
Car driver	55%	45%	60%	64%	58%	59%
Car passenger	6%	7%	11%	7%	7%	11%
Motorcycle	0%	1%	1%	1%	0%	1%
Bicycle	1%	2%	2%	1%	1%	2%
On foot	16%	20%	8%	8%	12%	11%
Other	1%	1%	0%	1%	1%	0%

Castle Morpeth has the highest percentage of people who travel to work as a car driver alone at 64%. This is compared to 45% of people who travel to work as a car driver alone in Berwick-upon-Tweed. The high car usage percentage in Northumberland is despite Morpeth being located on the East Coast Main Line and having good bus links to Tyne and Wear. It is however the district with the highest car ownership in Northumberland as well as being one of the least deprived districts of Northumberland.

Bus usage is highest in Blyth Valley at 9% and lowest in Tynedale at 3%. This is perhaps indicative of the low population density in Tynedale which often makes bus services non-commercially viable. In contrast, Blyth Valley is located in the urban south-east corner of Northumberland where population density is the highest in the county and bus services are more readily available. Blyth Valley also has a lower than average level of car ownership which means that, for many people, public transport is the only realistic alternative for accessing employment. The contrast between these districts will also be influenced by the fact that a train line runs through the Tyne Valley whereas no train service is currently available to the residents of Blyth.

The percentage of the population of Berwick-upon-Tweed which walk to work is double the national average at 20%. This may be indicative of Berwick-upon-Tweed being a self-contained employment area with relatively short distances to work meaning that walking is a viable mode of transport.

Working from home is highest in Alnwick at 17% and lowest in Blyth Valley at 7%. This is possibly reflective of the distance that Alnwick is located from the main centres of employment in comparison to the Blyth Valley. As already mentioned working from home completely removes commuter trips from the network and is therefore something which should be encouraged where feasible.

Emerging Challenges
Private motor car usage in Northumberland is higher than the national average. This could contribute to congestion and air quality issues.

Public transport usage in Northumberland is lower than the national average. Increased usage of public transport could contribute to the achievement of the transport objectives.

3.3.3 Trip Distances

The Census 2001 data has also been used to identify how far commuters are travelling to work. Distance to work will be a determining factor in the choice of mode of transport. **Table 7** shows the distance to work for the population of Northumberland as well as the national and regional average.

Table 7: 2001 Census, Distance to Work

Distance	England	North East	N'land	Alnwick	Berwick-upon-Tweed	Blyth Valley	Castle Morpeth	Tynedale	Wansbeck
Less than 2km	20%	20%	21%	27%	36%	18%	16%	22%	21%
2km to less than 5km	20%	22%	11%	6%	12%	12%	9%	5%	18%
5km to less than 10km	18%	21%	14%	9%	5%	22%	13%	8%	19%
10km to less than 20km	15%	17%	22%	13%	8%	31%	25%	19%	18%
20km to less than 30km	5%	4%	8%	7%	6%	3%	15%	11%	10%
30km to less than 40km	2%	1%	3%	7%	2%	1%	3%	8%	1%
40km to less than 60km	2%	1%	2%	8%	3%	0%	1%	4%	0%
60km and over	3%	3%	3%	3%	7%	3%	3%	3%	2%
Working at or from home	9%	8%	11%	15%	16%	7%	12%	15%	6%
Other	5%	4%	4%	5%	5%	4%	4%	5%	3%

The data shows that 21% of the population of Northumberland live within 2km of their workplace; this is comparable to the North East at 20% and England at 20%. 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. The IHT acceptable walking distances have already been outlined in table 5 of this report. This table shows that 2km is considered to be an acceptable walking distance for commuting to work and the data therefore suggests that as much as 21% of the population could be walking to work. An additional 11% of the population of Northumberland live within 5km of their workplace which would be a suitable distance for cycling to work. If a mode shift to sustainable transport is going to be achieved, it is important to address the reasons why people aren't walking or cycling to work despite living within an acceptable distance of their workplace.

The data shows that in 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. It is probable this is the reason for the above average car drivers in the county, particularly in Castle Morpeth where 15% of the population work 20-30km from their place of residence.

Emerging Challenges
32% of commuter trips in Northumberland are under 5km in distance yet only 13% of commuter trips are undertaken using non motorized forms of transport. Increased usage of non motorized forms of transport could contribute to both transport and health objectives.

People in Northumberland travel longer distances to work compared to regional and national figures. There is often no alternative to the private car for these longer distance trips.

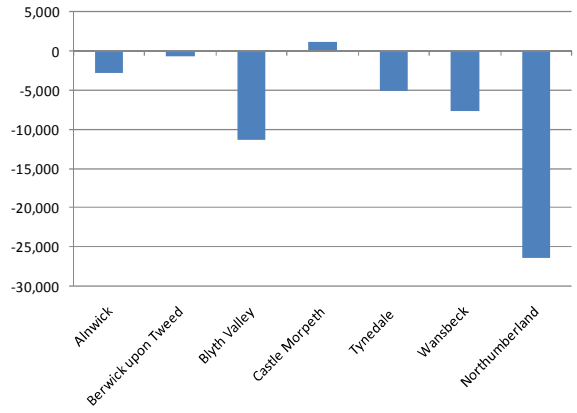
3.4 Travel Patterns

The 2001 Census Journey to Work data has been used to assess travel patterns in the Northumberland area. Although this data should be treated with some caution given that it is approaching ten years old, it does provide some useful insight into district to district movements within Northumberland. A comparison with data from 1981 and 1991 has been conducted to identify how travel patterns in Northumberland have been changing, whilst a more recent analysis of commuter movements produced by NERIP (North East Research and Information Partnership) has been used to reinforce the results of the Census data for 2001.

3.4.1 Census Journey to Work Data

Details regarding journey to work movements for trips originating or terminating in Northumberland have been sourced from 2001 Census data. **Figure 11** shows the overall balance for commuter trips in the area.

Figure 11: 2001 Census, Net Inflow and Outflow of Commuter Trips



It is evident from the data that Northumberland has a net outflow of commuter trips with Newcastle and North Tyneside, as shown in **Table 8**, being the principle destinations of these trips. Newcastle and North Tyneside are therefore an important source of employment for people residing in Northumberland and good transport links between these areas will be essential for economic growth.

Castle Morpeth is the only district within Northumberland to have a net inflow of trips. This is likely reflective of the location of County Hall within Castle Morpeth, a significant employment location in the area which, in 2009, saw the relocation of the former district councils to this site. The net inflow of trips emphasizes the economic role that Castle Morpeth plays within the Northumberland area.

Berwick-upon-Tweed has a small net deficit of commuter flows but, on the whole, appears to operate as self contained employment centre.

Blyth Valley has the highest percentage of its employed residents commuting out of the area for work at 57.9%.

Table 8 displays the district to district flows within Northumberland and to the wider workplace area. The data shows the majority of commuter movements are internal within each district. There are however, noticeable commuter movements between some districts within Northumberland which highlights the necessity for good transport links within the Northumberland area. The top five district to district movements within Northumberland are as follows;

- Wansbeck to Castle Morpeth;
- Wansbeck to Blyth Valley;
- Blyth Valley to Wansbeck;
- Castle Morpeth to Wansbeck;
- Blyth Valley to Castle Morpeth.

Table 8: 2001 Census, District to District Origin Destination Movements

Origin/ Destination	Alnwick	Berwick	Blyth Valley	Castle Morpeth	Tynedale	Wansbeck	Gateshead	Newcastle	North Tyneside	South Tyneside	Sunderland	Rest of England and Wales	Scotland
Alnwick	8,996	313	272	1,463	94	474	220	1,027	332	42	84	349	63
Berwick	391	9,312	39	162	31	47	29	165	54	4	26	235	894
Blyth Valley	114	14	15,375	1,691	114	1,775	1,466	7,930	5,442	372	628	1,166	134
Castle Morpeth	647	31	923	9,556	321	1,694	918	4,425	1,135	183	342	704	74
Tynedale	37	8	161	734	17,580	81	1,643	4,183	585	169	421	1,702	108
Wansbeck	177	31	3,005	3,515	97	11,980	803	3,092	1,523	155	306	711	97
Gateshead	56	3	421	659	1,219	140							
Newcastle	122	26	1,239	1,743	851	508							
North Tyneside	134	37	2,362	1,256	346	624							
South Tyneside	11	0	211	263	92	83							
Sunderland	14	0	223	333	127	85							
England and Wales	155	45	597	728	1,289	204							
Scotland	38	987	19	25	24	7							

Appendix A contains a series of plans which illustrate more clearly the employment links between different areas within and beyond Northumberland. It is evident from these plans that Tyne and Wear is an important attractor of commuter trips from all areas of Northumberland and as such, the transport network needs to accommodate these movements.

Emerging Challenges
There is an outflow of commuters from Northumberland into Tyne and Wear. Congestion is already an issue on the strategic road network into Tyne and Wear.

3.4.2 Historical Commuting Patterns 1981-2001

The Northumberland InfoNet provides statistical information for Northumberland. Analysis has already been conducted on changes in commuting patterns between 1981 and 2001. This analysis shows that there has been an increase in the percentage of the population commuting out of Northumberland for work from 23% in 1981 to 27% in 1991 and 32.9% in 2001. The increase has been observed in all districts and is likely attributable to a decline in traditional industries within Northumberland alongside an increased willingness to travel.

Tyne and Wear has always been a popular destination for commuters from Northumberland although the 2001 Census data shows that the importance of Tyne and Wear as a destination is decreasing. In 1981, 89% of out commuters from Northumberland had a destination in Tyne and Wear; by 2001 this had decreased to 84.1%. It is likely that an increase in car ownership levels will have impacted on this figure with more people now having the ability to travel further.

Despite this reduction in the importance of Tyne and Wear as a destination for out commuters, it is still the principal destination for out commuters from Northumberland. It is therefore important that there is a good and efficient highway and public transport network between Northumberland and Tyne and Wear.

3.4.3 Changes in Commuting 2001-2008

NERIP (North East Research and Information Partnership) has recently published a piece of research analysing the flows of residents and workers in the North East. This data is based on results from both the annual population survey and the local labour force survey. It therefore offers a more up to date analysis of commuting flows compared to 2001 Census data, albeit using a much smaller sample size.

The key findings extracted from the report which relate specifically to Northumberland are as follows;

- More than half of the working residents of Blyth Valley work elsewhere;
- The results show that commuter movements either to/from Wansbeck, Berwick-upon-Tweed, Tynedale and Alnwick have changed noticeably since 2001. Examples of these changes are as follows;

- The proportion of jobs in Wansbeck that are filled by people who live in Wansbeck has increased. The people who live in Wansbeck that have a job in Wansbeck has also increased from 47.6% to 54.2%;
- The proportion of people living in Berwick that work in Berwick has increased from 75.4% to 84.6%. The proportion of in-commuting to Berwick has also increased;
- Outward flows from Tynedale have decreased;
- Alnwick appears to have become more of an out-commuter district between 2001 and 2008.

The key findings from this research suggest that there have been changes in the pattern of commuting flows in Northumberland between 2001 and 2008. Some districts within the county have become more self-contained with the opposite being true of other districts. The data does however suggest that out commuting from Northumberland districts is still important and transport links must therefore support this demand.

3.4.4 Rail Network Movements

There are two operational railway lines within the county of Northumberland; the East Coast Main Line running north to south between Edinburgh and Newcastle and the Tyne Valley railway line running east to west between Newcastle and Hexham.

The LENNON database has been used to assess the ridership patterns of heavy railway users in the Northumberland area. This analysis has shown that the major railway movements from stations within Northumberland are to destinations outside of the county. The biggest movements are as follows;

- Berwick – Wider UK;
- Hexham – Tyne and Wear;
- Morpeth – Tyne and Wear;
- Prudhoe – Tyne and Wear;
- Alnmouth – Wider UK.

It is clear that to the north of Northumberland there is a demand for rail services to the wider UK, most probably Scotland. To the south and west of Northumberland there is a clear demand for services into Tyne and Wear. This is likely due to the greater number of jobs and services that are available within Tyne and Wear. It is essential therefore, that frequent and reliable train services between the above origin destination pairs are maintained, if not improved.

Analyses of movements between districts within Northumberland show the following origin destination pairs to be important;

- Haltwhistle – Hexham;
- Prudhoe - Hexham;
- Wylam – Hexham;
- Cramlington - Morpeth;
- Haydon Bridge - Hexham.

Within Northumberland, the greatest demand for rail movements is into the market town of Hexham. This area is likely to contain jobs and services that are not available in the smaller rural towns and villages. Whilst the demand for these movements may not be as great as for movements into Tyne and Wear, it is an important mode of transport for accessibility to key services in this area and the service must therefore be maintained.

The origin destination matrix for the LENNON data is shown in **Table 9** below.

Table 9: Rail Movements from LENNON Data

Origin/Destination	Acklington	Alnmouth	Bardon Mill	Berwick-upon-Tweed	Chathill	Corbridge	Cramlington	Haltwhistle	Haydon Bridge	Hexham	Morpeth	Pegswood	Prudhoe	Riding Mill	Stocksfield	Widdrington	Wylam	Tyne and Wear	Rest of UK	Total
Acklington	0	1	0	1	2	0	80	0	0	0	1	0	2	0	0	3	0	66	21	175
Alnmouth	1	0	1	338	27	12	161	41	7	60	275	7	14	4	3	2	8	40849	56165	97972
Bardon Mill	0	1	0	2	0	10	0	49	80	269	0	0	27	1	14	0	13	1877	654	2994
Berwick-upon-Tweed	1	338	2	0	1	18	30	21	4	196	416	0	46	2	8	2	23	52363	155061	208527
Chathill	2	27	0	1	0	1	9	0	0	2	21	2	0	0	0	0	0	1120	79	1262
Corbridge	0	12	10	18	1	0	16	309	179	2778	86	0	1557	523	570	0	1240	28494	2645	38435
Cramlington	80	161	0	30	9	16	0	8	4	101	3322	4	37	3	22	294	8	37567	2562	44224
Haltwhistle	0	41	49	21	0	309	8	0	862	7575	8	0	582	36	41	0	121	14208	11969	35826
Haydon Bridge	0	7	80	4	0	179	4	862	0	2888	27	0	333	24	18	0	51	6738	1359	12571
Hexham	0	60	269	196	2	2778	101	7575	2888	0	397	1	6385	1376	1643	16	3521	133739	23358	184303
Morpeth	1	275	0	416	21	86	3322	8	27	397	0	10	43	33	17	23	25	73277	39128	117106
Pegswood	0	7	0	0	2	0	4	0	0	1	10	0	0	0	0	0	0	1393	160	1576
Prudhoe	2	14	27	46	0	1557	37	582	333	6385	43	0	0	270	582	0	2657	68549	4415	83496
Riding Mill	0	4	1	2	0	523	3	36	24	1376	33	0	270	0	221	0	397	12886	1047	16821
Stocksfield	0	3	14	8	0	570	22	41	18	1643	17	0	582	221	0	0	874	25049	1482	30541
Widdrington	3	2	0	2	0	0	294	0	0	16	23	0	0	0	0	0	0	2739	101	3180
Wylam	0	8	13	23	0	1240	8	121	51	3521	25	0	2657	397	874	0	0	42229	2546	53711
Tyne and Wear	66	40849	1877	52363	1120	28494	37567	14208	6738	133739	73277	1393	68549	12886	25049	2739	42229	193704	3092483	3827330
Rest of UK	21	56165	654	155061	79	2645	2562	11969	1359	23358	39128	160	4415	1047	1482	101	2546	3092483	4652989	8048221
Total	175	97972	2994	208527	1262	38435	44224	35826	12571	184303	117106	1576	83496	16821	30541	3180	53711	3827330	8048221	

3.4.5 Bus Movements

Up to date information regarding origin destination bus movements in Northumberland is not available; Census data can however be used to assess bus movements amongst commuter flows. Although this data does not include other trip purposes, many of which may use the

bus, it will give some indication of the most popular origin destination pairs for bus travel in the area. The following table shows the percentage of total bus movements for commuter flows in Northumberland.

Table 10: Census Data 2001, Bus Origin Destination Movements for Commuter Flows

Origin Destination	Alnwick	Berwick-upon-Tweed	Blyth Valley	Castle Morpeth	Tynedale	Wansbeck	Gateshead	Newcastle upon Tyne	North Tyneside	South Tyneside	Sunderland	Elsewhere in the UK
Alnwick	60%	6%	1%	14%	1%	3%	1%	9%	2%	0%	0%	4%
Berwick-upon-Tweed	2%	85%	0%	1%	1%	1%	0%	1%	0%	0%	0%	8%
Blyth Valley	0%	0%	32%	3%	0%	5%	2%	41%	15%	0%	0%	2%
Castle Morpeth	4%	0%	2%	39%	1%	15%	2%	33%	3%	0%	0%	1%
Tynedale	0%	0%	1%	2%	51%	0%	12%	27%	2%	0%	0%	4%
Wansbeck	1%	0%	14%	16%	0%	41%	2%	21%	3%	0%	0%	1%
Gateshead	0%	0%	0%	0%	1%	0%	56%	33%	2%	1%	3%	3%
Newcastle upon Tyne	0%	0%	0%	1%	0%	0%	8%	81%	5%	0%	1%	2%
North Tyneside	0%	0%	2%	1%	0%	0%	3%	45%	46%	1%	1%	2%
South Tyneside	0%	0%	0%	0%	0%	0%	6%	5%	2%	69%	15%	2%
Sunderland	0%	0%	0%	0%	0%	0%	4%	5%	0%	3%	83%	5%

The data shows that for Alnwick, Berwick-upon-Tweed and Tynedale, the majority of bus movement are internal within each district. This is particularly true of Berwick-upon-Tweed with 85% of commuter bus journeys originating in Berwick having a destination in Berwick.

In South East Northumberland however, whilst internal bus movements are still important, there is a higher proportion of bus movements with a destination outside of the origin district. The data shows that Newcastle-upon-Tyne is an important destination for bus travel from South East Northumberland and it is therefore essential that these bus connections are maintained if not improved.

3.5 Freight

The Northumberland authority is reliant on freight movements through and within the county in order to support the local economy and meet the needs and aspirations of local residents. It is therefore essential that good transport networks exist in Northumberland that facilitate the convenient and efficient movement of freight. With a reduction in carbon emissions being central to the DfT national transport goals which underpin LTP3, it is also essential that where appropriate, the Northumberland authority, alongside local businesses, encourages a modal shift from road freight to more sustainable modes of transport.

3.5.1 Road Freight

The majority of freight movements in Northumberland are by road. This is because in many instances it is the cheapest and only practicable means of transport. Not only is this damaging to the environment but it also puts other road users at risk and can cause unnecessary delays to their journey.

The Access to Tyne and Wear City Region DaSTS (Delivering a Sustainable Transport System) Study sourced data from the Great Britain Freight model to assess road freight movements in the City Region. This model has a base year of 2007. Data was provided at a postcode district level which enabled a detailed analysis of freight movements in the Tyne and Wear City Region to be undertaken. This analysis has also proved useful in analysing freight movements within and beyond Northumberland. Local and national freight movements are shown in **Tables 11** and **12** for Northumberland.

Table 11: Total Goods Vehicle Movements for Northumberland, 2007

Origin/Destination	Alnwick	Berwick-upon-Tweed	Blyth Valley	Castle Morpeth	Tynedale	Wansbeck	Tyne and Wear	Other North East	Rest of England and Wales	Scotland	Total
Alnwick	0	0	0	0	0	0	94	84	54	162	**94**
Berwick-upon-Tweed	0	0	9881	37071	0	4	34429	17512	41139	48498	**81386**
Blyth Valley	0	11323	95472	250474	0	12538	258121	25148	58197	29771	**627928**
Castle Morpeth	5	38618	367254	246972	1365	99818	1081433	91200	112829	68282	**1835465**
Tynedale	0	2	3617	4412	0	0	25847	1936	808	255	**33879**
Wansbeck	0	0	0	1464	0	0	3338	398	598	76	**4801**
Tyne and Wear	834	26202	301720	396337	8420	60026	7568028	1129199	649763	131368	**8361568**
Other North East	489	11110	50879	68023	2276	8330	1261626	8433858	1985867	228104	**1402733**
Rest of England and Wale	368	14137	48594	75853	840	4811	846980	1517628	412453923	2009528	**991584**
Scotland	256	36630	20965	60559	131	1164	136845	145930	2270948	45179653	**256549**
Total	**1952**	**138022**	**898383**	**1141165**	**13033**	**186691**	**11216741**	**11362893**	**417574126**	**47695695**	

Table 11 shows that within the Northumberland area, excluding internal and external movements, the greatest freight movement is between Castle Morpeth and Blyth Valley. Whilst it is not possible to determine the exact reason behind this movement given the data that is available, Blyth Valley is home to both the Port of Blyth and a large industrial estate in Cramlington.

Table 12: Total Goods Vehicle Movements (millions per annum), Regional Analysis, 2007

Origin/Destination	Northumberland	Tyne and Wear	Other North East	East Midlands	East of England	Greater London	North West	South East	South West	West Midlands	Yorkshire and Humber	Scotland	Wales	Total
Northumberland	1.18	1.40	0.14	0.03	0.01	0.00	0.08	0.01	0.00	0.01	0.06	0.15	0.01	**3.08**
Tyne and Wear	0.79	7.57	1.13	0.05	0.02	0.01	0.17	0.02	0.01	0.05	0.30	0.13	0.01	**10.27**
Other North East	0.14	1.26	8.43	0.18	0.05	0.01	0.41	0.09	0.03	0.08	0.92	0.23	0.21	**12.05**
East Midlands	0.02	0.10	0.08	33.78	2.13	0.68	1.77	1.25	0.38	3.38	2.79	0.18	0.26	**46.78**
East of England	0.01	0.04	0.05	1.90	35.43	4.38	0.61	3.61	0.33	0.73	0.59	0.12	0.20	**47.99**
Greater London	0.00	0.01	0.01	0.33	2.86	25.11	0.16	3.63	0.21	0.25	0.09	0.02	0.07	**32.75**
North West	0.05	0.20	0.34	1.10	0.58	0.20	52.38	0.77	0.32	1.81	2.32	0.92	1.38	**62.38**
South East	0.01	0.03	0.05	1.04	2.61	4.36	0.76	44.53	1.65	0.88	0.49	0.12	0.38	**56.92**
South West	0.00	0.01	0.01	0.24	0.35	0.44	0.26	2.31	34.88	0.81	0.14	0.06	1.07	**40.60**
West Midlands	0.01	0.06	0.07	2.47	0.70	0.42	1.54	0.95	0.77	38.59	0.67	0.13	0.82	**47.20**
Yorkshire and Humber	0.06	0.38	0.84	3.11	0.62	0.18	2.75	0.73	0.23	1.05	48.45	0.41	0.21	**59.00**
Scotland	0.12	0.14	0.15	0.29	0.14	0.02	0.80	0.11	0.03	0.20	0.62	45.18	0.05	**47.85**
Wales	0.00	0.01	0.07	0.25	0.17	0.14	1.80	0.46	0.98	0.99	0.20	0.03	18.23	**23.35**
Total	**2.38**	**11.22**	**11.36**	**44.78**	**45.69**	**35.94**	**63.50**	**58.47**	**39.82**	**48.83**	**57.64**	**47.70**	**22.91**	

The regional analysis shows that the most important destination for freight originating in the Northumberland area is Tyne and Wear. This highlights the importance of transport connections between these two areas. The local data shows that the biggest freight movement is between Castle Morpeth and Tyne and Wear and it is likely that freight travelling between these areas will be transported along the A1 corridor; a route which is recognised as having five of the ten most congested links in the Yorkshire and North East regions. This could be problematic in encouraging growth between these two areas given that journey time reliability is essential to the success of the freight sector.

Further afield there are important freight links between Northumberland and the rest of the North East and Northumberland and Scotland. Similarly for freight transported to Tyne and Wear, freight transported from Northumberland to the rest of the North East and Scotland is likely to be transported along the A1 since this is the main north to south route through the County. Whilst the A1 to the south of Northumberland is dual carriageway, albeit with significant hotspots of congestion, the A1 from north of Morpeth through to Scotland is single carriageway. Given that HGVs have a maximum speed limit of 40mph on single carriageway roads, this could cause heavy delays to other motor vehicles using this route.

The A1 though Northumberland is not just an important highway route for freight originating or having a destination in Northumberland, but also for freight travelling between Scotland and England. Whilst the exact number of HGVs which use the A1 will be dependent on the exact origin or destination point within each country, it is likely that a significant proportion of these HGVs will use the A1 route.

When the data for Northumberland is compared to the national picture, it shows that freight originating in Northumberland accounts for less than 1% of national freight movements. On a regional level however, freight originating in Northumberland accounts for 12% of regional freight movement. This suggests that not only is freight originating in Northumberland vital to the economy of the Northumberland, it is also vital to the economy of the North East.

Emerging Challenges
An important destination for freight originating in Northumberland is Tyne and Wear. This is contributing to traffic congestion on the key approaches into Tyne and Wear.

The A1 is a key route for freight being transported through Northumberland. This route however, is a predominantly single carriageway road. This will have implications on journey time reliability for other road users.

3.5.2 Shipping

There are two main ports in Northumberland which provide an alternative route to road for freight transport; Blyth and Berwick-upon-Tweed. Whilst these ports are small in comparison to other ports in the North East, they still have a role to play in shipping movements in Northumberland, the region and nationally. There are a number of smaller ports within Northumberland which are primarily used for fishing.

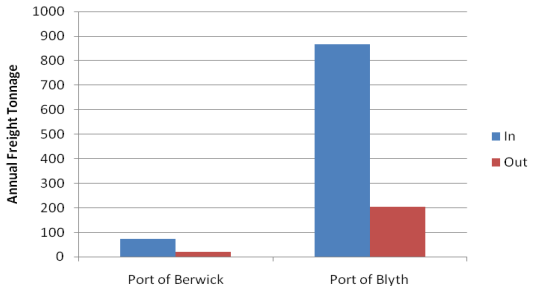
The Port of Blyth is a Trust Port located on the Northumberland coast, with a minimum draft of 6.7m it handles up to 1.1 million tonnes of cargo each year (2008) and offers handling, storage and distribution services. Main trades include utilised cargo (containers & RoRo), bulks including coal, project cargo such as wind turbines, forest products, metals and a wide range of other commodities. The port is within close proximity to the A19 and has rail connections to some areas of the port.

The Port of Berwick is a small commercial port located on the Eastern border between Scotland and the North East of England and 5 minutes from the A1. The port often handles in excess of 150,000 tonnes annually with the capacity

available to handle more. Links are established between the port and many of the Balkan States as well as some areas of the Mediterranean. The principle cargos transported through the port are agricultural and forestry.

Figure12 shows the tonnage of freight transported through the Ports of Blyth and Berwick for 2008.

Figure 12: Port Tonnage Handled (thousands), Northumberland, 2008



Source: Maritime Statistics 2008

As can be seen from **Figure 12**, both the Port of Berwick and the Port of Blyth have a net inflow of freight. The Port of Blyth is clearly the larger of the two ports handling over ten times the amount of freight that the Port of Berwick handled in 2008. Despite the Port of Blyth's considerable size in relation to the Port of Berwick, it is substantially smaller than the Port of Tyne and Teesport, also located in the North East, which handled 5417 thousand tonnes and 45436 thousand tonnes of freight in 2008 respectively.

Both the Port of Blyth and the Port of Berwick are strategically positioned to take advantage of the strong trade links the UK has with the Balkan States. Both ports also have additional capacity to accommodate an increase in trade however their growth has been limited in recent years. Whilst this will undoubtedly have been impacted by the recent recession and the available facilities at each of the ports, constraints on the transport network for onward transport from the ports could also be a limitation to potential growth, particularly for the Port of Blyth. As congestion at southern ports increases, there will be an increased emphasis for freight transport to northern ports. It is therefore essential that road and rail connections to these ports are improved if they are to take advantage of the potential for increased freight to northern ports.

Emerging Challenges
Constraints on the transport network for onward transport of freight could be a limitation for the potential growth in Northumberland ports, particularly at the Port of Blyth.

3.5.3 Rail

It is important that as much freight as possible is transported by rail if the government is going to meet its carbon reduction targets. The potential for rail freight in Northumberland however is limited by the number of rail facilities available and operational issues identified on some sections of the lines.

The rail freight network in Northumberland is centred on the main north to south route, the East Coast Main Line (ECML) which connects London in the south with Edinburgh in the north, the Ashington, Blyth and Tyne route which has links through Tyne and Wear via the Benton Junction and the Newcastle to Carlisle route which connects the eastern and western coasts of the UK.

The East Coast Main Line transports both passengers and freight with the main goods transported being coal, cement, automotive goods, enterprise traffic, bauxite and aluminium. Whilst this route currently operates at or under capacity, the Network Rail Rail Utilisation Strategy for the North East outlines the two track section between Scotland and Northallerton as a capacity constraint on the network.

The Ashington, Blyth and Tyne line serves only freight transport following the termination of passenger services some 40 years ago. Key links along the line include Alcan, Lynemouth Power Station and the Port of Blyth. Whilst the line is an important freight link in Northumberland, capacity and signalling issues have been identified on some sections of the line. This is in part due to the line being single track in certain areas particularly between Benton Station and Newsham in Blyth.

The Newcastle to Carlisle line carries regular freight across the country serving the Tynedale area of Northumberland. Similarly to the East Coast Main Line, this route is also a passenger line and the growth in freight transport is limited by the number of passenger services which operate on the line. Much of the line is also manually signalled which can also lead to operational problems.

If a modal shift from road to rail freight is to be seriously considered in Northumberland, solutions need to be found to the capacity and operational issues identified above.

Emerging Challenges
There are operational and capacity issues on the rail freight network in Northumberland which will restrict the potential for growth in the rail freight sector.

3.5.4 Freight Summary

The data in the previous section has outlined that road freight transport is the dominant form of freight transport in Northumberland. This is likely due to the perceived differences in flexibility, reliability and capacity between these different modes of transport and this will impact on the potential for any modal shift. It is not a simple choice to decide to move a container by road or rail or sea as it will depend on whether the capacity and services exist. It is likely that a combination of road, rail and sea will continue to be important for freight transport in Northumberland and it is therefore essential that the transport network can accommodate this and that good inter-modal interchanges exist.

3.6 Links of Economic Importance – GVA-T Analysis

Work undertaken by AECOM in the South West of England has established a quantitative measure of the economic importance of business connections in England, Scotland and Wales. The work has established the economic importance of links between districts and regions across mainland UK – this has been termed GVA-T values.

The start point has been to consider the structure of the economy in each mainland UK district, placing emphasis on economic sectors that are the most reliant on transport for their success (i.e. sectors whose transport costs are the greater proportion of overall business costs). An analysis of transport links has been undertaken between each district-district pair in mainland UK by considering the following issues;

- The size and sectoral composition of the economy in each origin district;
- The size and sectoral composition of the economy in each destination district;
- The connectivity between those districts, measured by using generalised journey costs drawn from the National Transport Model. By using modelled generalised cost data, future year scenarios can be run in order to see how various interventions can improve or worsen the strength of economic links.

In this context, the GVA-T analysis is founded upon an assessment of;

- The value of places – established at a district level;
- The value of connections – based upon the mix of economic sectors in each district and their proximity to each other; and
- Defining the corridors – based on transport costs between places, based on National Transport Model data.

Table 13 shows the relevant GVA-T values for district to district values within the Northumberland area.

Table 13: Economic Importance of Transport Links (GVA-T) within Northumberland

	Alnwick	Berwick Upon Tweed	Blyth Valley	Castle Morpeth	Tynedale	Wansbeck	Total
Alnwick	0	0.1	0.3	0.2	0.1	0.2	0.9
Berwick Upon Tweed	0.1	0	0.2	0.2	0.1	0.1	0.7
Blyth Valley	0.3	0.2	0	0.7	0.5	0.6	2.3
Castle Morpeth	0.2	0.2	0.7	0	0.4	0.4	1.9
Tynedale	0.1	0.1	0.5	0.4	0	0.3	1.4
Wansbeck	0.2	0.1	0.6	0.4	0.3	0	1.6

The table shows that the transport links of greatest importance to businesses within Northumberland are between;

- Blyth Valley and Castle Morpeth;
- Blyth Valley and Wansbeck;
- Bylth Valley and Tynedale; and
- Castle Morpeth and Tynedale; and
- Castle Morpeth and Wansbeck.

Overall links within Northumberland are of greatest importance to Blyth Valley (2.3 GVA-T), Castle Morpeth (1.8 GVA-T) and Wansbeck (1.6 GVA-T). In terms of facilitating

economic regeneration and prosperity, this shows the importance of providing good transport links into these three core centres from across the City Region.

A wider analysis of the economic importance of transport links between the districts of Northumberland and Tyne and Wear has also been undertaken as it has previously been identified that Tyne and Wear is an important employment location for the residents of Northumberland. The results are displayed in **Table 14** below.

Table 14: Economic Importance of Transport Links (GVA-T) between Northumberland and Tyne and Wear

	Alnwick	Berwick Upon Tweed	Blyth Valley	Castle Morpeth	Tynedale	Wansbeck	Total
Gateshead	1	0.8	3.8	2.5	2.9	2	13
Newcastle	1.8	1.4	6.7	4.5	4.5	3.7	22.5
North Tyneside	0.8	0.6	3.2	1.9	1.8	1.7	10
South Tyneside	0.4	0.3	1.5	0.9	0.9	0.8	5
Sunderland	1	0.8	4	2.4	2.7	2.2	13.1

The table shows that the transport links of greatest importance to businesses within Northumberland are between;

- Newcastle and Blyth Valley;
- Newcastle and Castle Morpeth;
- Newcastle and Tynedale; and
- Sunderland and Blyth Valley.

This demonstrates the importance of good transport links between Northumberland and Newcastle as well as Northumberland and Sunderland. Overall Newcastle scores highest with a GVA-T value of 22.6. Sunderland has the second highest value of GVA-T, 13.1. This would suggest the link between Northumberland and Newcastle is almost twice as important as the link to Sunderland. This is a score marginally higher than the total GVA-T score for Gateshead.

What is most notable from the data in **Tables 13** and **14** is that linkages from Northumberland to Tyne and Wear are much more important than linkages within Northumberland.

This analysis may be developed further by examining the strategic links that connect Northumberland with other regions of the UK.

Table 15: Economic Importance of Transport Links (GVA-T) between Northumberland and other UK Regions

	Alnwick	Berwick Upon Tweed	Blyth Valley	Castle Morpeth	Tynedale	Wansbeck	Total
Yorkshire & Humber	3.1	2.3	11.8	7.4	10.7	6.5	41.9
North West	2.7	2.1	10.2	6.6	13.1	5.6	40.3
East Midlands	0.7	0.6	2.8	1.8	2.6	1.5	9.9
West Midlands	0.5	0.4	1.9	1.2	1.8	1	6.8
South East	0.3	0.2	1.1	0.7	1	0.6	3.8
East of England	0	0	0.2	0.1	0.2	0.1	0.6
Greater London	0.2	0.2	0.9	0.6	0.8	0.5	3.1
South West	0.1	0	0.2	0.1	0.2	0.1	0.7
Wales	0.1	0.1	0.3	0.2	0.4	0.2	1.1
Scotland	4.6	6.7	7.4	5.9	9.9	4.6	39.1

Table 15 shows that there are important regional linkages between Northumberland and the Yorkshire and Humber, Northumberland and the North West and Northumberland and Scotland. That said, the economic linkages between these origin destination points are of lesser importance than the linkages between Northumberland and Tyne and Wear. The data suggests that linkages between Northumberland and Tyne and Wear, particularly links into Newcastle upon Tyne, are the most significant to the economic needs of businesses in Northumberland.

Emerging Challenges
Links into Tyne and Wear are the most significant for Northumberland in terms of the economic needs of businesses. Links to the Yorkshire and Humber, North West and Scotland are also important. Congestion on links between these areas could adversely affect the economy of Northumberland.

3.7 Public Transport Accessibility

Access to key services and facilities is an important component of quality of life; it will also impact on the economic development and regeneration of an area. It cannot be assumed that people will be able to access these services using a car and it is therefore essential that there is good provision of public transport. This is particularly true of South East Northumberland where car ownership is lower than the national average.

As identified in the introduction to this chapter, Northumberland is served by both the East Coast Main Line running north to south and the Tyne Valley Railway running east to west. It is also served by a network of buses which connects Northumberland with the wider North East region.

Whilst this establishes that the public transport network is in place, it does not follow that the public transport network meets the full range of passenger needs. Accessibility modelling has therefore been undertaken to establish whether key services in Northumberland are being served by public transport.

3.7.1 Access to Employment

Good access to employment sites will be critical to encouraging economic growth in Northumberland as well as significantly impacting on quality of life and equality of opportunity in line with the DfT goals. Access to employment has been modelled using journey time for public transport, or walking, to a resident's nearest employment site. For the purpose of this analysis, a main employer is one which employs 25 or more employees. The results of this modelling are shown in **Table 16** below.

Table 16: Accessibility to Main Employers in Northumberland 2009

Age Group	Parameters	% Working Age Population
16-64	Within 20 minutes of employment by public transport	82%
16-64	Within 40 minutes of employment by public transport	91%

LTP2 documented that in 2005, 14% of the working age population could not access an employment site within 20 minutes by public transport; 7% of the population could not get there within 40 minutes. The results in table 16 would suggest that since 2005, the situation has worsened with more people not being able to access an employment site using public transport within the given time frames. This is something which will impact on modal split for journeys to work and is something which must be addressed as part of LTP3.

3.7.2 Access to GPs Surgeries

The North East region consistently performs poorly in health league tables with health problems strongly related to its industrial past. Whilst Northumberland is generally rural in nature, it has pockets of industrial areas largely located in South East Northumberland. As a separate issue, Northumberland has a higher proportion of elderly residents compared with the national or regional averages. It is these residents that are most likely to be prone to illness and it is therefore essential that health facilities are easily accessible. **Table 17** shows the results of accessibility modelling to GP surgeries in Northumberland.

Table 17: Accessibility to GP's Surgeries in Northumberland 2009

Age Group	Parameters	% Population
All ages	Within 800m walk	41%
	Within 15 minutes by public transport	81%
Under 17	Within 800m walk	41%
	Within 15 minutes by public transport	82%
Over 59	Within 800m walk	42%
	Within 15 minutes by public transport	80%

Table 17 shows that 19% of the population of Northumberland cannot access a GP's surgery within 15 minutes by public transport. This is an improvement on figures in LTP2 which stated that in 2005, 21% of the population could not access a GP's surgery within 15 minutes by public transport. Whilst the situation is obviously improving, there is still work to be done, especially when considering the projected rise in the proportion of elderly residents as outlined in **Section 2** of this report.

Whilst the data in **Tables 16** and **17** gives some insight into accessibility problems in Northumberland, it does not show the spatial variation in accessibility problems across the county. The data is also limited in the key services it monitors with access to education establishments and hospitals excluded from the data. It has already been established that Tyne and Wear is a key employment location for many residents of Northumberland and this is another area which cannot be addressed with the data available from the accessibility models.

To gain a greater understanding of the accessibility issues facing Northumberland, online journey planners have been used to fill some of the gaps which are evident in the accessibility model. The online journey planner Transport Direct has been used to assess access to employment since this will be a key determinant for economic growth in Northumberland and will help solve many of the social problems which are present within the area. Given that the Census data 2001 shows strong economic links with Tyne and Wear, particularly from South East and West Northumberland, public transport accessibility to key employments sites in this location has been considered. Whilst the list of employment sites is by no means exhaustive, it does give some insight into the accessibility

issues facing Northumberland. Accessibility has been assessed in the peak hours.

Table 18: Public Transport Journey Times to Key Employment Sites

Origin / Destination	Public Transport Journey Time in Minutes				
	Newcastle City Centre	DSS Longbenton	Silverlink and Cobalt	Regent Centre	Team Valley
Alnwick	50	100	120	70	90
Berwick	50	85	100	80	70
Blyth	55	70	40	40	80
Cramlington	35	55	25	15	60
Morpeth	20	60	80	25	45
Pegswood	30	55	90	30	50
Haltwhistle	70	110	120	110	100
Hexham	45	80	100	60	60
Corbridge	35	70	90	60	55
Prudhoe	50	80	90	60	60
Wylam	30	60	80	50	50
Ashington	45	70	55	40	75

Source: Transport Direct online journey planner

Table 18 shows that there are few journeys between Northumberland and Tyne and Wear which have a journey time below 40 minutes; some journeys can take as long as two hours. This is despite areas within South East Northumberland and Tynedale being located adjacent to Tyne and Wear. The quickest journey times appear to be from areas located along the train line such as Morpeth and Wylam. Rail links generally offer more direct services and are not susceptible to problems of congestion on the highway network which can be detrimental to the operation of public transport.

The data shows that journey times to Newcastle City Centre are generally quicker than journey times to other employment destinations in Tyne and Wear. Newcastle upon Tyne is at the economic heart of Tyne and Wear and the demand is therefore available for direct public transport services to operate. Nevertheless, many employment opportunities in Tyne and Wear are still located on edge of town sites where rent is generally cheaper. This is particularly true of manufacturing industries which require large areas of space and are normally located within easy reach of the strategic highway network. To reach these sites by public transport, residents of Northumberland often have to make a number of interchanges often between modes. Not only does this impact on the journey time to their destination, it also has a negative effect on journey experience with research suggesting that a seamless public transport journey is normally preferred.

When assessing accessibility within an area, the social issues behind accessibility should also be considered. Research undertaken as part of the North West Regional Delivering a Sustainable Transport System Study conducted by JMP, revealed that the majority of unemployed people regard a public transport journey of over 40 minutes and £15 a week as upper limits for access to work. South East Northumberland has the highest levels of unemployment in Northumberland yet journey times from this location, with the exception of Cramlington, are equal to or in excess of 40 minutes. Whilst we do not have the available data to map how far £15 a week would allow somebody to travel, a weekly bus pass on Arriva or Go North East services, the main bus providers in Northumberland, costs in the region of £15-£20. These passes would not permit interchanges between modes or operators for onward transport from Newcastle City Centre.

Emerging Challenges
Public transport options do not meet the needs of all residents of Northumberland. A lack of available services, timely journeys and high public transport costs mean that public transport is not a viable option for many people. This is likely to lead to increased use of the private motorcar as well as contributing to social exclusion.

Whilst the data in the previous section offers further insight into accessibility issues in Northumberland, it does not highlight the problems faced in more remote areas or outside of the peak hours.

3.8 Emerging Challenges

From this section of the report, the following important challenges have emerged that will impact on the objectives of LTP3;

- **Car Ownership:** Car ownership in Northumberland is forecast to increase, particularly in rural areas. This has implications for the commercial viability of public transport and modal share in the future.
- **Mode Share:** Private motor car usage in Northumberland is higher than the national average whereas public transport usage is lower than the national average. This could contribute to congestion and air quality issues and will impact on the ability of Northumberland to meet the transport objectives.
- **Mode Share:** 32% of commuter trips in Northumberland are under 5km in distance yet only 13% of commuter trips are undertaken using

non motorized forms of transport. Increased usage of non motorized forms of transport could contribute to both transport and health objectives.

- **Trip Distance:** People in Northumberland travel longer distances to work compared regional and national figures. There is often no alternative to the car for these longer distance trips.
- **Travel Patterns:** There is an outflow of commuters from Northumberland into Tyne and Wear. Congestion is an issue on the strategic road network into Tyne and Wear.
- **Road Freight:** An important destination for freight originating in Northumberland is Tyne and Wear. This is contributing to traffic congestion on the key approaches into Tyne and Wear.
- **Road Freight:** The A1 is a key route for freight being transported through Northumberland. This route however, is a predominantly single carriageway road. This will have implications on journey time reliability for other road users.
- **Shipping:** Constraints on the transport network for onward transport of freight could be a limitation for the potential growth in Northumberland ports, particularly at the Port of Blyth.
- **Rail Freight**: There are operational and capacity issues on the rail freight network in Northumberland which will restrict the potential for growth in the rail freight sector.
- **GVA-T**: Links into Tyne and Wear are the most significant for Northumberland in terms of the economic needs of businesses. Links to the Yorkshire and Humber, North West and Scotland are also important. Congestion on links between these areas could adversely affect the economy of Northumberland.
- **Accessibility**: Public transport options do not meet the needs of all residents of Northumberland. A lack of available services, timely journeys and high public transport costs mean that public transport is not a viable option for many people. This is likely to lead to increased use of the private motorcar as well as contributing to social exclusion.

4 Transport Problems

4.1 Introduction

This section of the report considers the problems that occur on the transport network on a regular basis. For the most part, this analysis focuses on highway congestion and road traffic accidents although public transport overcrowding has also been analysed for modes of transport where the data has been available.

4.2 Highway Congestion

Highway congestion is defined as delay experienced on journeys at peak times that would not otherwise be experienced at other times of the day. It can impact on the economic performance of an area and quality of life as well as contributing to climate change. Reducing congestion will therefore play a central role in the achievement of the five DfT national goals which LTP3 is based upon.

With the exception of a few key transport links, highway congestion is not considered to be a real problem in the Northumberland area. Congestion levels do however need to be monitored to ensure that it does not become a problem in the future, especially with the predicted growth in population and car ownership levels.

ATC data has been used to assess congestion on the transport network at various points across Northumberland. For the purpose of this assessment, congestion has been measured using the flow to capacity value. Those links which have a flow to capacity value of 0.85 or higher are considered to be congested, with a value above 1 indicating a link which is operating above its design standard. Trends in traffic growth have also been analysed to assess how the situation is likely to change. The data is shown in **Table 19**.

Table 19 shows that there are only three locations where the flow to capacity value is above 0.85, the A197 Telford Bridge in both the AM and PM peak, the A1061 South Newsham Roundabout to Laverock Hall Roundabout in both the AM and PM peak and the A193 Cowpen Road. Congestion on the A197 Telford Bridge will impact on the economic vitality of Morpeth as well as impacting on the quality of life for local residents and tourists who are visiting the area; particularly since it is the main route through the centre of Morpeth. Similarly, congestion on the A1061 and the A193 Cowpen Road has the potential to impact on both Cramlington and Blyth.

The flow to capacity data would support the argument that, with the exception of localised issues, congestion in Northumberland is not an issue based on current traffic levels. However, traffic growth does need to be monitored to ensure that it will not become an issue in the future.

Table 19 shows that between 2008 and 2009, there has been a growth in traffic at a number of locations. One of these links, A197 Telford Bridge, has already been identified as an area which is operating above capacity. This situation will be exacerbated in the future if traffic levels continue to grow.

It is notable from the table that there has been a significant decline in the level of traffic between 2008 and 2009 on some links in the Northumberland network. Without further analysis it is not possible to conclude the exact reasons for this decline although it could have been brought about by the effects of the recession or changes in land use in the area. If this decline in traffic is as a result of the recession, it is not reasonable to assume that traffic will continue to decline in the future.

Whilst the 2008/09 annual growth figures show areas of traffic growth and traffic decline on the Northumberland road network, it is not appropriate to draw conclusions from two years' data. For this reason, the growth in traffic for a six year period has been analysed across five key links in the Northumberland area. This is illustrated in **Figure 13**.

Figure 13: Traffic Growth across Selected Links in Northumberland

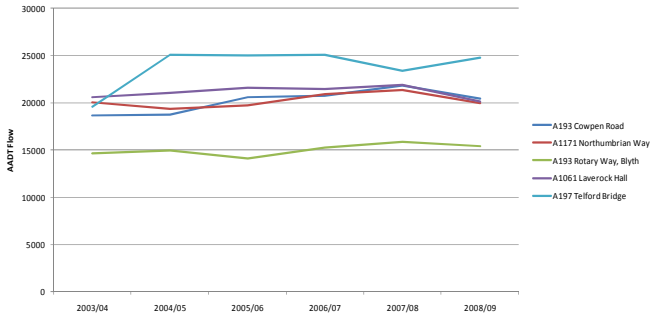


Figure 13 shows that, with the exception of the A197 Telford Bridge, traffic flows have remained relatively steady over the six year period. The AADT flow for the A197 Telford Bridge however, has increased by approximately

5000 vehicles over this time. It is notable from the data that, with the exception of the A197 Telford Bridge, traffic flows declined between 2007/08 and 2008/09. This was likely the result of the recent recession and it is probable that these traffic flows will increase in the future. Whilst traffic on the A197 Telford Bridge increased between 2007/08 and 2008/9, a reduction in traffic was observed between 2007 and 2008.

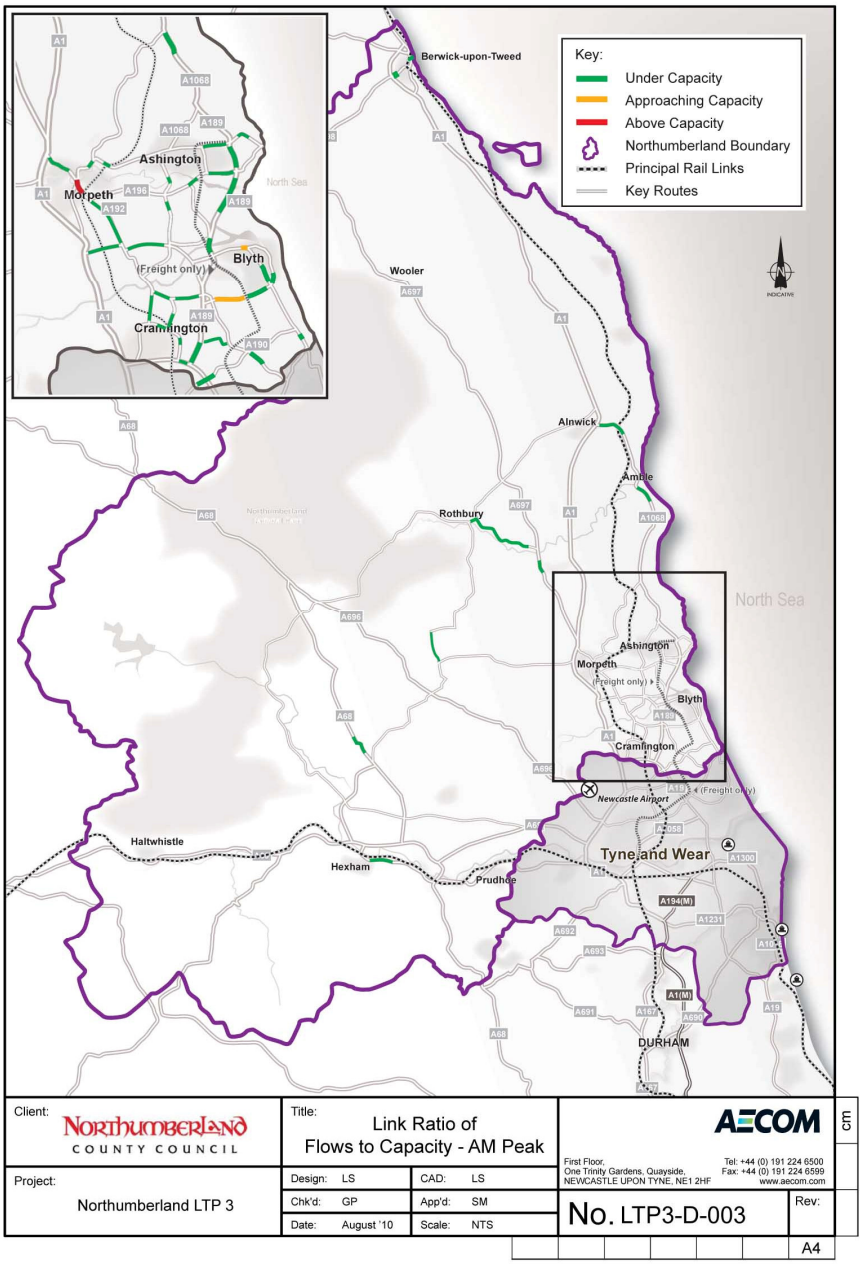
Emerging Challenges
There are localised issues of congestion in Northumberland on the A197 Telford Bridge and the A1061 South Newsham Roundabout to Laverock Hall Roundabout. This will impact on the economic vitality of these areas.

Table 19: Traffic Flows in Northumberland

Road Number	Link	2003/04 Vol	2004/05 Vol	2005/06 Vol	2006/07 Vol	2007/08 Vol	2008/09 Vol	2008/09 Annual Growth	Link Flow Capacity AM Peak	Link Flow Capacity PM Peak
A189	Woodhorn Roundabout to North Seaton Roundabout	17803	18240	18314	18967	19379	21134	9.1%	0.28	0.30
A189	North Seaton Roundabout to Sleekburn Interchange	29600	31508	33004	30491	31155	32818	5.3%	0.40	0.46
A189	Kitty Brewster Bridge	40179	44242	44451	44691	41475	42925	3.5%	0.46	0.56
A189	Moor Farm Roundabout, North	38996	40563	41341	42428	41564	41780	0.5%	0.59	0.52
A190	Seghill to County Boundary	12524	12612	12845	12581	13206	12143	-8.0%	0.55	0.62
A192	Fairmoor to Newgate Street	10682	10929	10082	10889	11126	11145	0.2%	0.53	0.57
A192	Stobhill Roundabout to Stannington Station Road	9734	8839	10596	10966	11205	11336	1.2%	0.53	0.62
A192	Plessey Checks Roundabout to West Hartford Roundabout	8204	8579	9391	9388	9498	7778	-18.1%	0.11	0.12
A192	West Hartford Roundabout to East Hartford Interchange	10575	11639	11528	12049	13010	11373	-12.6%	0.18	0.16
A192	Seaton Delaval	13824	12286	14749	12707	12984	13123	1.1%	0.67	0.68
A193	Cowpen Road (UPGRADE)	18673	18767	20591	20740	21821	20463	-6.2%	0.87	0.91
A193	Rotary Way, Blyth	14670	14946	14083	15237	15903	15413	-3.1%	0.64	0.81
A193	Seaton Sluice	10587	10608	10611	10981	11220	11191	-0.3%	0.46	0.56
A196	Stakeford Bridge	14764	14788	15540	15259	15078	15065	-0.1%	0.73	0.77
A197	Newbiggin North	3370	3982	4057	4537	4534	4588	1.2%	0.00	0.00
A197	Telford Bridge	19590	25040	25008	25049	23372	24795	6.1%	1.15	1.17
A197	Woodhorn Rbt to The Churches Rbt	14935	15616	16765	16648	17339	17542	1.2%	0.00	0.00
A197	Railway Bridge	16310	16814	17146	17975	17168	16356	-4.7%	0.73	0.84
A197	B1337 junction to Morpeth	12030	12215	12389	13228	13200	12573	-4.8%	0.64	0.60
A1061	South Beach Roundabout to South Newsham Roundabout	14793	13313	13463	15235	14208	14375	1.2%	0.70	0.69
A1061	South Newsham Roundabout to Laverock Hall Roundabout	20620	21035	21622	21473	21880	20097	-8.1%	0.90	1.08
A1068	Widdrington Roundabout to Ellington Roundabout	8832	9009	9055	9905	10120	9313	-8.0%	0.42	0.49
A1068	Sheepwash Bridge	5220	5853	5965	6173	4391	4443	1.2%	0.20	0.24
A1068	Scotland Gate	12469	14013	10731	11064	11305	11438	1.2%	0.49	0.51
A1068	Plessey North Roundabout to Plessey Checks Roundabout	12812	13348	15030	13684	13983	14147	1.2%	0.00	0.00
A1171	Crow Hall Lane, Cramlington	7605	8123	8853	9162	9721	8179	-15.9%	0.40	0.42
A1171	Northumbrian Way, Cramlington	20025	19360	19732	20924	21379	19934	-6.8%	0.50	0.48
A1171	West of Moor Farm Roundabout	9257	9951	9730	9166	9086	9736	7.2%	0.51	0.48
A1172	Beacon Hill, Cramlington	10890	11193	10931	10916	10307	10045	-2.5%	0.12	0.14
B1326	East West Link, Cramlington	12564	12463	12714	13078	12657	13312	5.2%	0.59	0.69
B1329	Blyth Outer Relief Road	7876	8388	8271	8681	8835	8938	1.2%	0.43	0.45
B1331	Netherton	6159	5765	9279	5658	5780	5884	1.8%	0.30	0.32
B1334	Newbiggin Road, North Seaton	14626	15003	14809	15630	15701	15041	-4.2%	0.00	0.76
C363	Stannington Station Road	3998	4357	4188	4484	4643	4697	1.2%	0.31	0.27
A68	North of Colwell	2673	2666	2717	2714	2792	2658	-4.8%	0.13	0.13
A695	Hexham East	6410	6680	6222	7356	6791	6871	1.2%	0.40	0.42
A697	Linden Hall (UPGRADE)	7403	6994	7224	6901	7171	7888	10.0%	0.39	0.13
A698	Cornhill to East Ord Roundabout	4440	4525	5290	5555	4126	4174	1.2%	0.27	0.27
A1068	Alnwick to Alnmouth	5360	5590	5696	5895	6023	6094	1.2%	0.34	0.34
A1068	Warkworth to Amble	7401	7129	6359	7302	7460	7547	1.2%	0.00	0.00
A1167	Castlegate, Berwick	14049	15103	15393	15930	16278	16468	1.2%	0.71	0.74
B6342	Cambo	782	1060	726	949	969	981	1.2%	0.08	0.08
B6344	Between Rothbury and Weldon Bridge	2078	2490	3543	3143	3212	3250	1.2%	0.15	0.16

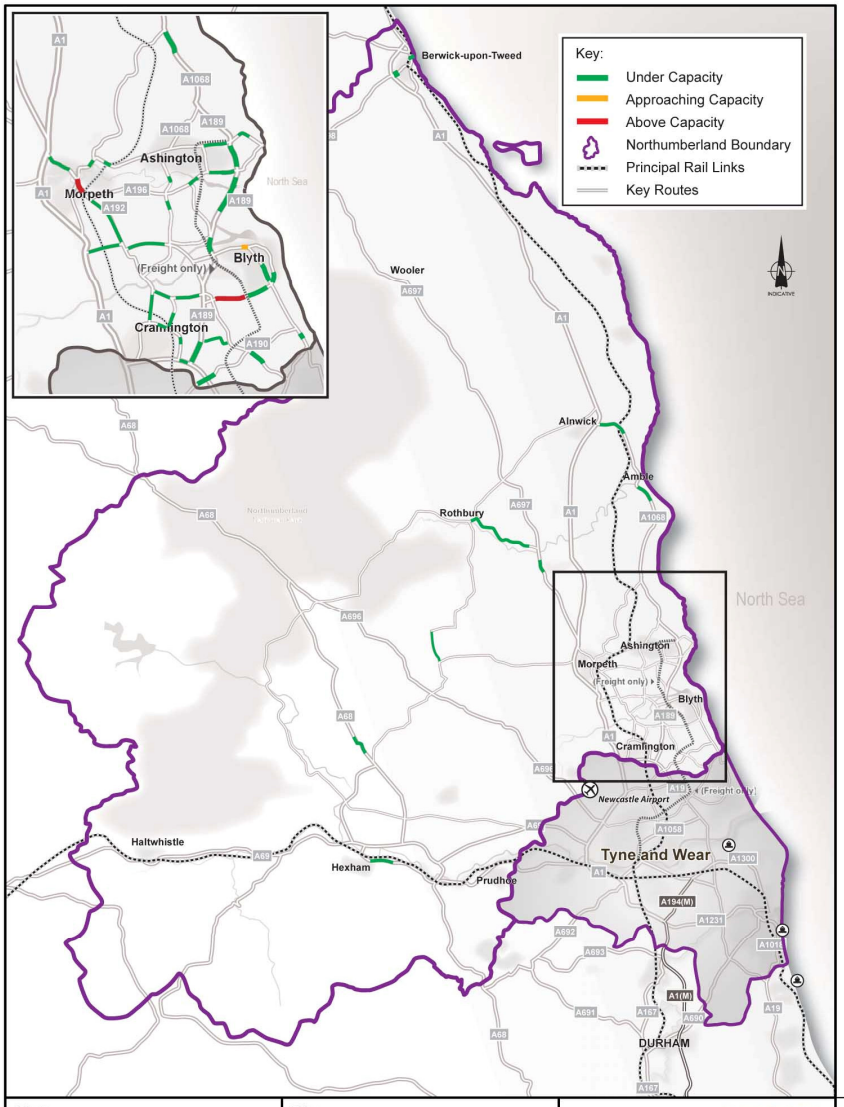
Capabilities on project:
Transportation

Figure 14: Flow to Capacity Ratio, AM Peak, 2008



Capabilities on project:
Transportation

Figure 15: Flow to Capacity Ration, PM Peak, 2008



Client: Northumberland County Council	Title: Link Ratio of Flows to Capacity - PM Peak	AECOM	cm
Project: Northumberland LTP 3	Design: LS / CAD: LS	First Floor, One Trinity Gardens, Quayside, NEWCASTLE UPON TYNE, NE1 2HF Tel: +44 (0) 191 224 6500 Fax: +44 (0) 191 224 6599 www.aecom.com	
	Chk'd: GP / App'd: SM	No. LTP3-D-004	Rev:
	Date: August '10 / Scale: NTS		A4

4.2.1 Public Transport and Congestion

Where the highway capacity does not permit the provision of bus priority measures, highway congestion will have a detrimental impact on the operation of bus services. Not only will it increase the operational cost of public transport in the area, which in turn is likely to be passed onto passengers, it will lead to unreliable journey times which will see buses being viewed as a less favourable mode of transport. Given that a modal shift needs to be encouraged from the private motorcar to more sustainable modes of transport in an attempt to address the issues of climate change, this is something which needs to be addressed during the period of LTP3. Bus operators have provided a list of problems on the transport network which is detailed in **Table 20** along with a more detailed explanation of the nature of the problem.

As can be seen from the data in **Table 22**, the A197 Telford Bridge and the A1061 Laverock Hall Road, both of which were identified as being congested in table 18, are problem areas for public transport in Northumberland.

Emerging Challenges
There are localised issues of congestion in Northumberland. This is affecting the operation of public transport which may lead to public transport being viewed as a less desirable mode of transport.

4.3 Public Transport Overcrowding

Overcrowding on public transport can reduce its attractiveness as a mode of travel. Not only does overcrowding negatively impact on journey ambience but it can also significantly impact on journey time reliability. Any evidence of overcrowding on public transport will restrict the potential for future growth in public transport numbers which is contrary to the aims of the DfT goals.

Rail overcrowding data for services between Northumberland and Newcastle has been sourced from Nexus, the Passenger Transport Executive for Tyne and Wear. As was outlined in **Section 3** of this report, this is the principle destination for rail travel originating in Northumberland. At the time of writing, no bus overcrowding data has been obtained.

Table 20 and **21** show the rail overcrowding data for railway lines in Northumberland

Table 20: Rail Overcrowding in the Morning

Line	Station	Time	Operator	Pax. Into	% Full (Entering)
Tyne Valley	Wylam	07:45	Northern	Newcastle	120%
Tyne Valley	MetroCentre	08:15	Northern	Newcastle	151%
Tyne Valley	MetroCentre	08:44	Northern	Newcastle	96%
Tyne Valley	MetroCentre	09:15	Northern	Newcastle	46%
Tyne Valley	MetroCentre	09:48	Northern	Newcastle	33%
ECML	Morpeth	07:23	Nat Express	Newcastle	93%
ECML	Morpeth	07:50	Northern	Newcastle	93%
ECML	Morpeth	08:05	Cross Country	Newcastle	79%
ECML	Morpeth	08:32	Northern	Newcastle	73%
ECML	Morpeth	09:32	Northern	Newcastle	36%

Table 21: Rail Overcrowding in the Evening

Line	Station	Time	Operator	Pax. Out of	% Full (leaving)
Tyne Valley	MetroCentre	15:33	Northern	Newcastle	56%
Tyne Valley	MetroCentre	15:52	Northern	Newcastle	10%
Tyne Valley	MetroCentre	16:03	Northern	Newcastle	42%
Tyne Valley	MetroCentre	16:21	Northern	Newcastle	9%
Tyne Valley	MetroCentre	16:32	Northern	Newcastle	93%
Tyne Valley	MetroCentre	16:57	Northern	Newcastle	9%
Tyne Valley	MetroCentre	17:03	Northern	Newcastle	48%
Tyne Valley	MetroCentre	17:21	Northern	Newcastle	78%
Tyne Valley	MetroCentre	17:35	Northern	Newcastle	70%
Tyne Valley	MetroCentre	17:35	Northern	Newcastle	70%
Tyne Valley	MetroCentre	18:03	Northern	Newcastle	101%
Tyne Valley	MetroCentre	18:11	Northern	Newcastle	2%
ECML	Morpeth	15:35	Northern	Newcastle	23%
ECML	Morpeth	15:48	Northern	Newcastle	38%
ECML	Morpeth	16:37	Northern	Newcastle	43%
ECML	Morpeth	17:39	Northern	Newcastle	100%
ECML	Morpeth	18:07	Northern	Newcastle	49%

Although the data in **Tables 21** and **22** contains information for services between the MetroCentre and Newcastle which are not in Northumberland, anybody who boards this service to the west of the MetroCentre will also experience the congestion between these two points.

In the AM Peak, two train services entering Newcastle are operating significantly above capacity. Both of these services are using the Tyne Valley Rail Line and are operating before 9.00am. It is therefore likely that these passengers are commuters. The 2001 Census journey to

Table 22: Public Transport Operator Issues

Location	Problem
A189 Spine Road, Chase Farm, Blyth	Congestion causing delays to bus services
A193 Cowpen Road (Chase Farm Drive to Tynedale Road), Blyth	Congestion causing delays to bus services
A1/A19 Seaton Burn	Congestion causing delays to bus services during AM and PM peak
A1171 Westmoorland Way, Cramlington	Congestion due to queuing traffic on to A19
A1061 Laverock Hall Road	Delays to buses caused by volume of traffic
Blyth Town Centre	Parking taxis
Cramlington Town Centre	Parking taxis
A1068 Fisher Lane to Old Great North Road	Delays to bus services due to volume of traffic
Cowpen Road/Briardale junction	Delays/congestion in turning out of Briardale Road into Cowpen Road particularly in the peak hour. There are a number of risk issues associated with this congestion and junction
Hawthorn Road, Ashington	Congestion due to inconsiderately parked cars and delays due to volume of traffic at junction with Woodhorn Road
Milburn Road, Ashington	Limited access to bus stops due to inconsiderately parked cars and delays to bus services due to volume of traffic at junction with Newbiggin Road
Guide Post Shops, Morpeth (Newcastle bound)	Volume of traffic causes delay to bus services
A192 Telford Bridge, Morpeth	Delays to bus services due to volume of traffic during AM and PM peak
A192 Shields Road to Mafeking Roundabout, Morpeth	Delays to bus services due to volume of traffic during AM and PM peak
Stobhill Industrial Estate Access to A192 Shields Road, Morpeth	Traffic congestion causes delay and prevents bus services accessing and exiting the railway station
A192 Shields Road to Coopies Lane, Morpeth	Traffic congestion causes delay and prevents bus services accessing and exiting the railway station
Coach parking, Morpeth Town Centre	Lack of facilities for coaches delay bus services accessing bus station
Alnmouth Rail Station	Parked cars on main road
Seahouses Main Road	Bus services delayed due to inconsiderately parked cars
Berwick Rail Station	Taxi parked in bus bays
Coach parking, Berwick Town Centre	Lack of facilities for coaches delay bus services accessing bus stops at Golden Square

work data showed that 58% of commuters in Tynedale use the car (as a driver alone) to reach their employment location; this is above the national average. It is therefore necessary, as part of LTP 3, to encourage a modal shift to more sustainable modes of transport. The data in **Tables 21** and **22** however, would suggest that there will not be the capacity on the Tyne Valley Railway Line to accommodate this shift.

Whilst there are no trains from Morpeth into Newcastle operating above capacity, there are several services where there is cause for concern. Castle Morpeth actually had the highest percentage of its working population who use the car to get to work; similarly to Tynedale, it is unlikely that the current rail provision could accommodate much of a modal shift.

The situation is less pronounced in the PM peak, although it is likely that this is due to people finishing work at different times. Two services are however operating at capacity with two more services approaching capacity. If LTP3 is going to try and affect a modal shift to more sustainable modes of transport, capacity on the rail network needs to be addressed.

Emerging Challenges
Overcrowding is a problem on the rail network in Northumberland in peak periods. There is therefore insufficient capacity to accommodate a modal shift.

4.4 Road Safety

Improving road safety is a key priority for achieving the DfT goals which will form the basis of LTP3; it was also one of the shared priorities for LTP2. Progress towards improving road safety in LTP2 was measured against targets set out in the national road safety strategy, Tomorrow's Roads – Safer for Everyone. Targets were set for 2010 based on a 1994-98 average baseline as follows;

- A 40% reduction in the numbers of people killed or seriously injured;
- A 50% reduction in the numbers of children killed or seriously injured;
- A 10% reduction in the slight casualty rate expressed as the number of people slightly injured per 100 million vehicle kilometres.

Table 23 gives a summary of Northumberland's road safety progress to date.

Table 23: Road Safety Progress in Northumberland

Target	All KSI's	Child KSI's	Slight Injuries per 100mvkm
1994-98 Baseline Average	260	31	59
2009 Actual	186	14	45*
2009 Percentage Change from Baseline Average	-28%	-55%	-24%*
2010 Target	156	15.5	53
2010 Percentage Change Target from Baseline Average	-40%	-50%	-10%

*2008 figures used as 2009 data unavailable

Figures 16 to **18** show in greater detail the data for Northumberland for each of these three targets. Whilst data was not available for 2010, trends in reductions can be established which show whether the authority is likely to reach the targets set in the national road safety strategy.

Figure 16: Number of Killed or Seriously Injured in Road Accidents

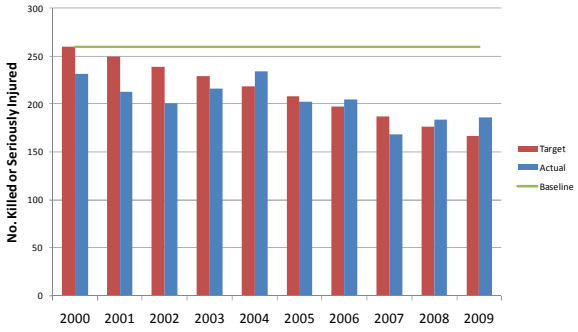
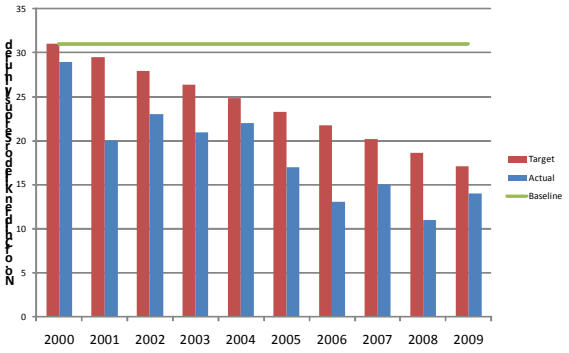


Figure 16 shows that in 2009, the number of people killed or seriously injured on roads in Northumberland was 12% higher than the target set for that year and this has increased from 2008 levels. Compared to the 1994/98 baseline figures, there has been a 28% reduction in the number of people recorded as KSI; this means that the authority is unlikely to meet its target of reducing KSI's by 40% by 2010. Nevertheless, Northumberland is making progress in reducing the number of KSI incidents with 2007 seeing 35% fewer casualties than the 1994/98 baseline average. It is hoped that the increases in KSI casualties in 2008 and 2009 will not continue in an upward trend into 2010. Nationally, in 2008, KSI casualties were at 40% of the 1994/98 baseline average.

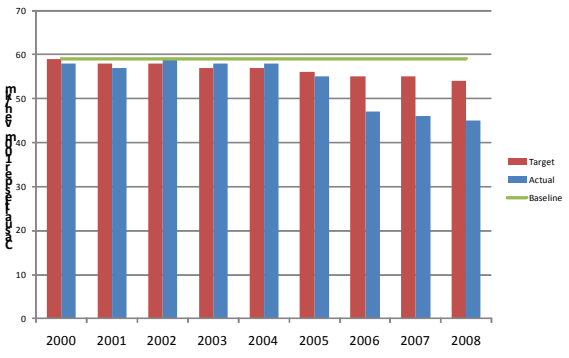
Figure 17: Number of Children Killed or Seriously Injured in Road Accidents



In 2009 the number of children killed or seriously injured in road accidents in Northumberland was 18% below target and 55% below the 1994/98 baseline average. This shows that Northumberland is on track to reduce the child KSI target set for 2010. There was a rise in the number of KSI casualties between 2008 and 2009 and it is hoped that this was an isolated incident and will not continue into 2010. Whilst the majority of child KSI casualties in Northumberland are car passengers (50% in 2009), 33% of child KSI's in 2009 were pedestrians or pedal cycle users. This is an area where road safety awareness programmes should be focussed to see greater reductions in child KSI incidents in the future.

Nationally, in 2008 the number of children killed or seriously injured in road accidents was 59% below the baseline compared to a 65% reduction in Northumberland.

Figure 18: Number of Slight Casualties per 100 Million Vehicle/KM



The most recent data available for the number of slight casualties per 100million vehicle/km is from 2008. This data shows that in Northumberland, the number of slight casualties was 24% below the target for that year. In general, since 2000, there has been a gradual decline in the number of slight casualties recorded across Northumberland and the county is well on track to meet the 10% reduction by 2010. Nationally, the figure is somewhat higher with a 36% reduction in the number of slight casualties per 100m vehicle/km suggesting that there is still more that could be done in Northumberland.

4.4.1 Future Targets

Monitoring of road safety in LTP3 will be set against new targets which will form part of the new Department for Transport Road Safety Strategy, A Safer Way: Making Britain's Roads the Safest in the World. This document is currently out for consultation and therefore, at the time of writing, the targets within this document are provisional targets only.

It is recognised within the strategy that the reduction in the number of killed or seriously injured incidents is biased towards those who are seriously injured. It has therefore been decided to include separate targets for the number of people who are killed in road accidents and those that are seriously injured. The following two targets have been proposed;

- To reduce road deaths by at least 33% by 2020 compared to the baseline of the 2004/08 average number of deaths; and
- To reduce the annual number of total serious injuries on our roads by 2020 by at least 33%.

Although good progress has been made in reducing the number of KSI's amongst young people nationally, it is accepted within the strategy that there is still more that could be done. The following target has therefore been set;

- To reduce the annual total of road deaths and serious injuries to children and young people (0-17) by at least 50% against a baseline of the 2004/08 average by 2020.

People who choose to walk or cycle are seen as vulnerable road users and within this new road safety strategy, a target which specifically mentions this group has been proposed;

- To reduce by at least 50% by 2020 the rate (3 year rolling average) of KSI per kilometre travelled by pedestrians and cyclists, compared with the 2004/08 average.

Interventions implemented as part of LTP3 to address road safety will need to give consideration as to how these targets will be met.

4.4.2 Location of Accidents

Data has been sourced from TADU (Traffic and Accident Data Unit) to show the location of all reported road accidents in Northumberland over a five year period, 2005-2009. The location of each accident has been mapped by severity and is shown in **Figures 19** to **21**.

4.4.2.1 Fatal Accidents

85 fatal accidents were recorded in Northumberland over the five year period 2005-2009. For the most part, these accidents were located on the trunk road network and county A roads. South East Northumberland also had a number of fatal accidents across the five year period and this is consistent with the high road density nature of an urban area.

4.4.2.2 Serious Accidents

707 serious accidents were recorded in Northumberland between 2005 and 2009. Similarly to fatal accidents, for the most part, serious accidents were located along the trunk road network and county A roads, as well as within the South East Northumberland area. Other concentrations of serious accidents include the smaller urban areas of Hexham, Alnwick and Berwick-upon-Tweed.

4.4.2.3 Slight Accidents

4195 slight accidents were recorded in Northumberland between 2005 and 2009. These accidents were spread over a wide spatial area with concentrations along key routes and areas of higher population density.

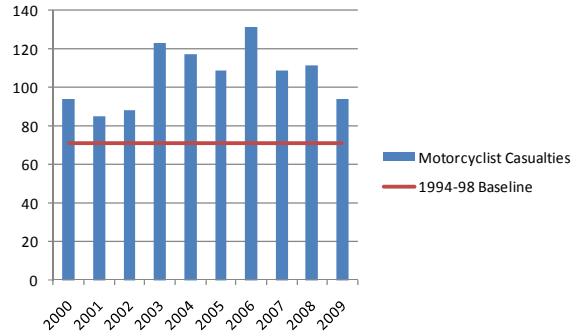
4.4.3 Local Issues

Whilst the data in section 4.4 gives information on how Northumberland is progressing against national goals, Northumberland also has local issues which need to be addressed.

One of the greatest problems facing Northumberland in addressing road safety is the rural nature of the county. Nationally, 14% of deaths and serious injuries occur on rural roads despite only accounting for 1% of traffic.

Accidents involving motorcyclists contribute to the number of accidents occurring on rural roads with motorcyclists often using these routes to give the bike an unimpeded 'run out'. Motorcyclists are the only road users in Northumberland which have seen an increase in the number of accidents since the 1994-98 baseline average. This is shown in **Figure 22**.

Figure 19: Number of Motorcyclist Casualties



Whilst it is accepted that the number of motorcyclists on the roads since the 1994-98 average was calculated has increased, motorcyclist casualties still accounted for 7% of all casualties on Northumberland roads in 2009. What is perhaps more alarming is the fact that motorcyclists accounted for just under 22% of all killed or seriously injured incidents on the roads in Northumberland. If road safety targets are going to be achieved, this is one road user group where attention should be focussed. That said, the data in **Figure 22** shows that there has been a downward trend in motorcyclist casualties since 2006 which would suggest that the Council's education and awareness policies aimed at motorcyclists are being effective. Data for all road users for 2009 is shown in **Table 24**.

Table 24: Casualties by Road User, 2009

User	Total Casualties 2009	KSI Casualties 2009
Pedestrians	6%	9%
Pedal cycle users	4%	9%
Motor Cycle Users	7%	22%
Car Drivers	50%	35%
Car Passengers	23%	20%
Other Vehcle Users	9%	6%

A further issue facing Northumberland is the number of road accidents involving young drivers. In 2009, 16-29 year old car drivers accounted for 37% of all recorded casualties amongst this group. A number of hazards on rural roads are contributing towards these statistics including slow moving vehicles, narrower roads, hills, bends and blind corners. Many young drivers simply do not have the experience or reaction times to deal with these hazards especially when travelling at speed. This is a particular problem amongst young male drivers and groups of youngsters where passengers can distract the driver or encourage them to drive in a risky manner.

The percentage of young drivers who are involved in car accidents has increased slightly on 2005 levels although the 2009 figure is below the 2008 figure of 40%. It is essential that road safety campaigns target this group of drivers and that Northumberland County Council builds on the work already undertaken to date through the period of LTP3.

Emerging Challenges
Northumberland is unlikely to meet its target of a 40% reduction in KSI incidents by 2010. This is a problem that needs to be addressed.

A high proportion of road casualties in Northumberland are motorcyclists. This is a problem that needs to be addressed.

A high proportion of drivers involved in accidents on Northumberland roads are young drivers. This is a problem that needs to be addressed.

4.5 Emerging Challenges

From this section of the report, the following importance challenges have emerged that will impact on the objectives of LTP3;

- **Congestion:** There are localised issues of congestion in Northumberland. This will impact on the economic vitality of these areas.
- **Public Transport and Congestion:** There are localised issues of congestion in Northumberland. This is affecting the operation of public transport which may lead to public transport being viewed as a less desirable mode of transport.
- **Overcrowding on Public Transport:** Overcrowding is a problem on the rail network in Northumberland in peak periods. There is therefore insufficient capacity to accommodate a modal shift.
- **Road Safety:** Northumberland is unlikely to meet its target of a 40% reduction in KSI incidents by 2010. This is a problem that needs addressing
- **Road Safety:** A high proportion of road casualties in Northumberland are motorcyclists. This is a problem that needs addressing.
- **Road Safety**: A high proportion of drivers involved in accidents on Northumberland roads are young drivers. This is a problem that needs to be addressed.

Figure 20: Fatal Road Accidents in Northumberland 2005-2009

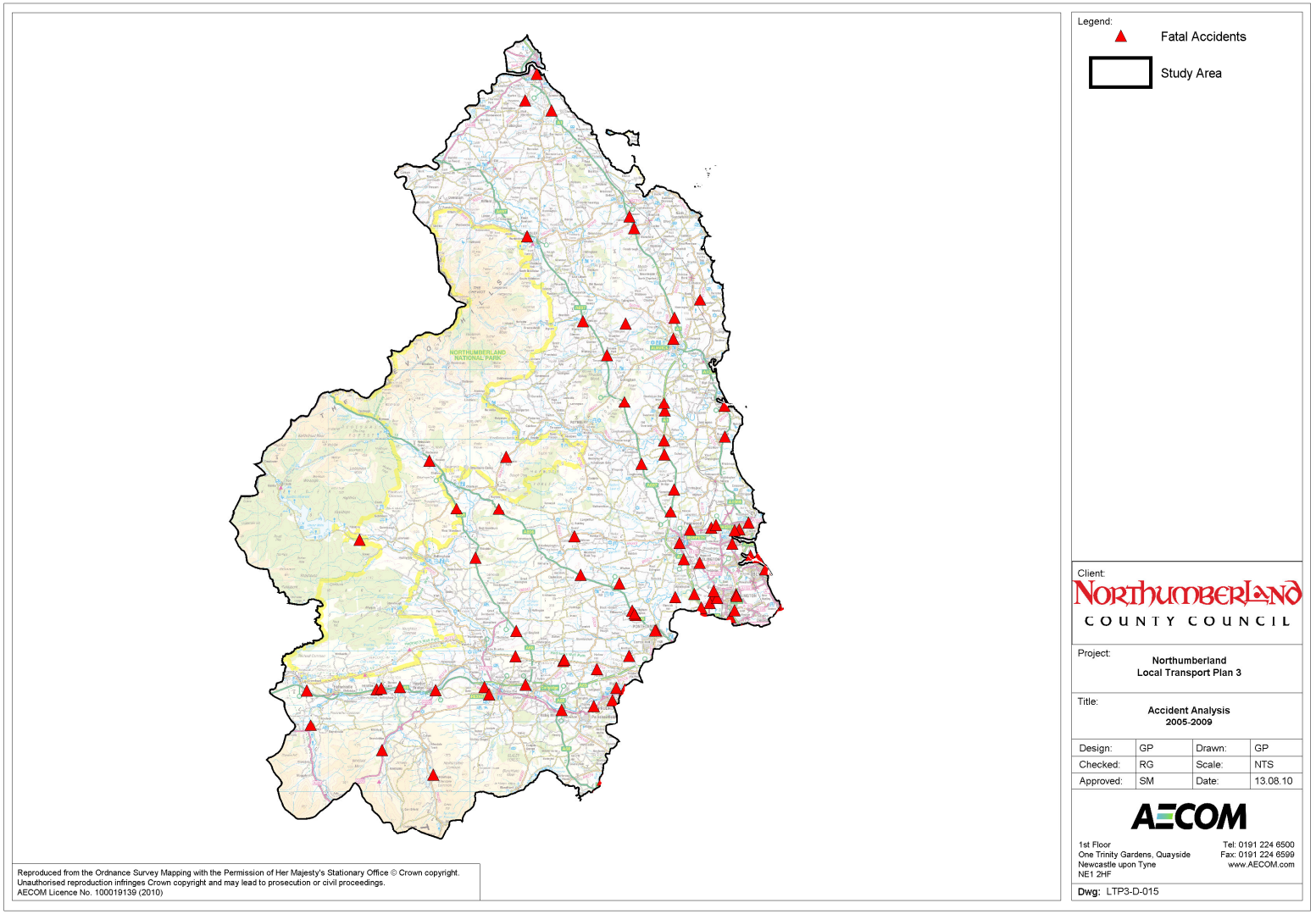


Figure 21: Serious Road Accidents in Northumberland 2005-2009

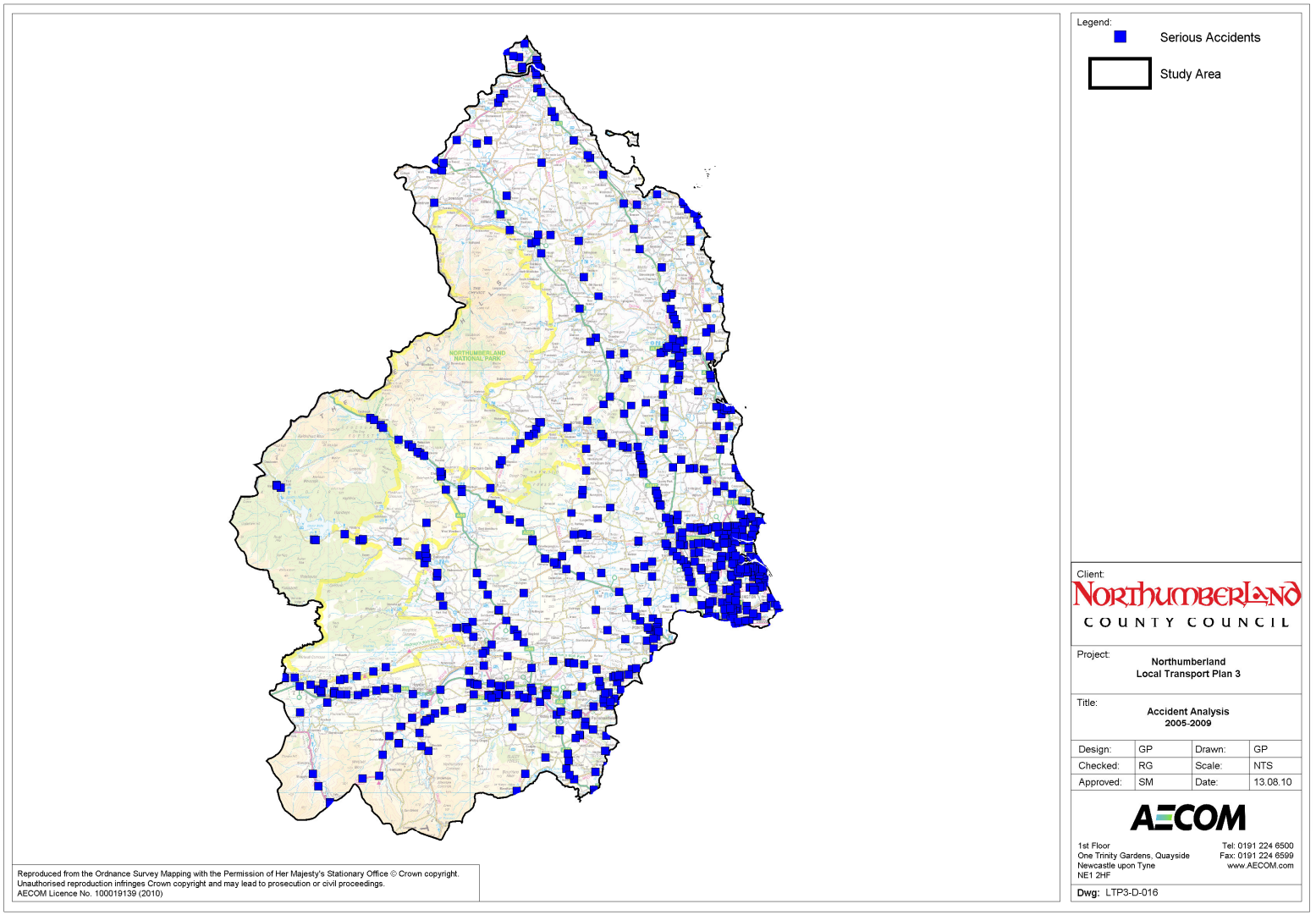
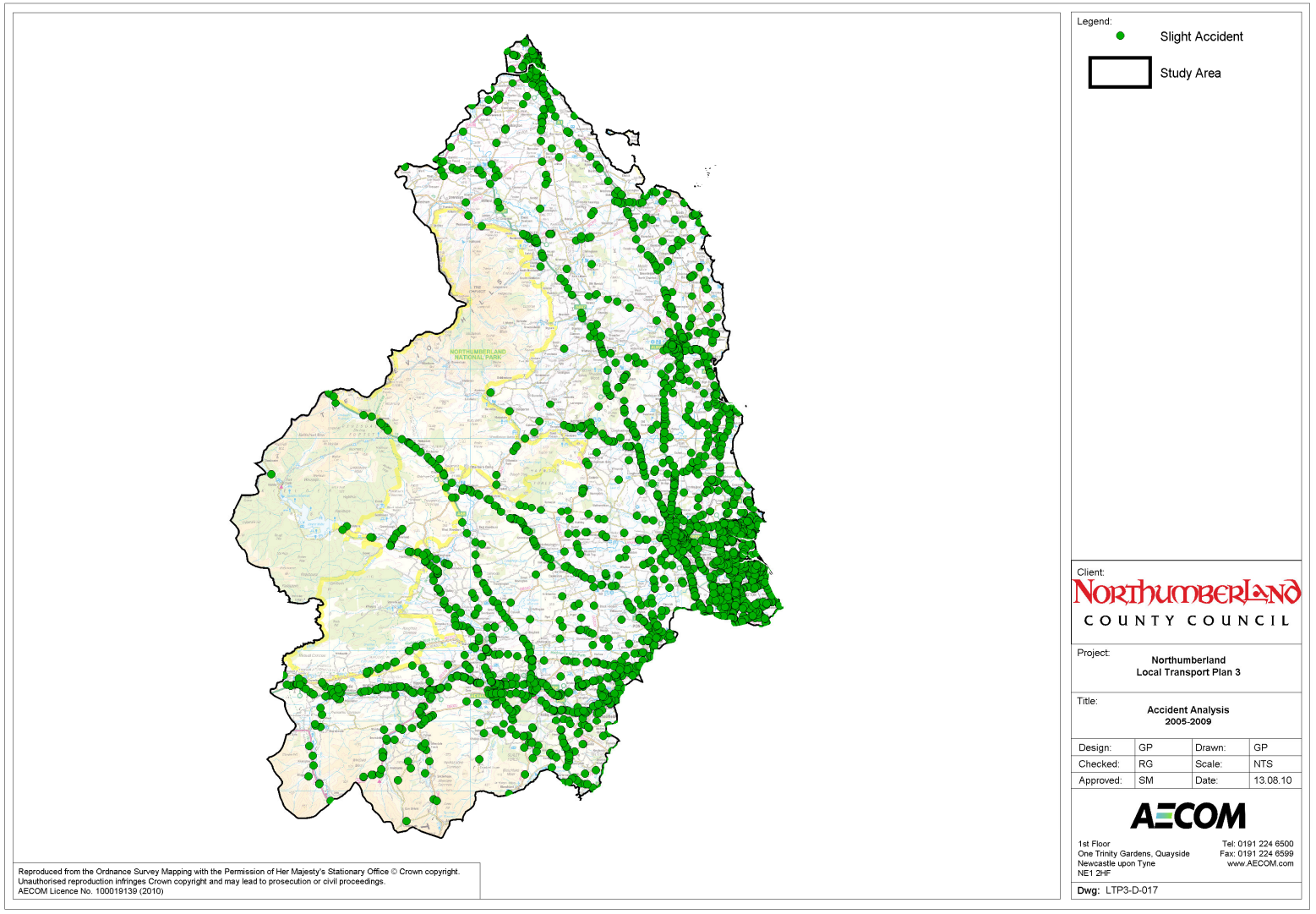


Figure 22: Slight Road Accidents in Northumberland 2005-2009



5 Northumberland Portrait – Economy, Society and Environment

5.1 Introduction

This section builds an economic, social and environmental portrait of the Northumberland area in order to contextualise the transport situation for the region. Data have been sourced from a number of key documents and online resources. Data have also been obtained for the North East region and the national average in order to bench mark the data and trends against national figures.

5.2 Economy of Northumberland

The last thirty years have seen the North East region, and Northumberland, undergo significant economic changes as the manufacturing sector has declined. Many of the urban areas of South East Northumberland were built around the ship building and mining industries which closed in the 1980's leading to high levels of unemployment in the area. As a consequence of this, the population has had to find alternative sources of employment which has led to significant commuter trips into Tyne and Wear due to a lack of jobs in the local area. The rural areas of Northumberland are still heavily dependent on the agricultural sector although the prevalence of this has also declined in recent years. Tourism is now one of the dominant industries in the rural areas and has even seen growth in recent years despite the economic recession. If this sector is to continue being a source of economic growth in the future, it is important that it is developed in a sustainable manner.

One of the five DfT goals which are central to LTP3 is to support economic growth by delivering reliable and efficient transport networks. Understanding the current economic situation in Northumberland and the changes that the county has undergone in previous years will be fundamental to achieving this goal.

If GVA is to be used as a measure of economic prosperity, Northumberland is situated within the poorest region in England with the North East having the lowest GVA per Capita in 2008. Within the region there is variation in GVA per Capita although only Durham has a GVA per Capita lower than Northumberland.

Whilst GVA is a useful measure of the economic wealth of an area, it is a work based measure of production and as such, is distorted by those employees who commute between regions. As a further analysis, average earnings have been analysed to show the wealth of both the Northumberland area and Northumberland residents.

Table 25: Average Earnings 2009

Area	2009	
	Resident	Workplace
England	496	495.2
North East	438.8	435.9
Northumberland	467.7	421.6
Alnwick	517.8	378.1*
Berwick-upon-Tweed	381.3	357.3
Blyth Valley	412.1	399.4
Castle Morpeth	608.3	475.1
Tynedale	602.7	443.6
Wansbeck	423.7	425.5

*Data for 2009 not available, 2008 data used

Source: Annual Survey of Hours and Earning

The data in **Table 25** shows that the average wage earned in Northumberland in 2009 was below the national and regional average. The average wage of a resident of Northumberland however was above the regional average and suggests that some residents of Northumberland do not work within the county. This supports the Census Journey to Work data set out in Chapter 3.

Within Northumberland, Castle Morpeth had the highest resident average earnings at £608.30 but a workplace average earning of only £475.10. Berwick-upon-Tweed had the lowest resident average earnings in Northumberland at £381.30 and also the lowest workplace earnings of £357.30. This implies that Berwick-upon-Tweed operates as a self contained employment area with employees of Berwick-upon-Tweed also residing in Berwick-upon-Tweed. This is something that was also intimated to in Chapter 3 of this report.

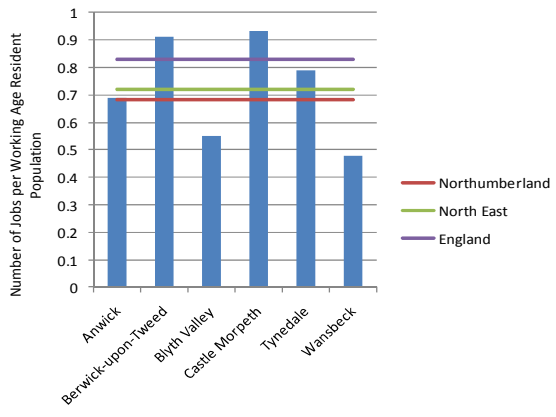
Despite GVA per Capita and average earnings figures suggesting that the economic wealth of Northumberland is lagging behind the national average, unemployment rates in Northumberland are below the regional and national averages. In 2009 the unemployment rate in Northumberland was 5.6%; compared to an unemployment rate in the North East of 9.7% and an unemployment rate in England of 7.8%. Within the county however, there is much spatial variation with Wansbeck having an unemployment rate of 11% compared to an unemployment rate of 2.9% in Castle Morpeth. Unemployment rates were not available for Alnwick or Berwick for 2009.

Data regarding youth unemployment for 2009 would suggest that this is less of an issue in Northumberland compared to regional and national figures. Just under 17% of 16-24 year olds in Northumberland were classified as being unemployed in 2009 compared to just under 23% regionally and 19% nationally. Within Northumberland, youth unemployment data was only available for Blyth Valley and Wansbeck and showed that Blyth Valley had a youth unemployment rate of 19% compared to a youth unemployment rate of 33% in Wansbeck. This is significantly higher than the average for Northumberland, the North East and England and it is important therefore that every effort is made to improve accessibility to employment for young adults in the Wansbeck area.

Whilst unemployment rates in Northumberland are low compared to other regions, if economic growth in the area is to be encouraged, it is necessary to have an understanding of the availability of employment in the area. In terms of the transport implications, this will identify where people need to get to and whether the current transport provision allows for this.

Jobs density is a measure of the number of filled jobs in an area divided by the resident working age population. The location of jobs will impact on the transport choices available for the employees who work there. **Figure 23** shows the job density for the districts of Northumberland compared to regional and national figures.

Figure 23: Jobs Density in Northumberland



Source: Office of National Statistics

The graph shows that the job density for Northumberland is 0.68; this is lower than the job density for the North East and lower than the national job density figure. The job density figure for Northumberland is substantially below 1 that it suggests a high proportion of the working age population commute outside of Northumberland for employment. Newcastle, immediately south of Northumberland, is within commuting distance of some areas of Northumberland and had a jobs density figure in 2008 of 1.07; this suggests that more of the working age population are employed in Newcastle than actually live there and these people could potentially be commuting from Northumberland.

The variation within Northumberland is much greater than between the regions. Castle Morpeth had the highest job density rate in 2008 at 0.93; this was quickly followed by Berwick-upon-Tweed at 0.91. These figures are greater than both the regional and national figures. Wansbeck had the lowest job density at 0.48 suggesting that over half of the working age population of Wansbeck commute to other areas.

Emerging Challenges
The working age population of Northumberland is greater than the number of jobs in the area. Some of these people who want to work must therefore commute to neighbouring authorities. This can contribute to congestion and air quality issues both in Northumberland and the neighbouring authorities.

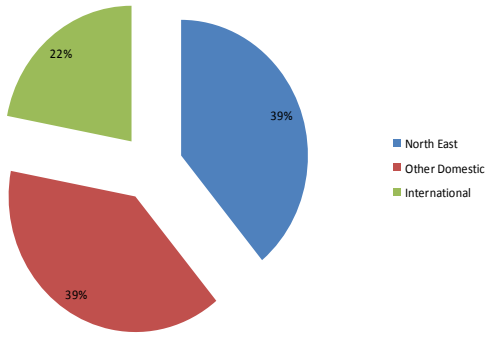
5.2.1 Tourism in Northumberland

Tourism in Northumberland makes a significant contribution to the economy of the area. In 2008 it is estimated that tourism accounted for 11.7% of employment in Northumberland placing tourism as one of the top 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. This is reflected in the Northumberland Area Tourism Management Plan which suggests that there is still scope for growth in the tourism industry in Northumberland. It is often the case however that tourism is seasonal and offers low paid employment. It is therefore essential that this growth in the tourism sector is spread throughout the year.

The Regional Visitor Survey 2008 showed that the origins of visitors to the Northumberland area are both national and international as outlined in **Figure 24** below.

Figure 24: Origin of Visitors to Northumberland



Of the people surveyed in the Regional Visitor Survey, 83% of visitors to Northumberland used the private motor car to reach their destination with a further 4% of visitors using a hire car; the plane was an important mode of transport for foreign visitors to the area. The data in the Regional Visitor Survey 2008 highlights the importance of the domestic and foreign market to the economy of Northumberland and it is essential that transport connections from these places are maintained, if not improved.

The Northumberland Area Tourism Management Plan (ATMap) 2010-2015 sets out the vision for growth in tourism in Northumberland over the next five year period. Within this plan is the aspiration for a sustainable visitor economy which supports – not damages – the core values of Northumberland. Central to this aspiration will be the role of transport in accessing Northumberland. Current transport connections by rail, sea and air however, are somewhat limited and this is reflected in the fact that 87% of visitors to Northumberland use the car.

Transport issues however, are not just about connections between Northumberland and the wider area, connections within Northumberland will also be important to the sustainability of the tourism industry. Tourism Northumberland conducted a number of visitor surveys in the market towns of Northumberland in 2009 to ascertain satisfaction levels on a range of different issues. A number of questions were asked regarding transport covering both private and public connections.

The results of the surveys showed that, similar to the Regional Visitor Survey 2008, the majority (78%) of visitors to market towns in Northumberland use the car to get there. The majority of these respondents found it easy to travel using the car and did not find the availability of parking to be an issue. The results however did vary across market towns with people visiting Morpeth or Berwick less likely to find parking easy. The cost of parking was also considered to be reasonable by over 50% of respondents.

Public transport services were rated as good by over 70% of respondents; this covered destinations to and from served by public transport, the regularity of bus and rail services and the quality of bus and rail services. Whilst public transport services were rated as good by over 70% of respondents who used them, the base size for these results was low. Many visitors responded ‘don’t know’ to public transport questions as they had not used public transport and were not aware of the services available to them. It is therefore essential that, if a sustainable visitor economy is to be developed, the public transport options that are available to visitors are improved and adequately marketed.

Whilst the availability of car parking was not flagged up as an issue in the Market Town Visitor Surveys, the availability of coach parking in Northumberland is an issue that needs to be addressed. Coach travel is one of the greenest travel options available in the UK to date and should therefore be actively encouraged. A lack of parking spaces at tourist destinations however means that it is often not possible for coaches to be used. High parking costs in some locations are also impacting on the likeliness of coaches to be used.

A lack of coach parking spaces in Northumberland, particularly in market towns, is also impacting on the economy of the area with the local tourism industry missing out on the revenue that tourists can bring. This is particularly relevant when considering passing trade from coaches on route to/from Scotland who are required by law to stop and rest at certain intervals. If coach parking facilities were available, market towns could benefit from this. As it is, coaches are finding alternative places to stop. The most notable example where this occurs is the Highly Gate Garden Centre just off the A1 which is being used as a coach rest point instead of the market town of Morpeth.

In order that the full potential of the Northumberland tourism economy is being met, the local authority needs to work in partnership with coach operators and businesses to provide the facilities which coaches require.

Emerging Challenges
The majority of tourists who visit Northumberland use the private car for access to the region and throughout their stay. This is because of a lack of public transport options and limited awareness of the services that are available.

There are not enough coach parking facilities in Northumberland. This is something which much be addressed if there is to be continued growth in the tourism industry.

5.3 Northumberland Society

Changes in the economy of Northumberland at the end of the 20th Century have had an impact on the society that serves that economy. Northumberland has a very diverse society characterised by both areas of significant deprivation and areas of considerable wealth. Transport has a role to play in tackling this deprivation by addressing accessibility issues within the county. This will in turn help facilitate social inclusion and increase the opportunities that are available to the people who live there.

5.3.1 Headline Statistics

Similar to the economic situation in Northumberland, areas of the county have undergone significant social change in the last thirty years largely associated with the decline of the manufacturing industry and the social problems inextricably linked to unemployment. For the most part, these problems are located in the industrial areas of South East Northumberland. Ultimately, this has led to some areas within the county being classified as the most deprived in the county as measured by the index of multiple deprivation. In total, 7% of the population of Northumberland live in the 10% most deprived SOAs in the country whilst 8% of the population live in the 10% least deprived SOAs in the country.

5.3.2 Indices of Multiple Deprivation

The index of multiple deprivation can be used to rank local authorities in terms of the most deprived amongst the 354 local authorities in England. Authorities are ranked based on the average of super output areas (SOAs) measure (which is the population weighted average of the combined scores for the SOAs in a district). SOAs are measured on seven different categories and an overall score calculated; income, employment, health deprivation and disability, education skill and training, barriers to housing and services, crime and finally the living environment. The most recent IMD is from 2007 and therefore the old districts of Northumberland are included in the data for the Northumberland Local Authority. This data is shown in **Table 27**.

Table 26: Indices of Multiple Deprivation, Northumberland

Local Authority	Overall IMD Ranking
Alnwick	207
Berwick-upon-Tweed	133
Blyth Valley	80
Castle Morpeth	223
Tynedale	224
Wansbeck	46

Wansbeck was ranked as the 46th most deprived Local Authority in England with around 21% of the population living in the 10% most deprived SOAs in the country. In comparison, Castle Morpeth and Tynedale are ranked as the 223rd and 224th most deprived local authorities in the country respectively.

The IMD for Northumberland is shown in plan form in **Figure 25** and illustrates the locations that are considered to be the most deprived and least deprived SOAs in the county. This clearly shows that deprivation is concentrated in the urban areas of South East Northumberland around the old industrial sites.

Clearly the level of deprivation will depend on the indicator being assessed. For this reason, an analysis on the seven indicators which make up the IMD has been undertaken. **Table 28** shows the percentage of the population in each district which live in the 10% most deprived SOAs for each of the indicators.

Table 27: Social Statistics for Northumberland

	Base	Alnwick	Berwick upon Tweed	Blyth Valley	Castle Morpeth	Tynedale	Wansbeck	Northumberland	North East	England	Source
People not in good health	Resident Population	9%	9%	11%	9%	8%	13%	10%	12%	9%	2001 Census
People with limiting long term illness	Resident Population	18%	20%	21%	19%	17%	24%	21%	23%	18%	2001 Census
Average weekly wage by residence (full time employees)	Economically active residents	£517.8	£381.3	£412.1	£608.3	£602.7	£423.7	£468.0	£439.0	£496.0	2009 Annual Survey of Hours and Earnings
Mortality rates	Per 100,000 population	541.6	456.4	652.4	538	503.6	698.4	578.7	656.9	574.8	ONS 2008
Population living in the 20% most deprived super output areas	Resident Population	9%	5%	25%	10%	2%	28%	16%	34%	20%	IMD 2007
Residents claiming Job Seakers Allowance	Working age population	n/a	n/a	n/a	n/a	n/a	n/a	3.80%	5.10%	4%	DWP 2009
Residents claiming Incapacity Benefit	Resident age population	n/a	n/a	n/a	n/a	n/a	n/a	3.90%	5.20%	3.60%	DWP 2009
Residents claiming Disability Living Allowance	Resident age population	n/a	n/a	n/a	n/a	n/a	n/a	5.70%	6.80%	5%	DWP 2009
Residents who are economically inactive	Working age population	23.0%	17.8%	25.5%	22.5%	18.1%	23.3%	22.7%	26.4%	20.2%	Annual Population Survey 2009
Residents with no qualifications	Working age population	9.4%	9.7%	17.0%	13.0%	4.6%	14.8%	12.2%	14.8%	12.1%	Annual Population Survey 2009
Residents with qualifications at degree level or above	Working age population	33.8%	16.8%	21.0%	29.9%	40.3%	19.0%	26.7%	24.0%	29.6%	Annual Population Survey 2009
Population living in local authority or other social housing rented properties	Resident Population	18.0%	20.0%	24.0%	12.0%	13.0%	24.0%	19.0%	24.0%	18.0%	2001 Census

Figure 25: IMD for Northumberland 2007

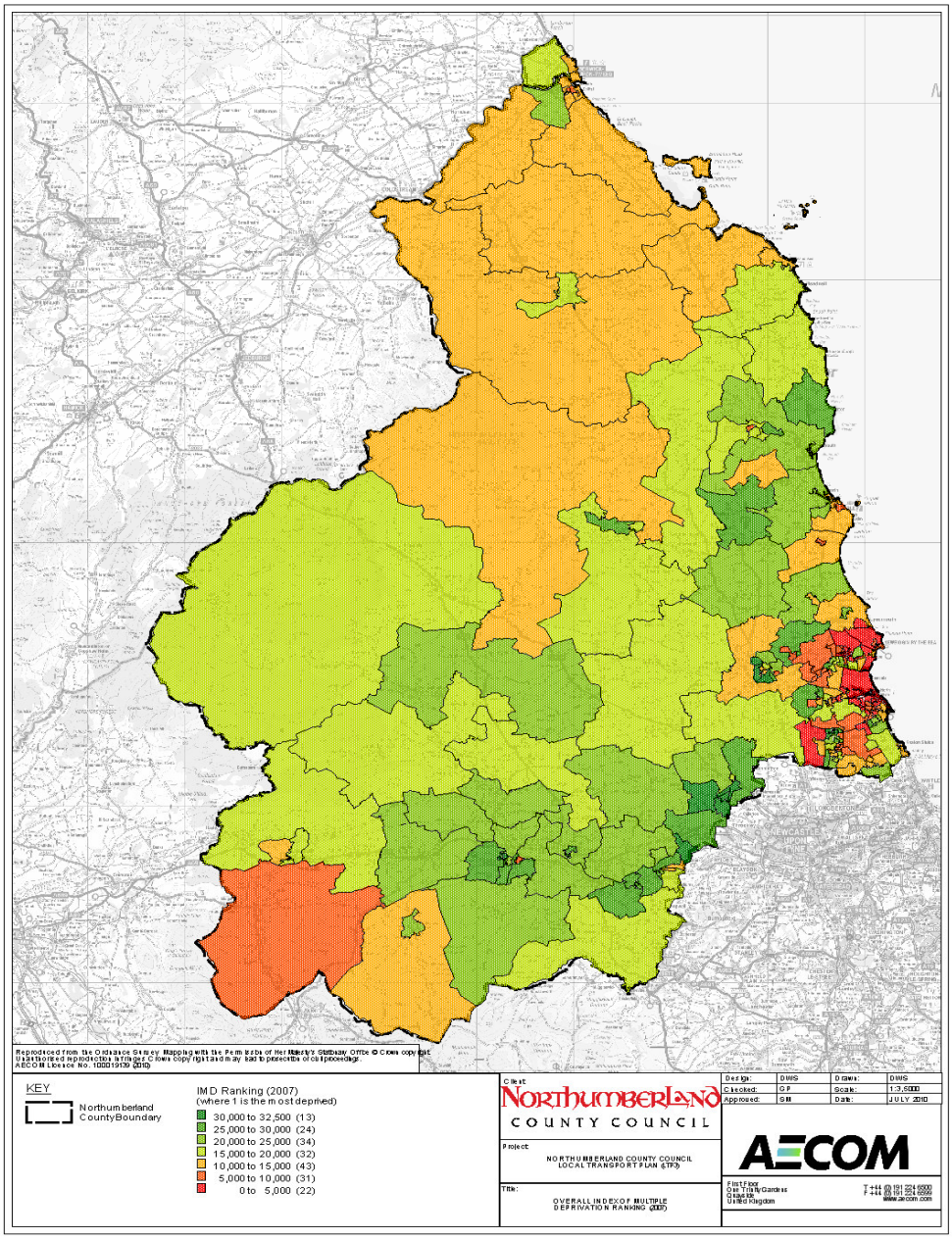


Table 28: Percentage of Population Living in the 10% Most Deprived SOAs in England

District	Income	Employment	Health, deprivation and disability	Education skills and training	Barriers to housing and	Crime	Living environment
Alnwick	0%	0%	0%	0%	21%	0%	0%
Berwick-upon-Tweed	0%	0%	0%	0%	32%	0%	0%
Blyth Valley	7%	24%	24%	21%	0%	3%	0%
Castle Morpeth	0%	13%	4%	4%	17%	0%	0%
Tynedale	0%	0%	0%	0%	24%	0%	5%
Wansbeck	12%	47%	29%	20%	0%	18%	0%
Northumberland	4%	18%	13%	10%	12%	4%	1%

The data in **Table 28** shows a number of differences between each of the districts depending on the indicator which is being assessed. Wansbeck has a large percentage of its population living in the 10% most deprived SOAs in England for a number of indicators; this is closely followed by Blyth Valley. It is not surprising that these districts score less favourably than the other districts in Northumberland given that they are predominantly urban in nature and were built around heavy industry which was once prevalent in the region. The decline of these industries has led to an increased level of unemployment in the area which is represented in a poor score for employment in the IMD index. Whilst it is not reasonable to suggest that the provision of transport is the sole contributor to high unemployment levels in these areas, it is essential to ensure that public transport is linking these areas with the main employment locations in both Northumberland and Tyne and Wear, and at a cost that is considered affordable by the user. It is also imperative that the right transport infrastructure is in place in the county to facilitate the development of employment opportunities within Northumberland itself.

Other indicators where there are noticeable differences in the performance of areas within Northumberland are health, deprivation and disability, education, skills and training and barriers to housing and services. These indicators are discussed in greater detail in the following sections.

5.3.2.1 Health

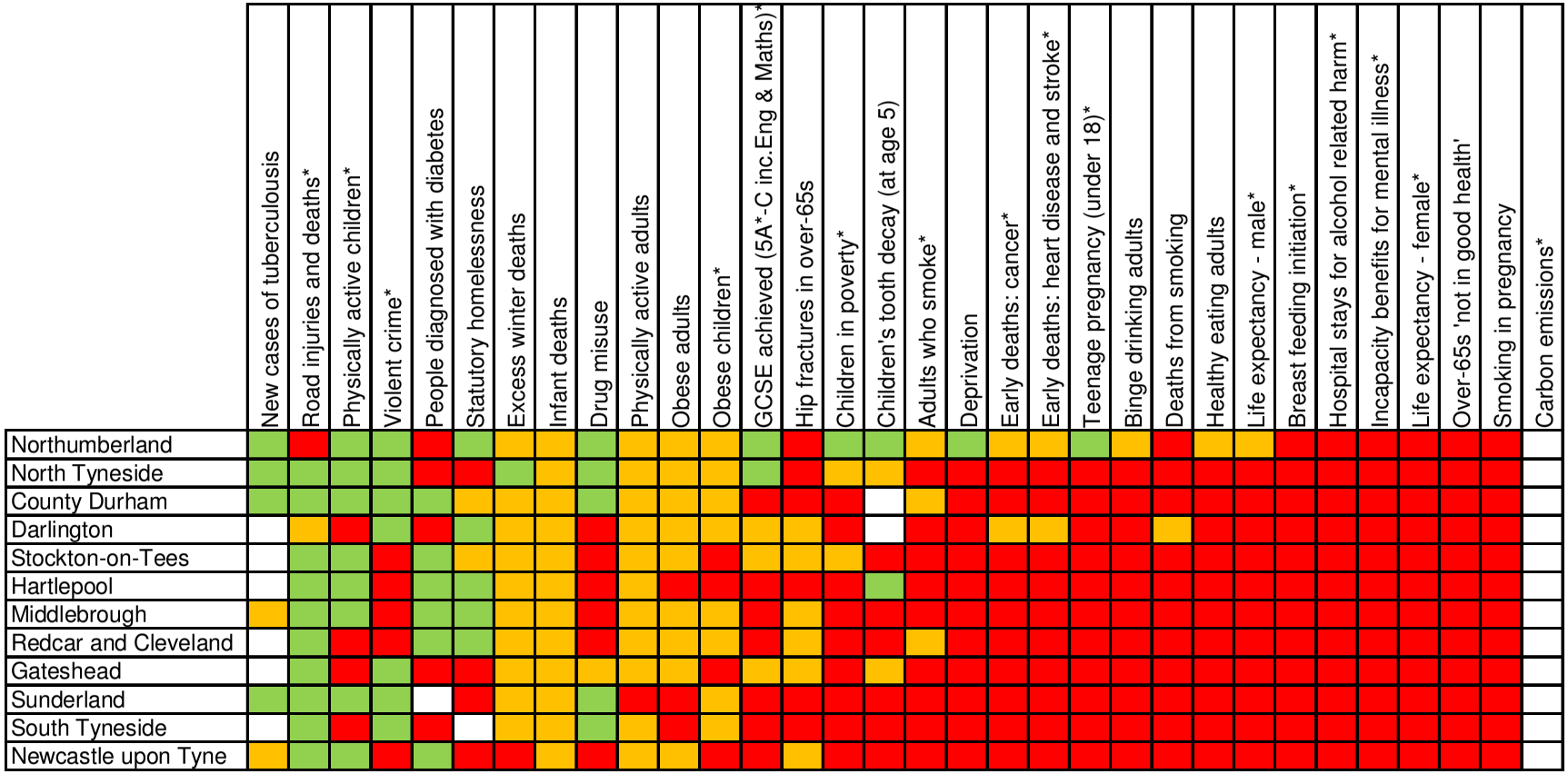
The North East region consistently performs poorly in health league tables despite having some of the best health care facilities in the country. Many of the health problems present in the region are strongly linked to the area's industrial past and the problems associated with post industrialisation poverty and unemployment.
Within the North East however there is much spatial variation. The health of residents in Northumberland is generally similar to the England average and Northumberland actually performs better than the England average against a number of national health indicators. There are however still areas of concern which are illustrated in **Table 29**.

Whilst the data in **Table 29** suggests that Northumberland performs well against a number of key health indicators when compared to national and regional areas, there is much variation within Northumberland as indicated by the index of multiple deprivation. Blyth Valley and Wansbeck both perform poorly against the health aspect of the IMD with 24% and 29% of their population living within the 10% most deprived SOAs in England respectively. Both of these areas of Northumberland were once dominated by heavy industry and as such their current problems are often related to the post industrialisation poverty previously mentioned.

5.3.2.2 Education

In 2008 just over 12% of the working age population of Northumberland were recorded as having no qualifications. This is below the regional average and only marginally higher than the national average. Within Northumberland however, the figure varies considerably with less than 5% of the working age population of Tynedale having no qualifications compared to 17% of the working age population of Blyth Valley. In fact, it is those areas of South East Northumberland which have already been identified as socially deprived, which have the highest proportion of the working age population without qualifications. Much of this can be attributed to the loss of heavy industry in the area which led to a decline in the number of skilled jobs. It is however, a self perpetuating cycle with many children growing up in an unemployed household being distracted from education by the social problems that unemployment often causes.

Table 29:Health Outcomes Compared to National Average, North East, 2009



Significantly worse than England average

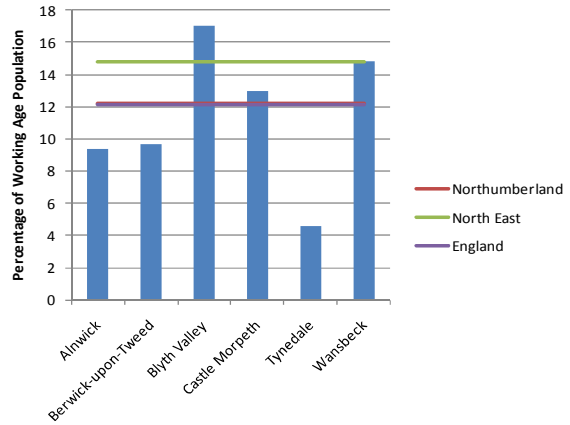
Significantly better than England average

Not significantly different from England average

No significant can be calculated, or data unavailable or suppressed due to small numbers

* Relates to national indicator 2009

Figure 26: Percentage of the Population with No Qualifications



Source: Annual Population Survey 2009

Northumberland has a higher proportion of its working age residents educated to degree level or above compared to the regional average; 26.7% for Northumberland compared with 24% for the North East. This figure is however below the national figure of 29.6% of the working age population. It is again the socially deprived areas of South East Northumberland which seem to perform worst with both Blyth Valley and Wansbeck having a low percentage of their working age population educated to degree level. The exception to this however is Berwick-upon-Tweed. Located in the north of Northumberland, it has the lowest percentage of its working age population educated to degree level or above at 16.8%. This could be linked to the distance Berwick-upon-Tweed is located from the nearest university with no university being located in Northumberland. Long journey times and high transport costs can often be a deterrent to people studying for a degree.

People who hold a degree level qualification are more likely to enter a higher paying profession and as a result achieve a higher standard of life. Furthermore, being educated to degree level oR above can be a catalyst for entrepreneurial activity which is essential for growth in the economy.

Given that both Wansbeck and the Blyth Valley are located within the South East corner of Northumberland, it is probable that both health and education facilities are accessible by public transport although the cost and journey times of public transport could restrict their use. It is essential that throughout the period of LTP3 these problems are addressed and the resident population are made aware of the transport options which are available to them

5.3.2.3 Barriers to Housing and Services

One indicator of a good place to live is available, affordable and high quality housing. House prices in Northumberland however are the highest in the North East region with the mean average house price increasing at a greater percentage than the national average since 1998. This is illustrated in **Table 30**.

Table 30: Average House Prices

Area	Lower Quartile			Median			Mean		
	1998	2008	Increase	1998	2008	Increase	1998	2008	Increase
England	55,000	124,950	127%	63,000	175,000	178%	84,180	221,270	163%
North East	31,500	86,000	173%	46,000	119,000	159%	53,658	139,710	160%
Northumberland	34,850	95,000	173%	53,000	137,000	158%	62,766	179,629	186%

Within Northumberland however average house prices vary across the county. It is the rural areas of Northumberland where house prices are greatest with many people seeing these areas as being a desirable place to live. The increase in demand in recent years, due to a greater acceptance to travel or people looking for a second home, has had a direct impact on house prices in these rural areas.

The following table, published by the land registry, shows the average house prices for the lowest quartile of housing in each of the old districts of Northumberland.

Table 31: Lowest Quartile House Prices 2007

Area	LQ house prices
Alnwick	£135,000
Berwick-upon-Tweed	£112,500
Blyth Valley	£90,000
Castle Morpeth	£125,000
Tynedale	£130,000
Wansbeck	£78,000

Table 31 shows that house prices in Alnwick are the most expensive in Northumberland with housing in Wansbeck being the least expensive. Given that the average wage in Northumberland is just under £24,000, housing in many areas of Northumberland is unaffordable. This particularly affects first time buyers who are struggling to get on the

housing market and leads to an exodus of young people in search of more affordable living.

It is not only access to housing which is a problem in rural areas. Population settlements within these areas are dispersed in nature which restricts the commercial viability of key services and facilities. Within these districts therefore, there is an increased need to travel to access these services which contributes to a poor score for the barriers to housing and services indicator of the index of multiple deprivation. Accessibility from these areas is something which needs to be addressed as part of LTP3.

Emerging Challenges
There are areas of extreme deprivation and extreme wealth in Northumberland as measured by the IMD. The cost and affordability of public transport can contribute to this.

5.4 Environment of Northumberland

Northumberland is a largely rural county characterised by its rolling landscapes, extensive coastlines, Areas of Outstanding Natural Beauty and the Northumberland National Park. The environment of Northumberland is important to the economy of the area as it is central to the tourism industry which operates in the county. Decisions' regarding transport investment and journey patterns can seriously impact on the quality of this environment and it is therefore important that a context for the environment is set out and well understood in this report.

The Stern Review outlined that climate change was likely to have a big impact on the environment in the future and it is for this reason that climate change is central to the DfT national transport goals. Transport has an important role to play in tackling climate change, principally through addressing the emission of transport related greenhouse gases.

5.4.1 Greenhouse Gases

Greenhouse gases exist naturally in the earth's atmosphere and help to regulate the surface temperature thus allowing life to flourish. Changes to the balance of these gases in the atmosphere, through the actions of mankind, are affecting the regulation of surface temperatures and leading to global warming. Carbon dioxide (CO_2), Nitrous Oxide (N_2O) and Methane (CH_4) are three of the principle greenhouse gases which are contributing to global warming.

5.4.2 Environmental Policies

A number of recent environmental policies will influence the development of future local, regional and national transport strategies over the next decade and beyond. These policies are discussed below along with various sources of key environmental evidence.

5.4.2.1 The Climate Change Act 2008

The UK Government passed the Climate Chance Act, legislation introducing the world's first long-term binding framework to tackle climate change, coming into effect in November 2008. The act provides a legally binding target of at least an 80% reduction in greenhouse gas emission by 2050, and a 34% reduction by 2020. However, CO2 emissions from road transport are increasing and are predicted to represent 13% of total CO2 emissions in 2020 compared to 9% in 1990 (North East England Greenhouse Gas Emissions Baselines and Trajectories Study, 2009). Therefore transport faces a major challenge in contributing towards meeting the targets as set out in the 2008 Act.

In the same context health can be improved through reduced exposure to emissions. In 2007, the Committee on the Medical Effects of Air Pollutants Great Britain estimated that respiratory disorders associated with particulates are responsible for 8,100 additional deaths and 10,500 additional hospital admissions in the UK each year. Reducing these emissions will have benefits for the individual by way of improved health and quality of life, and in terms of the economy potentially increase productivity due to a healthier workforce with fewer sick days.

5.4.2.2 The Covenant of Mayors

The Covenant of Mayors initiative is an ambitious commitment by cities across Europe to go beyond the objectives set by the EU 20-20-20 and to achieve a 20% reduction in CO_2 in the respective territories by 2020. As of March 2010, 1,370 cities across Europe had signed the Covenant.

The commitments will be achieved by:

- Developing a Sustainable Energy Action Plan for each signatory authority;
- Adapting city structures to a lower carbon future;
- Mobilising civic society to assist in the action plan.

Northumberland, as with all of the Local Authorities with the Tyne & Wear City Region, had signed the Mayors Covenant

by January 2009. The covenant puts an onus on local government to reduce carbon dioxide emissions through their own activities which include energy intensive services such as street lighting and public transport.

5.4.2.3 Northumberland Climate Change Strategy

As well as the Climate Change Act 2008, Northumberland has also developed its own climate change strategy. The aim of the strategy is to encourage partners to put in place effective and timely measures at both corporate and community levels to address the causes and implications of climate change in Northumberland by mainstreaming climate change planning with their own core business.

Northumberland has already been the victim of a number of extreme weather events which have been attributed to climate change. The most recent of these is the September 2008 flooding which affected Morpeth, Rothbury and the River Till Catchment area. Further extreme weather events are predicted if action is not taken against climate change and this will impact on both households, businesses and infrastructure and will lead to many areas, particularly in rural locations, being cut off from society.

The strategy has identified the following priority areas where action is required;

- Leadership;
- Emergency planning;
- Transport and utilities;
- Spatial planning;
- Delivering for rural areas;
- Business resilience;
- Protecting our natural environment;
- Addressing future needs;
- Communicating climate change; and
- Trading carbon for community and environmental benefits.

5.4.3 Carbon Emissions

Northumberland is committed to reducing carbon emissions and this is reflected in its endorsement of the Covenant of Mayors which is a voluntary agreement. Whilst transport is not the only sector where reductions can be made, it was identified in the Stern Review as being the market sector with the fastest growing carbon emissions.

Within the UK road transport is seen as a considerable contributor to CO_2 emissions. **Tables 32** and **33** show the CO_2 emissions by road transport for each of the districts within Northumberland.

Table 32: CO2 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	4782	23%	4738	23%	-1%
England	86,090	24%	84,976	24%	-1%

Table 33: CO2 Emissions by Road Transport, Northumberland (tonnes per capita)

Authority	Base Year (2005)	2006	2007	% Increase
Alnwick	2.40	2.37	2.47	3%
Berwick upon Tweed	3.50	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	2.14	0%
North East	1.88	1.84	1.85	-1%
England	1.71	1.66	1.66	-3%

Table 32 shows that in 2007, Tynedale had the highest levels of CO_2 emissions from road transport in Northumberland. The level of emissions had remained unchanged from 2005 levels. Some districts within Northumberland have however seen a decrease in CO_2 emissions which is in line with the regional and national average. CO_2 emissions from road transport in Alnwick and Berwick upon Tweed have however increased and this has led to CO_2 emissions remaining unchanged between 2005 and 2007 across the whole of Northumberland. This is something which must be addressed if Northumberland is to meet the targets set out in the Covenant of Mayors.

What is notable from the data is that although some areas of Northumberland have seen a percentage decrease in their CO_2 emissions from road transport, the percentage of total emissions has actually increased. Only in Tynedale has the figure remained the same. This suggests that whilst progress is being made in reducing CO_2 emissions

from road transport in some areas of Northumberland, progress is lagging behind other market sectors.

Table 33 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 which were identified in **chapter 3** of this report. 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 1.16tonnes. This was much lower than both the regional and national averages. Wansbeck was identified in **chapter 3** of the report as having the lowest car ownership levels in Northumberland which were much higher than the national average. This will undoubtedly have impacted on the levels of CO_2 emissions from road transport and gives rise to the argument that rising car ownership levels could prove problematic in the future.

Berwick-upon-Tweed and Tynedale had the highest levels of CO_2 emissions by road transport per capita in 2007 at 3.58 and 3.11tonnes 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. Attention needs to be focussed in these areas as Berwick-upon-Tweed is actually seeing an increase in emissions levels year on year.

Figure 27 displays the level of CO_2 emissions from road transport across Northumberland. This map shows that emissions from road transport are concentrated in the urban South East core of Northumberland and along the key strategic routes of the A1 and the A69.

Emerging Challenges
CO_2 emissions in Northumberland from road transport per head of population are higher than the regional and national figures. Northumberland is committed to reducing carbon emissions by 2020.

5.4.5 Air Quality Management Areas (AQMA's)

A reduction in greenhouse gas emissions from transport is likely to have a major impact on air quality. Not only will this help in combating climate change, it will also contribute to improvements in people's health and quality of life. Whilst Northumberland is not known to have a particular air quality issue, it does have one registered air quality management area and therefore air quality in the county does need to be addressed.

Blyth Town was declared an air quality management area (AQMA) on the 22nd December 2004. This was due to an excessive level of particulates in the air which exceeded acceptable levels for England and Wales. Since this time however, monitoring of this AQMA has shown that the levels of particulates are now lower than the acceptable value and the council intends to continually monitor this site to ensure that this reduction in particulates is maintained.

Whilst there are no other AQMAs declared in Northumberland, a site at Cowpen in Blyth is showing levels of Nitrous Oxide (N_2O) which are above the acceptable levels for England and Wales. The monitoring tubes for this site are located close to two arterial routes into Blyth as well as well as a set of traffic signals which will generate stationary traffic. It is therefore likely that the level of traffic in the vicinity of this site has a considerable impact on the levels of N_2O. This is something which needs to be monitored and addressed through the period of LTP3.

Emerging Challenges
There is an area of poor air quality within Blyth which is largely associated with road transport. This needs to be addressed.

5.4.6 Future Forecasts for Greenhouse Gas Emissions

Whilst forecasts are not available for greenhouse gas emissions for Northumberland, in 2009 SUSTAINE and AEA produced the North East England Greenhouse Gas Emissions Baselines and Trajectories Study. This study outlines the position of the North East region in relation to greenhouse gas emissions both now and in the future.

The study focuses on emissions of CO_2 and suggests that unless preventative measures are taken now, by 2050 CO_2 emissions in the region will be 1% higher than the baseline of 1990. Whilst some market sectors are predicted to see a decline in their CO_2 emissions, road transport is forecast to

see a 58% increase during this period. This would suggest that the North East as a region will fail to meet their CO_2 reduction targets with transport being a contributory factor.

Emerging Challenges
CO_2 emissions from road transport in the North East are forecast to increase. This will impact on climate change and health in Northumberland.

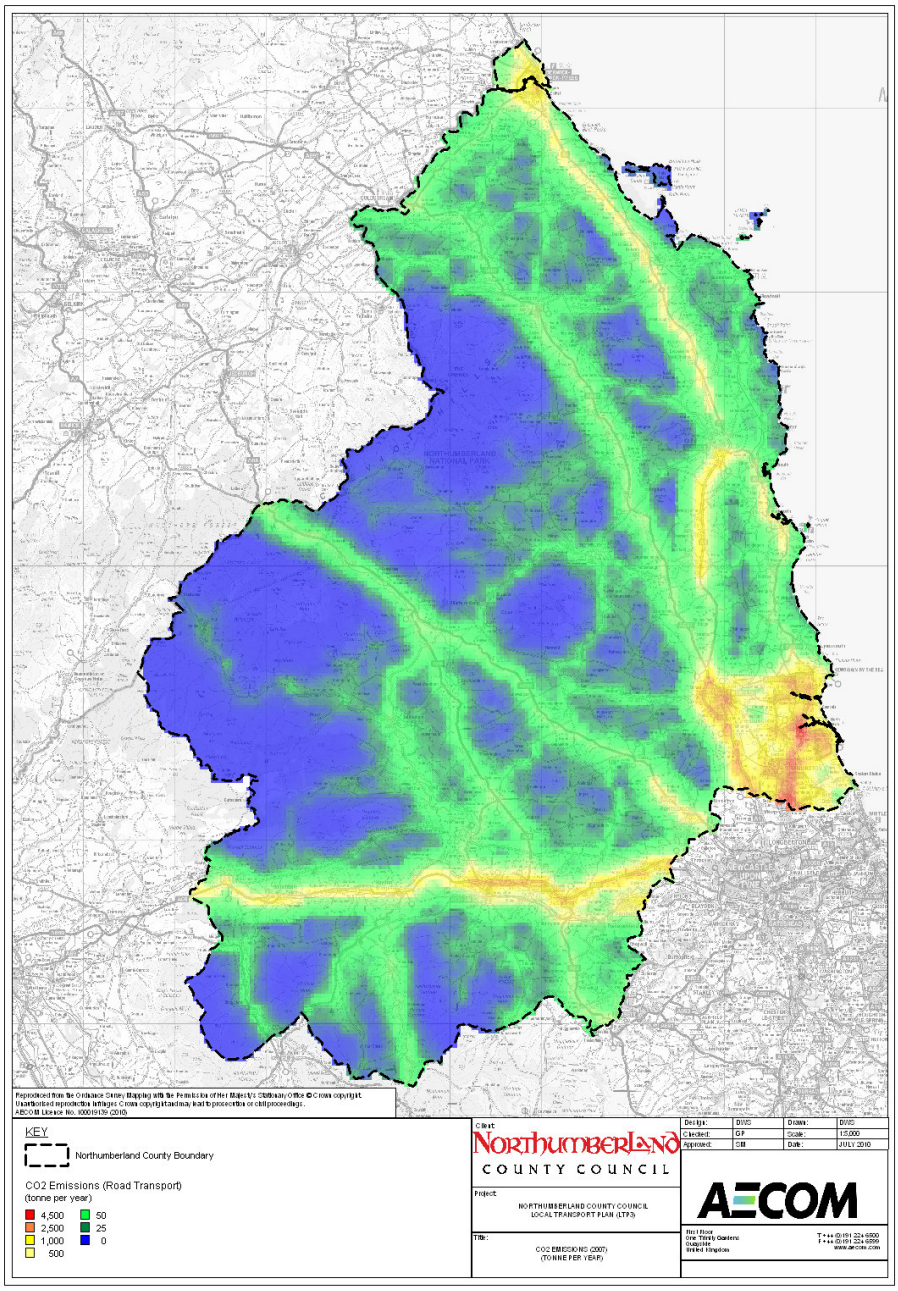
5.5 Emerging Challenges

From this section of the report, the following important challenges have emerged that will impact on the objectives of LTP3;

- **Economy:** The working age population of Northumberland is much greater than the number of jobs in the area. Some of these people who want to work must therefore commute to neighbouring authorities. This can contribute to congestion and air quality issues both in Northumberland and the neighbouring authorities.
- **Tourism:** The majority of tourists who visit Northumberland use the private car for access to the region and throughout their stay. This is because of a lack of public transport options and limited awareness of the services that are available.
- **Tourism**: There are not enough coach parking facilities in Northumberland. This is something which much be addressed if there is to be continued growth in the tourism industry.
- **Society:** There are areas of extreme deprivation and extreme wealth in Northumberland as measured by the IMD. The cost and affordability of public transport can contribute to this.
- **Carbon Emissions:** CO_2 emissions in Northumberland from road transport per head of population are higher than the regional and national figures. Northumberland is committed to reducing carbon emissions by 2020.
- **Air Quality:** There is an area of poor air quality within Blyth which is largely associated with road transport. This needs to be addressed.
- **Future Emissions:** CO_2 emissions from road transport in the North East are forecast to increase. This will impact on climate change and health in Northumberland.

Capabilities on project:
Transportation

Figure 27: CO2 Emissions from Road Transport



6 Emerging Challenges

6.1 Introduction

In this final section of the report, the emerging challenges that have arisen in the preceding sections of the report are collated, prioritised and developed into a series of LTP specific objectives.

6.2 Rationalising the Challenges

The challenges identified in the preceding sections of this report have been drawn directly from the evidence presented in each section. Some of the challenges however, are repetitions, or have significant overlaps. It has therefore been necessary to rationalise these challenges before prioritising them and using them to inform the LTP objectives.

Table 34: Rationalisation of Challenges

Issue	Emerging Challenge	Rationalised Challenge
Accessibility	The population density of Northumberland is low. This will mean that key services and facilities will not be commercially viable in some locations and will lead to an increased need to travel.	Accessibility to key services and facilities using public transport in Northumberland is an issue. This is caused by low population density, availability of services, timely bus services and the cost of public transport. 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.
	The population of Northumberland is increasing, particularly in rural areas such as Alnwick and Tynedale. This will put increased pressure on the transport network between these rural areas and the urban centres.	
	Northumberland has an increased proportion of elderly residents compared to the regional and national averages; the proportion of elderly residents is forecast to increase in the future. This will lead to a need for transport to health facilities and hospitals as well as additional funding for concessionary travel.	
	Public transport options to not meet the needs of all residents of Northumberland. A lack of available services, timely journeys and high public transport costs mean that public transport is not a viable option for many people. This is likely to lead to increased use of the private motorcar as well as contributing to social exclusion.	
	There are areas of extreme deprivation and extreme wealth in Northumberland as measured by the IMD. The availability of transport can contribute to this.	
Mode Share	Car ownership in Northumberland is forecast to increase. This has implications for the commercial viability of public transport and modal share in the future.	Census data 2001 shows that Northumberland has above average levels of car use amongst commuter trips; this is coupled with below average levels of public transport use. Whilst the distance people travel to work will be a determining factor in the mode choice chosen, there is the potential to reduce the number of car trips on the network.
	Private motor car usage in Northumberland is higher than the national average whilst public transport usage is lower than the national average. This could contribute to congestion and air quality issues.	
	32% of commuter trips in Northumberland are under 5km in distance yet only 13% of commuter trips are undertaken using non motorized forms of transport. Increased usage of non motorized forms of transport could contribute to both transport and health objectives.	
	People in Northumberland travel longer distances to work compared to regional and national figures. There is often no alternative to the private car for these longer distance trips.	
Economy	There are insufficient numbers of jobs in many lower super output areas in Northumberland to support the population that live there. People will therefore be required to travel to neighbouring lower super output areas to gain employment.	There are insufficient jobs in Northumberland to accommodate the working age population. This is likely to continue in the future

	There is an emphasis on employment growth in the North East being centred on Tyne and Wear despite housing growth points being established in neighbouring authorities.	with employment growth being centred on Tyne and Wear. As a consequence, some residents of Northumberland have to commute into Tyne and Wear for work purposes. This can contribute to congestion on the transport network both in Northumberland and Tyne and Wear.
	The working age population of Northumberland is greater than the number of jobs in the area. Some of these people who want to work must therefore commute to neighbouring authorities. This can contribute to congestion and air quality issues both in Northumberland and the neighbouring authorities.	
Local Congestion	The number of households in Northumberland is forecast to increase at a higher rate than the population. The location of these new households could put added pressure on the transport network if a sustainable transport network is not in place.	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 are localised issues of congestion in Northumberland. This will impact on the economic vitality of these areas.	
	There are localised issues of congestion in Northumberland. This is affecting the operation of public transport which may lead to public transport being viewed as a less desirable mode of transport.	
Regional Congestion	There is an outflow of commuters from Northumberland into Tyne and Wear. Congestion is an issue on the strategic road network into Tyne and Wear.	There is an important economic connection between Northumberland and Tyne and Wear. 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
	Links into Tyne and Wear are the most significant for Northumberland in terms of the economic needs of businesses. Links to the Yorkshire and Humber, North West and Scotland are also important. Congestion on links between these areas could adversely affect the economy of Northumberland.	
Freight	An important destination for freight originating in Northumberland is Tyne and Wear. This is contributing to traffic congestion on the key approached into Tyne and Wear.	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 rail and shipping freight networks restrict the potential for modal shift.
	The A1 is a key route for freight being transported through Northumberland. This route however, is a predominantly single carriageway road. This will have implications on journey time reliability for other road users.	
	Constraints on the transport network for onward transport of freight could be a limitation for the potential growth of in Northumberland ports, particularly in the Port of Blyth.	
	There are operational and capacity issues on the rail freight network in Northumberland which will restrict the potential for growth in the rail freight sector.	

Public Transport Overcrowding	Overcrowding is a problem on sections of the rail network in Northumberland in peak periods. The current rail network would therefore be unable to accommodate a modal shift from private car to train.	No rationalisation of challenge needed.
Road Safety	Northumberland is unlikely to meet its target of a 40% reduction in KSI incidents by 2010. This is a problem that needs addressing.	Road safety is an issue in Northumberland with the local authority unlikely to reach its target of a 40% reduction in KSI incidents by 2010. Attention needs to be focussed on motorcyclists and young drivers who are involved in a high percentage of accidents.
	A high proportion of road casualties in Northumberland are motorcyclists. This is a problem that needs addressing.	
	A high proportion of drivers involved in accidents on Northumberland roads are young drivers. This is a problem that needs to be addressed.	
Tourism	The majority of tourists who visit Northumberland use the private car for access to the region and throughout their stay. This is because of a lack of public transport options and limited awareness of the services that are available.	The majority of tourists who visit Northumberland use the car to access the region and throughout their stay. This is because of a lack of alternative transport options and facilities and is impacting on the ability of Northumberland to benefit from passing trade.
	There are not enough coach parking facilities in Northumberland. This is something which must be addressed if there is to be continued growth in the tourism industry.	
Climate Change	CO_2 emissions in Northumberland from road transport per head of population are higher than the regional and national figures. Northumberland is committed to reducing carbon emissions by 2020.	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.
	There is an area of poor air quality within Blyth which is largely associated with road transport. This needs to be addressed.	
	CO_2 emissions from road transport in the North East are forecast to increase. This will impact on climate change and health in Northumberland.	

6.3 Prioritisation of Challenges

In order to prioritise the challenges, each challenge has been scored against the five DfT national transport goals. The following rating system has been used.

Rating	Score
The challenge will have a **negative** impact on the DfT goal	3
The challenge will have a **slightly negative** impact on the DfT goal	1
The challenge will have a **neutral** impact on the DfT goal	0
The challenge will have a **slightly positive** impact on the DfT goal	-1
The challenge will have a **positive** impact on the DfT goal	-3

The total score has been used to rank each of the challenges with the priority afforded to each challenge displayed in the following table.

Table 35: Prioritised List of Challenges

Issue	Emerging Challenge	Impact on economic growth and competitiveness	Impact on climate change and carbon reduction	Impact on safety, security and health	Impact on equality of opportunity	Impact on quality of life	Overall impact
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 and Wear. As a consequence, some residents of Northumberland have to commute into Tyne and Wear for work purposes This can contribute to congestion on the transport network both in Northumberland and Tyne and Wear.	Negative	Negative	Negative	Negative	Negative	**High**
Accessibility	Accessibility to key services and facilities using public transport in Northumberland is an issue. This is caused by low population density, availability of services, timely bus services and the cost of public transport. 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.	Slight negative	Slight negative	Slight negative	Negative	Negative	**High**
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.	Slight negative	Negative	Negative	Neutral	Slight negative	**High**
Mode Share	Census data 2001 shows that Northumberland has above average levels of car use amongst commuter trips; this is coupled with below average levels of public transport use. Whilst the distance people travel to work will be a determining factor in the mode choice chosen, there is the potential to reduce the number of car trips on the network.	Slight negative	Negative	Negative	Neutral	Slight negative	**High**
Regional Congestion	There is an important economic connection between Northumberland and Tyne and Wear. 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.	Negative	Negative	Slight negative	Neutral	Neutral	**Medium**
Road Safety	Road safety is an issue in Northumberland with the local authority unlikely to reach its target of a 40% reduction in KSI incidents by 2010. Attention needs to be focussed on motorcyclists and young drivers who are involved in a high percentage of accidents.	Slight negative	Neutral	Negative	Neutral	Negative	**Medium**
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 rail and shipping freight networks restrict the potential for modal shift.	Negative	Negative	Slight negative	Neutral	Neutral	**Medium**
Public Transport Overcrowding	Overcrowding is a problem on sections of the rail network in Northumberland in peak periods. The current rail network would therefore be unable to accommodate a modal shift from private car to train.	Slight negative	Negative	Slight negative	Slight negative	Slight negative	**Medium**
Local Congestion	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.	Slight negative	Negative	Slight negative	Neutral	Neutral	**Low**
Tourism	The majority of tourists who visit Northumberland use the car to access the region and throughout their stay. This is because of a lack of alternative transport options and facilities and is impacting on the ability of Northumberland to benefit from passing trade.	Negative	Slight negative	Slight negative	Neutral	Slight negative	**Low**

6.4 LTP Objectives

The emerging challenges have been used to inform a set of objectives for LTP; these objectives are shown in **Table 36** below. Potential interventions will be scored against these objectives to ensure that they address the emerging challenges that have been identified within this evidence base.

Table 36: LTP Objectives

Rationalised Challenge	Study Specific Objective
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 and Wear. As a consequence, some residents of Northumberland have to commute into Tyne and Wear for work purposes This can contribute to congestion on the transport network both in Northumberland and Tyne and Wear.	Improve public transport connections between Northumberland and Tyne and Wear
	Encourage the use of public transport between Northumberland and Tyne and Wear
	Identify measures to alleviate congestion on the highway network on the approaches into Tyne and Wear
Accessibility to key services and facilities using public transport in Northumberland is an issue. This is caused by low population density, availability of services, timely bus services and the cost of public transport. 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.	Improve access to key services and facilities using public transport
	Improve access from rural areas
	Make public transport more accessible to all age groups and classes of society
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.	Reduce CO_2 emissions from road transport
	Mitigate against the impacts of climate change
Census data 2001 shows that Northumberland has above average levels of car use amongst commuter trips; this is coupled with below average levels of public transport use. Whilst the distance people travel to work will be a determining factor in the mode choice chosen, there is the potential for more commuter trips by sustainable modes of travel.	Reduce reliance on the private motorcar
	Encourage trips using public transport
	Promote walking and cycling for short journeys
There is an important economic connection between Northumberland and Tyne and Wear. 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.	Identify measures to alleviate congestion at key pinch points between Northumberland and Tyne and Wear
Road safety is an issue in Northumberland with the local authority unlikely to reach its target of a 40% reduction in KSI incidents by 2010. Attention needs to be focussed on motorcyclists and young drivers who are involved in a high percentage of accidents.	Reduce the number and severity of accidents in Northumberland
	Reduce the number of accidents amongst motorcyclists
	Reduce the number of accidents involving young drivers

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 rail and shipping freight networks restrict the potential for modal shift.	Identify opportunities to encourage a modal shift from road freight transport to rail or sea
	Improve journey time reliability on the A1
Overcrowding is a problem on sections of the rail network in Northumberland in peak periods. The current rail network would therefore be unable to accommodate a modal shift from private car to train.	Identify opportunities to reduce overcrowding on the rail network in Northumberland in peak periods
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.	Identify measures to alleviate congestion at key pinch points in Northumberland
The majority of tourists who visit Northumberland use the car to access the region and throughout their stay. This is because of a lack of alternative transport options and facilities and is impacting on the ability of Northumberland to benefit from passing trade.	Improve access to Northumberland by public transport
	Improve the public transport service offered to tourists within Northumberland

Appendix A – Commuter Flows in Northumberland

Figure 1: 2001 Census Data, Commuter Flows from Alnwick

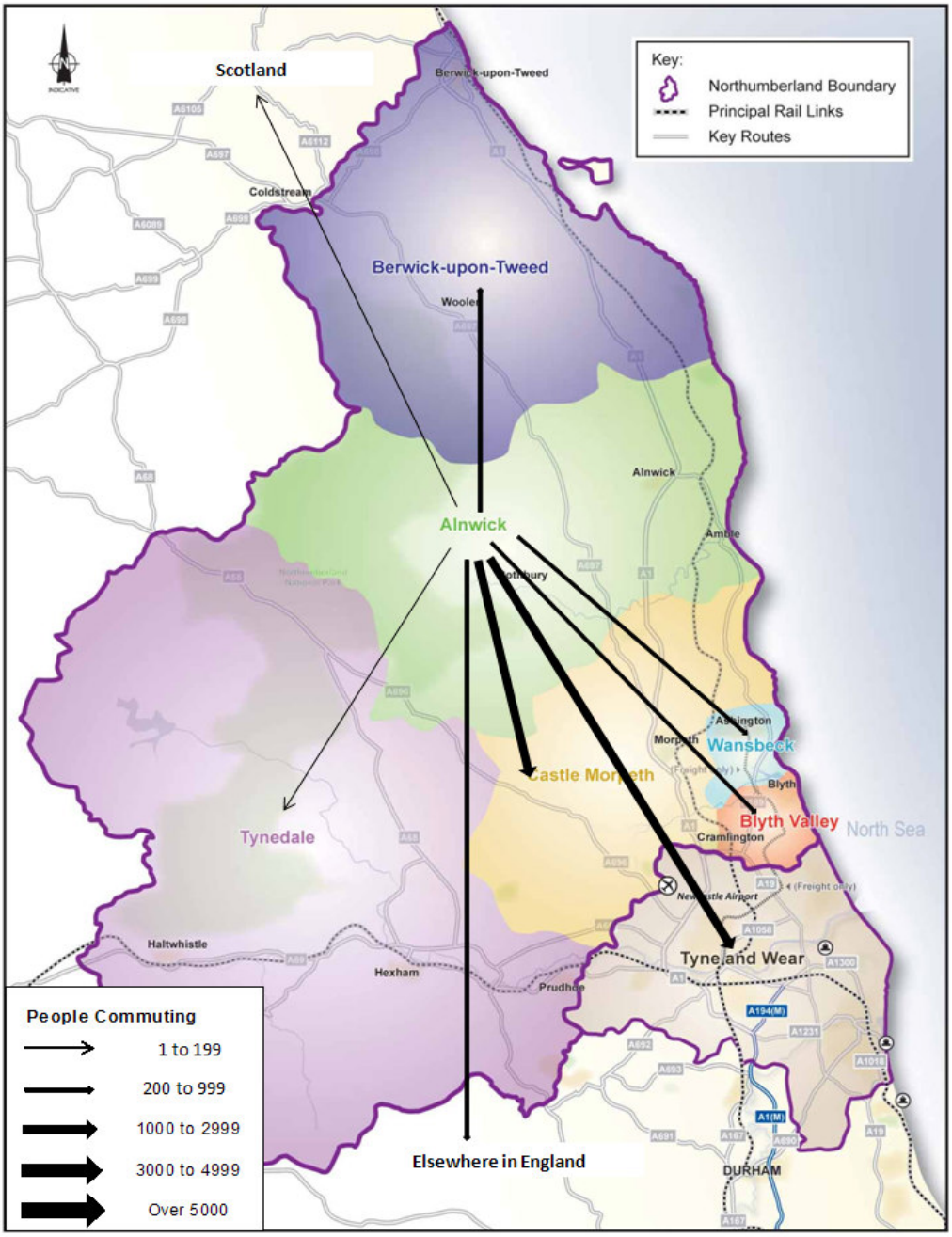


Figure 2: 2001 Census Data, Commuter Flows from Berwick-upon-Tweed

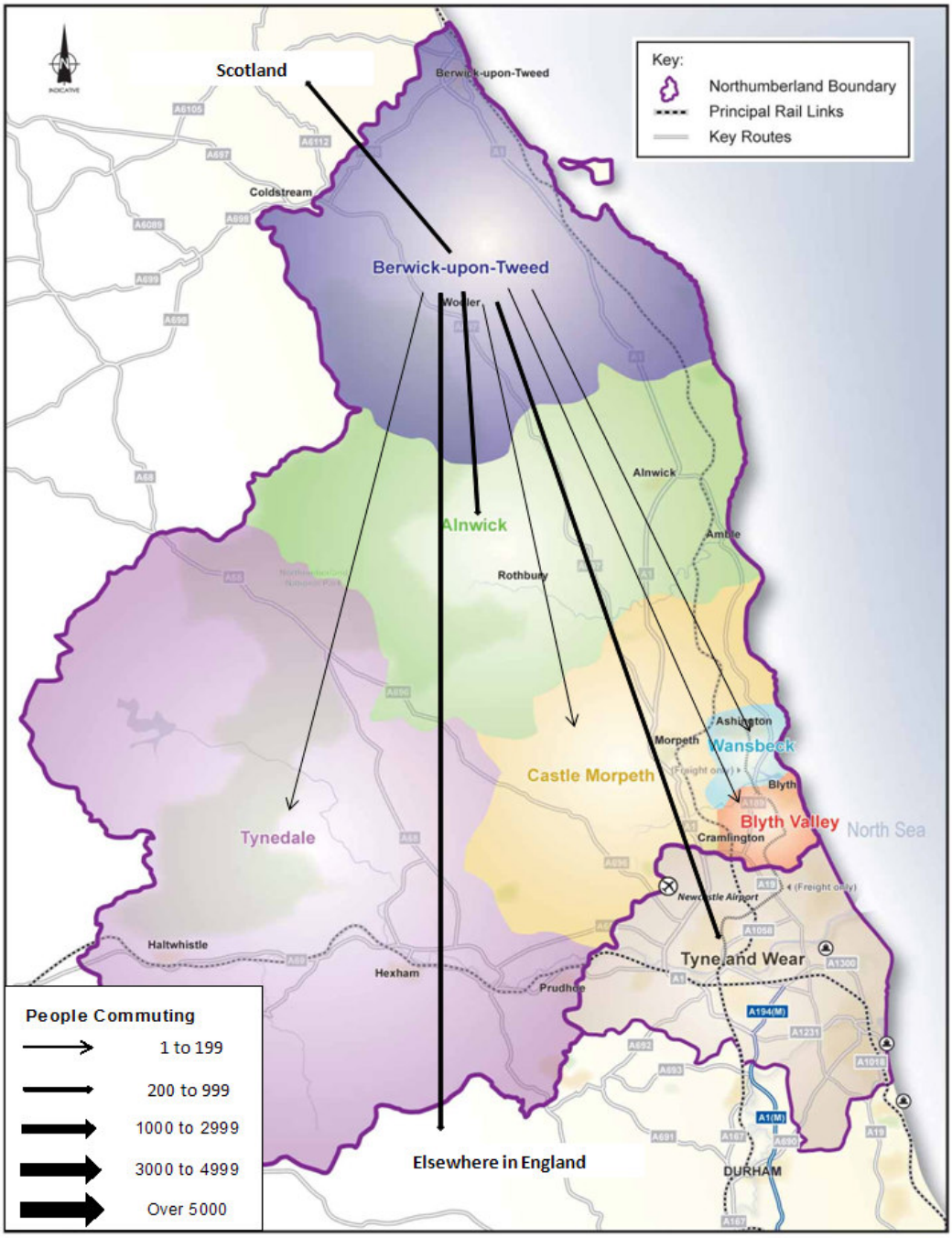


Figure 3: 2001 Census Data, Commuter Flows from Blyth Valley

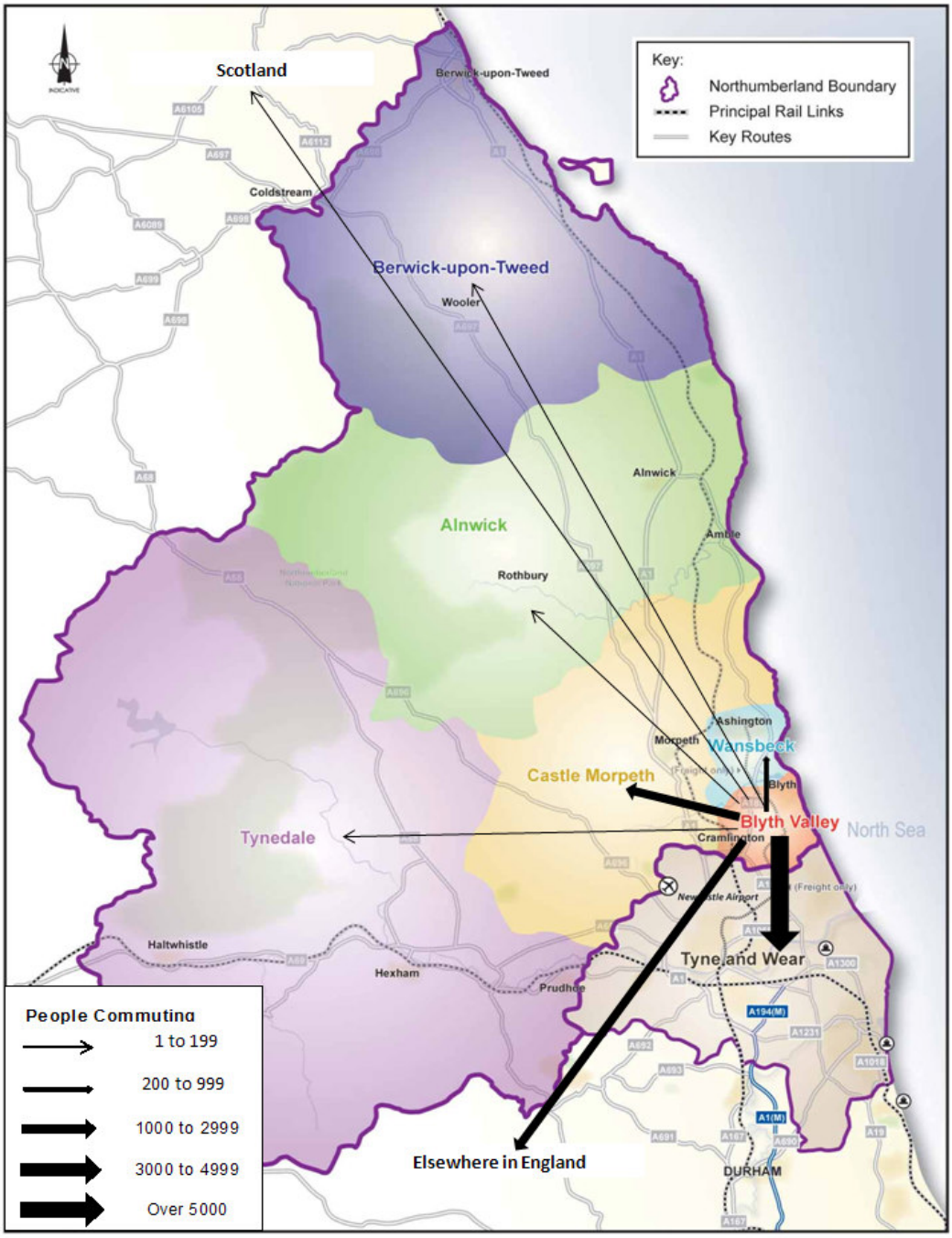


Figure 4: 2001 Census Data, Commuter Flows from Castle Morpeth

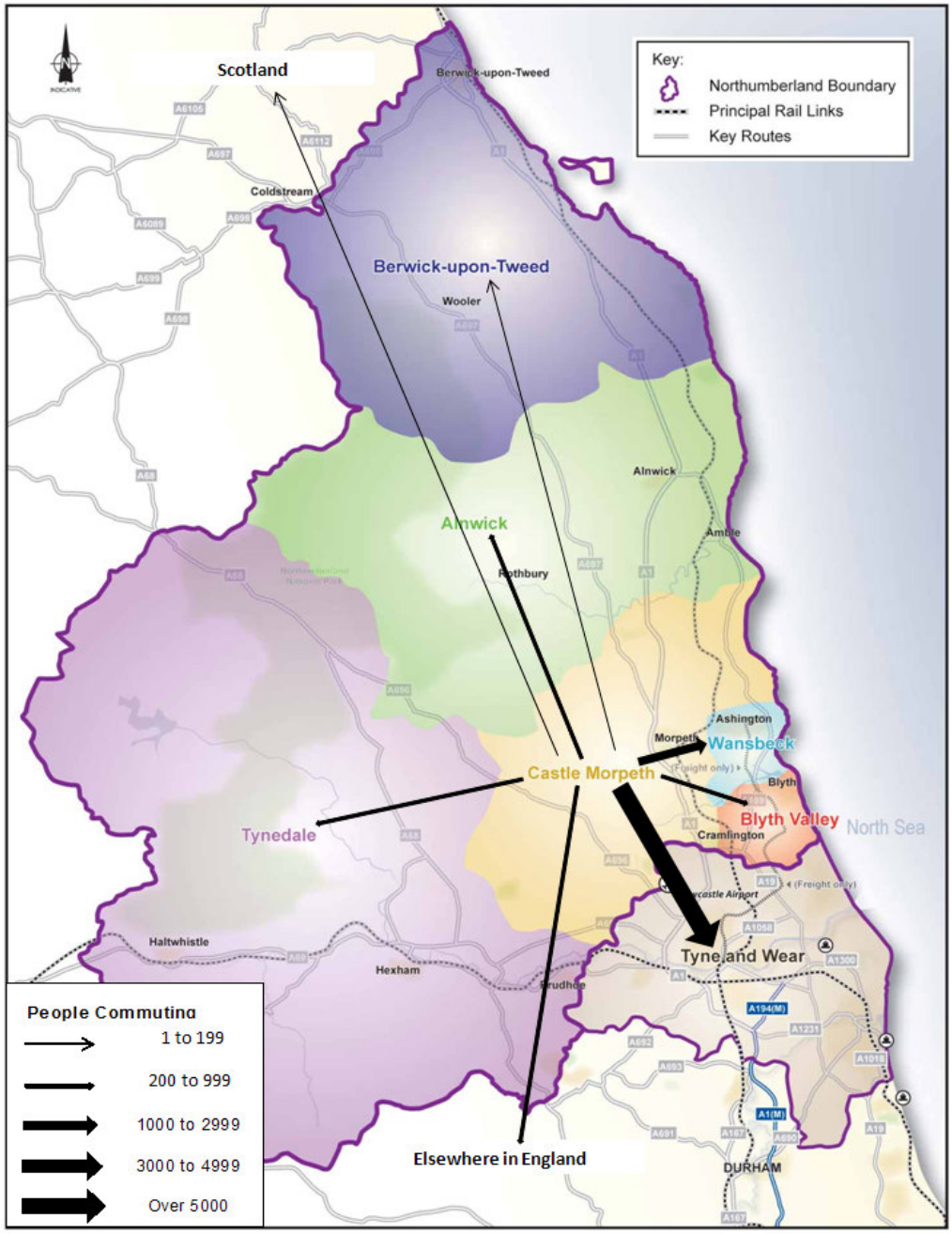


Figure 5: 2001 Census Data, Commuter Flows from Tynedale

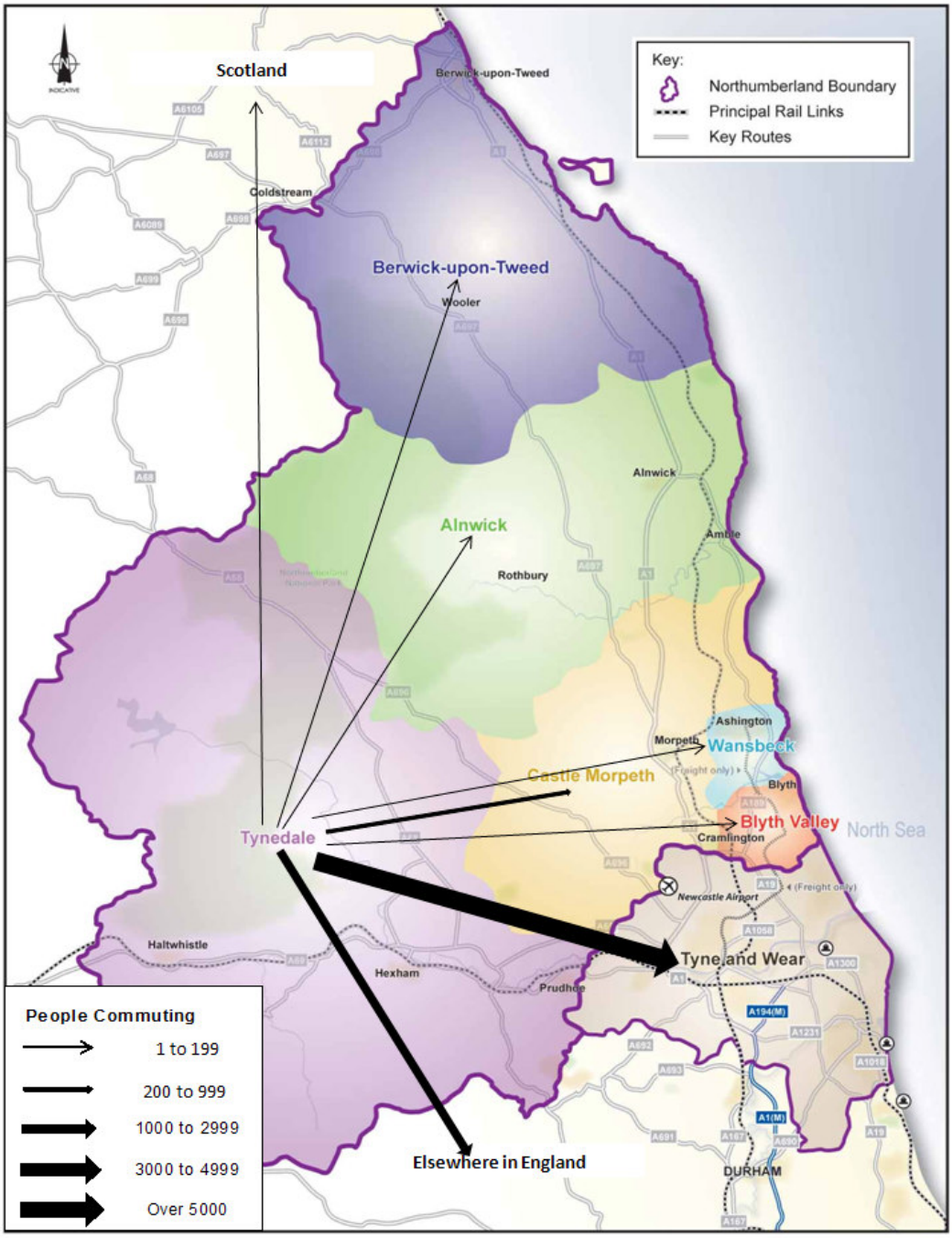


Figure 6: 2001 Census Data, Commuter Flows from Wansbeck

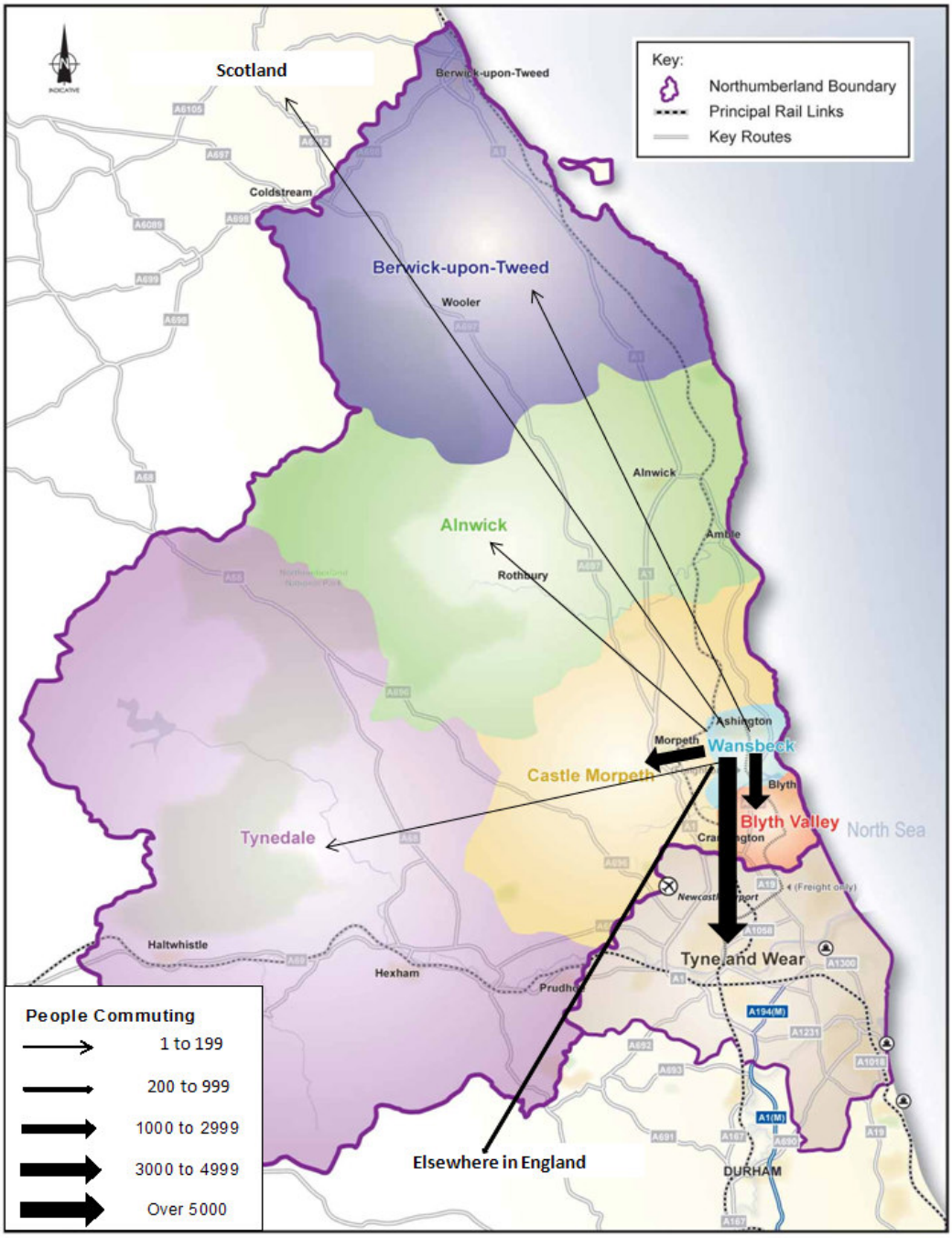


Figure 7: 2001 Census Data, Commuter Flows from Tyne and Wear

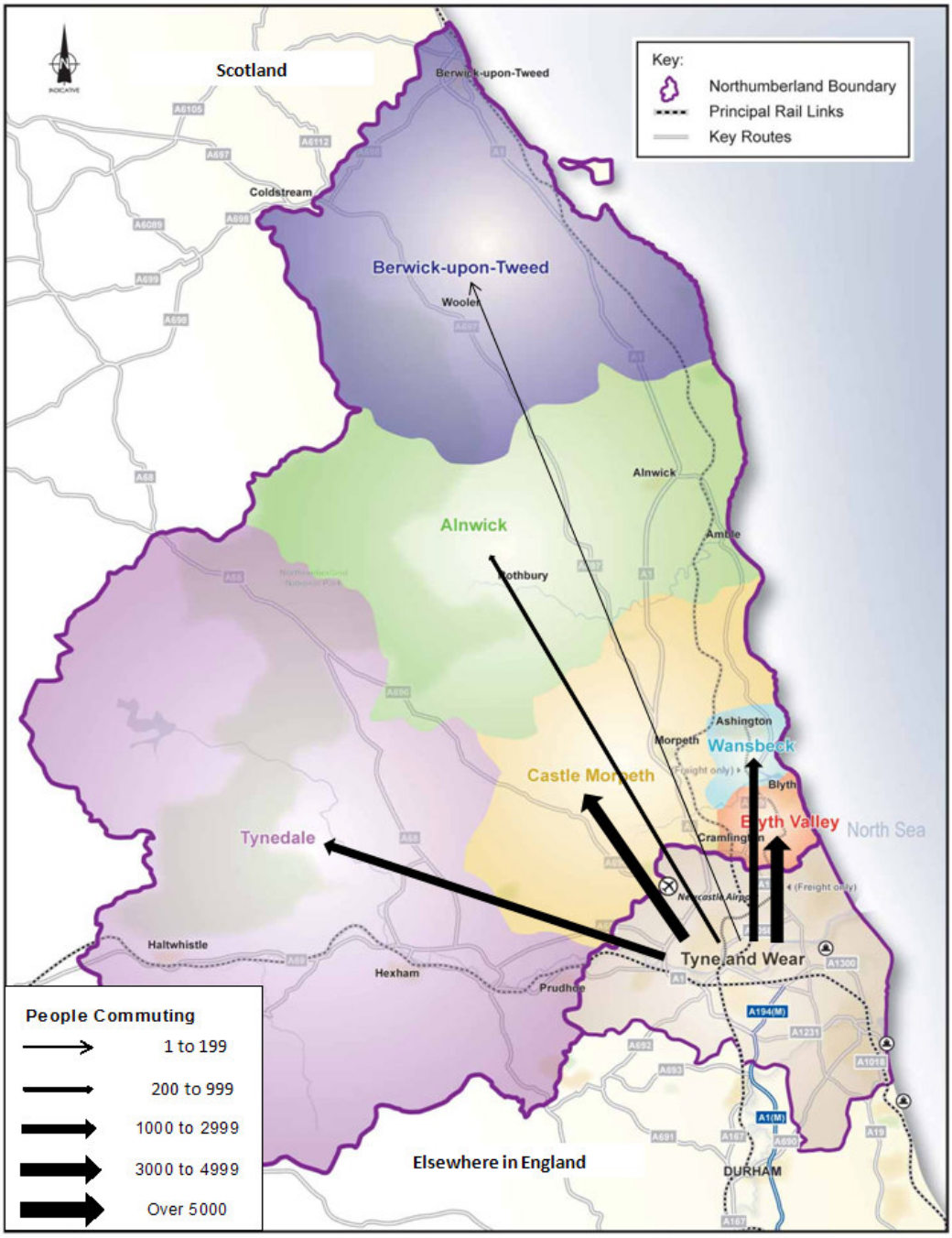


Figure 8: 2001 Census Data, Commuter Flows from Scotland

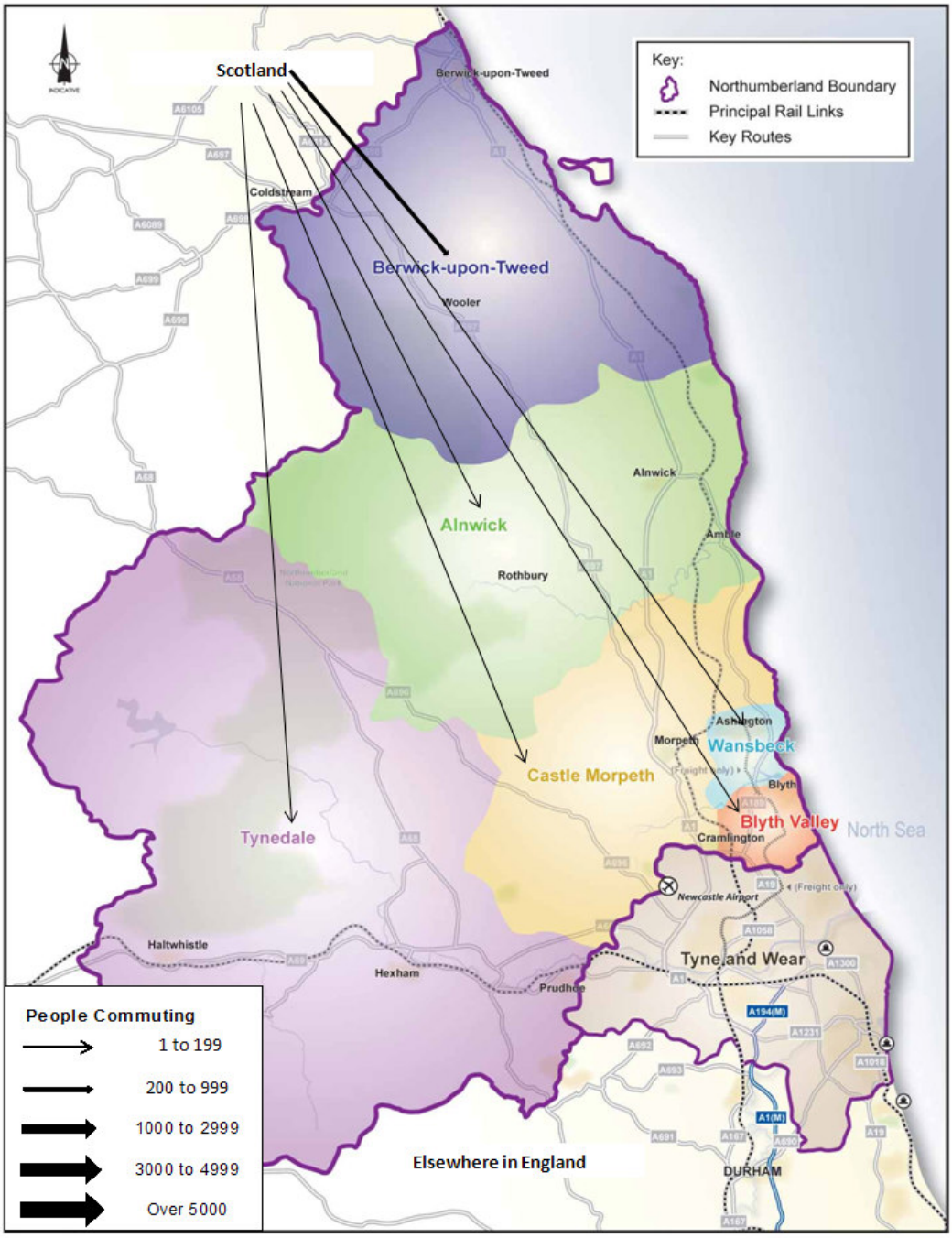


Figure 9: 2001 Census Data, Commuter Flows from Elsewhere in England