Blyth Relief Road
Outline Business Case

Northumberland County Council

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Quality information

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1. Introduction

1.1 Introduction

The purpose of this document is to set out the major scheme business case for a proposed relief road into the town of Blyth, Northumberland. The business case has been prepared in accordance with Department for Transport (DfT) Guidance on the Transport Business Case (January 2013). The document is therefore structured around five distinct cases as follows:

- Strategic case: demonstrates that the scheme is needed;
- Economic case: demonstrates that the scheme offers value for money;
- Commercial case: demonstrates that the scheme is commercially viable;
- Financial case: demonstrates that the scheme is affordable;
- Management case: demonstrates that the scheme can be delivered.

1.2 Background

Northumberland County Council is committed to regenerating the South East Northumberland area, after years of social decline following the closure of the mining industries. This will improve the quality of life and social well-being of its resident population.

Progress is being made and there have been many positive stories in recent years of growth in the North East region. However, much of this growth is centred on the urban core of Newcastle and Gateshead and therefore residents of South East Northumberland must travel to benefit from these opportunities. It is expected that opportunities will continue to be focussed in the Newcastle area and potential for growth will only be strengthened by the recent North of Tyne devolution deal. It is for this reason that Northumberland County Council are actively pursuing the reopening of the Ashington, Blyth and Tyne railway line to passenger services to provide better and quicker connections between South East Northumberland and Newcastle.

However, whilst Northumberland accept that growth will be centred on Newcastle, there are many opportunities in South East Northumberland, particularly in the Blyth area that they want to maximise. Blyth Estuary is identified as an innovation hub and the announcement of development sites at Energy Central poses real opportunity for the area. Currently however, connections into, out of and within Blyth are restricted by traffic congestion and this threatens to stifle the development opportunities coming forward.

In 2015, Northumberland County Council commissioned a study to identify transport problems in Blyth and develop a long list of options, which could be implemented to address these problems. The study looked at not just the current issues, but also the likely future issues if all of the proposed development in the area is realised. As part of a long term strategy for investment, the study concluded that a new road into Blyth would address many of the problems. The study report can be found in Appendix A.

Northumberland have identified five potential alignments for a new road into Blyth to improve connectivity and facilitate growth. The list of five was distilled into a list of three for further review and appraisal; the two options ruled out had a number of constraints, which made them unfeasible within the current environment. The three options have been appraised in a traffic model with a clear winner being identified, which will alleviate both the northern and southern routes into Blyth and reduce barriers to opening up land for employment development.

1.3 Proposed Benefits

A relief road option into Blyth is expected to deliver the following benefits:

- Reduce congestion on the A193 Cowpen Road and A1061 Laverock Hall Road, resulting in journey time savings of over 100 seconds travelling into Blyth on the A193 in the morning peak and into Blyth on the A1061 in the PM peak;
- Reduce road traffic accidents across Blyth through a reduction in the number of vehicles on key routes;
- Improve walking and cycling provision through new and enhanced facilities;
- Improve the living environment for residents through improvements in air quality;
- Open up key development sites for investment.

1.4 Proposed Scheme

The preferred option for investment is a new 40mph single carriageway link connecting the A192 Horse Shoes Roundabout with Princess Louise Road. A connection from Princess Louise Road to Chase Farm Drive will also be provided alongside a new north-south route running parallel to the existing A193 through the centre of town; the north-south route will connect the A1061 with the A193 Cowpen Road. The option will incorporate shared use facilities on either side of the carriageway. The alignment of the preferred option is shown in the figure below.

Figure 1-1: Preferred Option

1.5 Document Structure

Following this introductory section, the document has been prepared with the following structure:

- Chapter 2 – Strategic Case: A summary of the need for the scheme including an overview of the current issues, future challenges and study specific objectives. It is these objectives, which will be used to appraise the success of the scheme;
- Chapter 3 – Economic Case: A summary of the scheme value for money, which has been prepared in accordance with WebTAG guidance and the NECA Assurance Framework;
- Chapter 4 – Commercial Case: A summary of the commercial viability of the scheme;
- Chapter 5 – Financial Case: A summary of the financial case for the scheme, including details on the costs of the scheme and how these costs have been derived;
- Chapter 6 – Management Case: A summary of the proposed governance structure for scheme delivery, risk management, stakeholder management and proposals for monitoring and evaluation.

2. Strategic Case

2.1 Introduction

This section of the business case describes the strategic case for building a relief road into Blyth. It confirms that the major problem in Blyth is traffic congestion, which is restricting the economic growth potential of the area and reducing accessibility to employment, training and leisure opportunities. This compounds the existing problems of social deprivation and slow economic growth, which have been inherent in Blyth since the decline of the mining and manufacturing industries in the 1980s.

The strategic case draws on information about the Blyth economy and the key role of neighbouring authorities in providing education, employment and leisure opportunities. However, it also emphasises the role that Blyth plays in the local economy, with the Blyth Estuary being identified in the North East Strategic Economic Plan as having the potential to become an innovation hub for renewable and low carbon energy, advanced manufacturing and offshore sectors. Information on the future development plans for Blyth, which include significant plans for housing, is also presented in this chapter of the business case.

The strategic case demonstrates the critical need for the scheme, to ensure that the current problems on the highway network do not jeopardise the future development plans identified above. It also provides the context and rationale behind the substantial benefits that the scheme is expected to deliver. The economic benefits are discussed in greater detail in Chapter 3 of this report, the Economic Case.

The strategic case presents a cohesive argument for investment, by showing a clear link between scheme objectives and the problems currently evident in Blyth – and demonstrating further how these objectives align with those of the national Government.

The Government has made clear that its priorities for the future are economic growth and a reduction in carbon emissions. The recent signing of the North of Tyne Devolution Deal in November 2017 will be seen as a step in the right direction towards economic growth and prosperity for the area. A treasury minister suggesting the Devolution Deal could boost the economy by £1.1bn and help create 10,000 jobs. A Blyth Relief Road will reduce traffic congestion on the road network, thus opening up land for economic development and ensuring excellent access arrangements to the Port of Blyth and the wider Blyth Estuary are maintained. A reduction in traffic congestion will also facilitate quicker journey times from residential areas to key areas of employment, which will support plans for significant housing growth in the town. This will not only benefit private vehicles, but public transport as well. A positive impact of the reduction in traffic congestion will be improved air quality and reduction in carbon emissions in the local area. This will create a more pleasant environment for people to get outdoors. The scheme is also expected to result in a reduction in road traffic accidents across the town.

The substantial benefits the scheme will deliver, and the alignment of the scheme's objectives with national priorities, confirm that investment in a Blyth Relief Road is needed now to secure the economic future of Blyth.

The Department for Transport's guidance document, 'The Business Case: Strategic Case', and the North East Combined Authority Assurance Framework outline the requirements for the strategic case. Table 2-1 shows where the information covering these areas can be found in this document.

Table 2-1: Strategic Case Requirements

DfT/NECA Guidance Requirements	Description	Section in Document
Business Strategy	Context of business case, including the strategic aims and responsibilities of organisations involved	2.2
Problem Identified	Describe the problem identified and provide the evidence base which justified the intervention	2.3
Impact of Not Changing	What is the impact of doing nothing?	2.4
Internal Drivers for Change	What is driving the need to change e.g. Improved technology, policy, demand from businesses.	n/a
External Drivers for Change	What is driving the need to change e.g. legislation, pressure?	n/a
Objectives	Specific, measurable, achievable, realistic and time bound objectives	2.5
Measures for Success	What constitutes successful delivery?	2.11
Scope	What is to be delivered and what is out of scope?	2.7
Constraints	What are the high level internal/external constraints e.g. technology, environmental etc.	2.8
Inter-dependencies	Internal/external factors upon which the successful delivery of the project is dependent	2.9
Stakeholders	Outline contribution of stakeholders and any potential conflicts	2.10
Options	Set out all options identified including do noting	2.6

2.2 Business Strategy

At a national level, there is a need to continue to stimulate economic growth by ensuring our transport infrastructure can move our people, goods and services efficiently and effectively. Business markets vary across the nation, with areas in the north requiring intervention to support business growth, enhance business routes to market and reduce the productivity gap. Although the North East area economy has witnessed increasing productivity in recent years (it is a net exporter), it is recognised that lack of infrastructure capacity could hold back required economic growth. The North East needs to continue to capitalise on its export growth and inward investment. The provision of well-connected highway infrastructure, with accessible additional routes to market, will support this need and ensure that the UK and the region can continue to build on its global connections and enhance its productivity.

The Government recognises that good infrastructure is essential to growth, with estimates that over £250 billion of investment is needed to upgrade the UK's key infrastructure, including transport infrastructure, energy infrastructure and digital and communication infrastructure. Not only will investment in our infrastructure stimulate economic growth, it will improve quality of life and the environment in which we live. Five national transport objectives have been identified to appraise investment in transport infrastructure and ensure investment is targeted to those measures that improve our economy, environment and society. The alignment of the Blyth Relief Road scheme against each of these objectives is set out in Table 2-2.

Table 2-2: Strategic Alignment of Scheme

Objective	Scheme Alignment and Rationale
Economic Growth: To support national economic competiveness and growth by delivering reliable and efficient transport networks	A reduction in congestion on the approach roads into Blyth will make the Port of Blyth more accessible. This will enforce its role in the emerging offshore decommissioning market, which has vast potential for growth in the North East. A reduction in congestion will make development land in Blyth, for both housing and employment, more attractive to investors.
Reducing Carbon: To reduce transport emissions of carbon dioxide and other greenhouse gases with the desired outcome of tackling climate change	The proposed Blyth Relief Road will lead to a reduction in congestion and queuing on the highway network. This reduction in congestion will lead to reduced carbon emissions.
Safer and Healthier Travel: To contribute to better safety, security and health and longer life expectancy by reducing the risk of death, injury, or illness arising from transport by promoting travel modes that are beneficial to health	A Blyth Relief Road will reduce congestion on existing routes into Blyth, having a positive impact on the number of accidents on these routes, particularly where accidents are caused by rear end shunts. Traffic modelling has shown that over 400 vehicles could be removed from Cowpen Road in a one hour period in each direction. Measures to support walking and cycling as part of the scheme will also enable the NCN1 route to become a more attractive environment for cycling.
Equality of Opportunity: To promote greater equality of opportunity for all citizens, with the desired outcome of achieving a fairer society	A Blyth Relief Road will reduce barriers to development in Blyth, which will help promote economic growth and provide new employment and training opportunities. A reduction in traffic congestion will result in easier access into and out of Blyth for both private vehicles and public transport. This will ensure opportunities further afield, including in the Tyne and Wear area, are more accessible.
Quality of life: To improve quality of life for transport users and non-transport users, and to promote a healthy natural environment	Quality of life will be improved through greater opportunity and a more sustainable local environment.

Although the Government is focussed on the national agenda for transport, it recognises that more can be delivered at the local level and is a keen advocate of the Northern Powerhouse. The Northern Powerhouse is a proposal to boost economic growth in the North of England, based on urban agglomeration, which aims to reposition the British economy away from London and the South East. Although the Northern Powerhouse includes many different strands, transport improvements are seen to be at the heart of the agenda, to bring the towns and cities closer together.

Transport for the North (TfN) has been established as the transport body for helping to achieve the vision of the Northern Powerhouse. It brings together elected leaders and LEP representatives, working together, to speak to central government with a united voice. The vision of TfN is of a

thriving North of England, where modern transport connections drive economic growth and support an excellent quality of life. TfN recently gained statutory status, with legislation laid in Parliament designed to transport TfN into the first ever statutory sub-national transport body. This is seen as an important step towards transforming the region and achieving the TfN vision.

Whilst much of the work of TfN appears concentrated on the Transpennine belt, connecting Manchester with Sheffield and Leeds, a growing area of focus is on providing better connections between the energy coasts of the North East, Tees Valley, Cumbria and Lancashire. It is expected that transport investment within this corridor could unlock employment, supply chain and housing opportunities. Advanced manufacturing and energy industries have attracted a significant amount of prospective investment, but poor transport infrastructure is currently a key constraint to securing this potential investment.

Within the North East, the Blyth Estuary is identified as both a current and future important economic centre. Enterprise zones around the Blyth Estuary are areas with very good potential for employment opportunities, with Northumberland Development Company – Arch, and partners Port of Blyth and RWE npower looking for inward investment for job creation. The importance of Blyth to the energy coasts has recently been reinforced by the announcement that it had been successful in obtaining a decommissioning license from the Environment Agency. This will see a 2.3ha site, scheduled to be ready for use in 2018, used to manage up to 50,000t of offshore energy materials a year, as the port aims to focus on small-to-medium sized projects. It is essential that congested transport connections between Blyth and the wider region do not jeopardise this exciting opportunity.

Further areas of opportunities for Blyth, in addition to the wider North East, building on the long cultural heritage of the area, is in the field of advanced manufacturing. Industrial strategies have been set out to support conventional heavy industries in the Northumberland Economic Plan 2015 - 2020. The aspirations for the North East is to create clusters of excellence in this industry, create jobs and help sustain and promote the local economy. The sites around the Blyth Estuary lend themselves very well to this type of business. This can be supported by other development sites, such as Energy Central, a potential hub for national and regional electrical distribution.

Whilst the Northern Powerhouse, is seen as a positive step forward in helping to rebalance the national economy, there is increased recognition that a shift from national and regional governance arrangements is needed if local growth is to be achieved, This was highlighted in the Local Growth White Paper 2010 and the Heseltine Review of economic growth 2012 'No Stone Unturned', which led to the establishment of the Local Enterprise Partnerships (LEPs). The aim of the LEPs is to support local growth, encourage business investment and promote economic development. In order to achieve this aim, all LEPs across the country developed Strategic Economic Plans (SEPs) in 2014, that outlined local priorities to maximise growth; the SEPs have recently been refreshed.

The North East SEP has a vision to create a globally competitive economy with more and better jobs. By 2024, the North East Local Enterprise Partnership intends to halve the gap between the North East and the national average (excluding London) on five key indicators:

- Gross value added (GVA) per full time equivalent (FTE);
- Private sector employment density;
- Business density;
- Employment rate; and,
- Unemployment rate.

In order to achieve sustained and structured economic growth, the region must provide over 1 million jobs by 2024, representing 100,000 new jobs or an 11% increase from 2014 in order to close the gap with the rest of country.

The SEP has six key strategic themes:

- Innovation;
- Business Support and Access to Finance;
- Skills;
- Inclusion;
- Economic Assets and Infrastructure; and,
- Transport and Digital Connectivity.

The latter two strategic themes illustrate that the region fully understands the need to develop its place for business to invest and harness the opportunities within the North East. Improving connectivity, in turn facilitates economic growth, enabling people and goods to reach their destination efficiently and effectively.

There is compelling evidence that transport investment will have the maximum impact on productivity, job creation and GVA where it improves the area's strategic connectivity, facilitates visitors, provides reliable access to markets and improves access to all parts of the area and to the priority locations for economic growth.

The SEP stresses the importance of strategic transport investments in areas, which provide quick and reliable links in order to assist trading and export to external markets by road, rail, air and sea. It also stresses the issue of investing in infrastructure that ensures urban centres maximise their potential and allow everyone to participate in the benefits of economic gains.

The proposed Blyth Relief Road will enhance transport links within Northumberland, improving access to jobs, the strategic road network and the Blyth Estuary. The reduction in congestion will provide more attractive land for development and further enhance the attractiveness of the local area as a region in which to invest. The SEP identifies Blyth as a future innovation hub, and improving the transport links into and out of Blyth, will ensure this future aspiration becomes a reality.

The alignment of the scheme against the key criteria of the North East Strategic Economic Plan is outlined in Table 2-3.

Table 2-3: Local Alignment of Scheme

NELEP Strategic Economic Plan Criteria	Scheme Alignment and Rationale
Contribution of the scheme to the creation of new jobs and retention of existing jobs in the North East LEP area	The principle aim of the scheme is to reduce congestion on the local road network and provide improved access to key development opportunities. This is in line with the North East Combined Authority's 20 year Transport Manifesto for the area. The NELEP vision for growth recognises the need for suitable employment land if the economic growth aspired is to be achieved. Previous regional spatial strategies have tended to suggest that much of this growth will be focused 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. However, in order to facilitate this development, it is essential that the identified sites have good road and public transport connections. It is therefore imperative that improvements are made to the transport network in Blyth to remove any existing constraints.
Support of the scheme to	The scheme will have a direct impact on accessibility to and from the

the NELEP area gateways	Port of Blyth, the Blyth Estuary Enterprise Zone and the Cowpen Industrial Estate, for both employees and freight. Port of Blyth is one of the UK's major deep-sea ports and provides a vital trading gateway to world-wide markets. It has recently announced a move into the offshore decommissioning market following confirmation of a successful application for a decommissioning licence from the UK Environment Agency. The Blyth Estuary is identified as one of the North East's Enterprise Zones. This will offer a range of sites for investment into advanced manufacturing, building on the presence of the Offshore Renewable Energy Catapult, with a focus on supporting businesses linked to offshore energy and marine engineering. Alongside the A193 Cowpen Road, is the Cowpen Industrial Estate. This well established industrial area offers a range of industrial and office premises making it an importance employment location for Blyth and Northumberland. Land is available for further development at this site providing that the infrastructure is in place to facilitate this development.
Encouragement of the scheme to the development or retention of skilled jobs (NVQ level 4 and above) and the support to sites that deliver the training for such skills	The scheme will help facilitate the Blyth Estuary Enterprise Zone. This site will help establish Blyth as an innovation hub and become a major player in the energy sector market. This will help to retain skilled jobs in the local area, but is also likely to open up a number of training opportunities.
Provision of sustainable access solutions to existing and growing development corridors, centres and sectors, or support of housing growth	A Blyth Relief Road scheme will provide for pedestrians and cyclists to further complement the cycling facilities which are already present in the local area and provide access to key employment sites in that location. The Blyth Relief Road will reduce congestion on existing public transport routes making public transport, walking and cycling more attractive options for local people. The scheme will also improve the environment for the NCN1 route. Bus operators have been a key stakeholder in the development of the scheme as they recognise the benefits a relief road could have to their operations.
Ensure capacity and speed of transport links to and within the NELEP area are maintained and enhanced.	The scheme will increase the capacity of the transport network and provide quicker and more reliable journey times within and beyond Blyth.
Improved accessibility from residential areas to areas that have employment, education or other opportunities	The principle aim of the scheme is to reduce congestion on the key approaches to Blyth. This will undoubtedly provide better access between key residential areas and employment opportunities. As well as existing employment opportunities, a reduction in congestion on the local road network will open up land for future development. This will further improve the employment opportunities available for residents of Blyth and the surrounding area.

Improvement in the overall quality of journeys, particularly those providing links to employment and health or education opportunities	Quality of journey for people using the existing corridors into Blyth will be improved through reduced journey times and improved journey time reliability. This will reduce the stress of travellers and allow them to make more efficient use of their time.
Improvement in the local environment including improvements in local air quality or reduction in the noise impacts of transport corridors	The proposed scheme will result in a reduction in traffic congestion on the local road network. This will reduce CO2 emission in the area which will have a positive impact on air quality. Not only will this help in combating climate change, it will also contribute to improvements in people's health and well-being and quality of life.
Contribution to an overall reduction in carbon emissions relative to the existing situation	The proposed scheme will result in a reduction in traffic congestion on the local road network. This will reduce CO2 emission in the area which will have a positive impact on air quality. Not only will this help in combating climate change, it will also contribute to improvements in people's health and well-being and quality of life.
Improvements to health, reduction in levels of obesity and improvements in road safety within the area	The proposed scheme will reduce congestion on the key approaches in to Blyth. The reduction in congestion will reduce the prevalence of rear end shunt type accidents which are so prevalent in the Blyth area.

Northumberland County Council aims to make Northumberland a better place in which to live, work, study and enjoy with the constraint of a prudent economic regime. In so doing, it recognises that Northumberland is a special place – somewhere that retains a strong identity, stemming from the unique combination of its landscape, location and heritage offer.

Northumberland's aim is to promote a more prosperous county through sustainable economic growth that provides residents with ready access to high wage and skilled jobs and opportunities to create thriving businesses. However, there is a recognition that the county's capacity to deliver economic growth is inherently linked to the quality and range of its transport and strategic communications network.

The vision of the Council is set out in its economic strategy which has two priorities for transport:

- Ensuring that Northumberland is well connected into the regional economy, with the best possible intra-regional connectivity and external connections via national and international road, rail and air routes;
- Improving transport and infrastructure within Northumberland and the Region.

Providing better connections into and out of Blyth, which is a key area for development, will be essential to achieving these priorities.

The need to enhance economic growth in Northumberland, and provide improved connectivity to opportunities in neighbouring areas, is further emphasised when considering the potential for housing growth. The Core Strategy is currently being developed but is expected to make provision for a large number of houses across Northumberland, with many located in Blyth. It is acknowledged the provision of new transport infrastructure will be essential to achieving these growth aspirations.

The Local Transport Plan for Northumberland helps govern transport investment across Northumberland and the Blyth area. It is aligned with the national transport objectives identified

previously, with emphasis on those objectives considered more important for the local area. A number of priorities are identified within the plan, including options for reducing congestion on the A193 Cowpen Road, one of the key approach roads into Blyth.

2.3 Problem Identified

Work undertaken specifically in support of this business case confirms that traffic congestion on the approach roads into Blyth is one the most important transport issues to be resolved in the Blyth area. This has resulted in a road safety issue in the local area and is identified as a barrier to growth. These problems have substantial implications on the economy, society and environment of Blyth, which is impacting on the quality of life of local residents. The core challenges, which have been identified, and which the scheme is intended to addressed, are summarised in Figure 2-4.

Table 2-4: Emerging Challenges

Emerging Challenge	Rationalised Challenge
With the newly signed North of Tyne Devolution Deal, significant housing and employment growth is proposed to come forward across the Blyth area and will impact upon future traffic demands. This has the potential to exacerbate existing transport infrastructure issues.	Projected increases in traffic growth associated with development growth and increasing car ownership will exacerbate traffic congestion and impact on air quality.
The proportion of the population in Blyth aged over 65 is expected to significantly increase by 2031. This is likely to add pressures on concessionary services. At the same time, the total population is expected to marginally increase, whilst the number of households is projected to increase by 6.8%, and potential impacts on the local transport infrastructure will be dependent upon their location.	
Projected increases in car ownership will have a negative impact on traffic congestion and air quality.	
Existing issues of traffic congestion could act as a barrier to future development proposals	Existing traffic congestion issues could act as a barrier to future development proposals, restricting growth of the local economy.
Private vehicle trips account for the majority of trips to work across all spatial scales. These types of journeys are unsustainable and have the effect of reducing the efficiency of the highway network.	A large proportion of journeys are made by unsustainable transport modes.
The proportion of Blyth residents who use public transport to get to work is low; this is especially true when considering train use.	
There are a significant proportion of internal journey to work movements across Blyth, which places pressures on the local highway network. This situation has the potential to be exacerbated in the future owing to the significant development growth planned to come forward in Blyth, as set out in the new Local Plan	
A continuation of bus patronage decline will put additional strain on the highway network as more people use private vehicles	

Return journeys to Newcastle from Blyth using the car (including parking costs) are only £0.05 more expensive than using the bus. In order to encourage a modal shift, it is likely that bus tickets would need to be made significantly cheaper.	
Journey times using public transport from Blyth to key employment sites across the North East are significant. This is an indication of poor accessibility from Blyth to key employment areas.	
Site visits indicate there are numerous transport problems occurring along the A193 Cowpen Road. These range from route design issues to capacity issues. The problems results in significant congestion and queuing during peak periods	Unreliable journey times are present across Blyth, particularly on the A193 Cowpen Road and the A1061 Laverock Hall Road, owing to congestion along the route.
Arriva bus services have experienced a high proportion of delayed services along the A193 Cowpen Road, largely between its junction with the A189 and Tynedale Drive (although traffic improvements have been recently installed to improve traffic flow). Within this section, there are accesses to the industrial estate and two schools, therefore creating significant volumes of traffic.	
There are congestion issues to the south of Blyth, particularly on the A1061 Laverock Hall Road. Facilities for cyclists on this section of road are also poor, although good off road cycle provision is available.	
Congestion is not just a problem in the peak periods on the A193 Cowpen Road. Problems exist throughout the day and particularly on a Saturday as people use the road to access retail facilities.	
Accidents are more prevalent on particular sections of road in Blyth, most notably along the A189 and A193	Several links and junctions in the Blyth area suffer from a poor safety record which requires improvement

The evidence which has led to the formulation of these challenges is demonstrated in the following sections of this business case.

2.3.1 Spatial Distribution of Land and Population

The spatial distribution of development is an important driver of transport demands and behaviour. This section of the business case focuses on the current and future distribution of population and employment across Blyth in order to better understand the key generators of trips. New development sites and jobs will come forward in Blyth, and consequently, travel patterns will increase and change. Similarly, demand to access jobs outside of Blyth in key employment areas such as the Cobalt Business Park in the neighbouring authority of North Tyneside, will also change travel demands going forward. The new Blyth Relief Road needs to account for the change in demands to enable the developments to occur and flourish in the future.

Blyth is the largest settlement in Northumberland and constitutes a significant employment base for the local population and in-commuters, and provides homes for people who work, shop and spend outside the town. Indeed, the town is regarded in the Northumberland emerging Local Plan

as a 'Main Commercial Centre' due to its good level of retail provision and its role as a community hub for a large population. The main employment zones are located on the northern and eastern edges of the town, with recent housing developments also being located in similar peripheral locations. It is expected that this spatial pattern for future development growth will continue.

Future changes in the spatial distribution of development will have a big impact on the operation of the transport network in Blyth. Both local and central government will have bold aspirations following the recent signing of the North of Tyne Devolution Deal, forecasting a major boost to the local economy for jobs. Blyth is also expected to be a hub for housing growth. It is intended that significant housing growth will support the rejuvenation and revitalisation of the local area which has been characterised by a consistent under delivery of housing in recent years compared to housing allocations in existing Local Plans. Potential housing locations are shown in Figure 2-1. However, although Blyth will be the location of significant housing development, it is not expected that all of the residents will work in Blyth, with the Census 2011 showing two thirds of commuter trips with an origin in Blyth having a destination outside of Blyth. Key destinations include the wider Northumberland area and Newcastle and North Tyneside. It is therefore essential that connections into an out of Blyth are improved.

As a 'Main Town', Blyth is also regarded as a hub for employment growth. Blyth Estuary has been identified as a strategic employment area and accommodates around 220 hectares of land. It is being actively promoted to the renewable and low carbon energy, advanced manufacturing and offshore sectors, and is regarded as having the potential to become an 'innovation hub' in the SEP in this field of activity.

The potential to attract inward investment across this area is supported by a number of business incentives to facilitate investment, which help to distinguish the Blyth Estuary area as a key focus for employment growth.

In particular, nearly 17 hectares of land at East Sleekburn and Blyth Quayside are designated as Enterprise Zones, offering financial assistance to businesses developing within these areas. At the same time, land at Bates Colliery and East Sleekburn (73 hectares) is covered by 'Local Development Orders' to 2019 which automatically grant planning permission for certain types of industrial development. The extent of this employment hub is shown in Figure 2-2.

The development of the Blyth Estuary presents a real opportunity to grow the economy of Blyth, which has suffered significantly since the closure of the mining industries. It will also help to create private sector economic growth in the North East region, which is so essential for an area currently heavily dependent on the public sector for work. Not only will this benefit the resident population of Blyth, it will also provide employment opportunities for residents from outside of Blyth to strengthen linkages already present; Census 2011 showed that 50% of journey to work trips with a destination into Blyth come from outside the area, with key origin points being the wider Northumberland area and Tyne and Wear. However, to ensure this economic growth becomes a reality, it is essential that the links are in place to ensure the easy movement of people and goods to and from the proposed development. This means removing bottlenecks, which currently exist on the highway network, such as congestion on the A193 Cowpen Road and the A1061 Laverock Hall Road, and building the capacity within the transport network to accommodate the projected growth in demand.

Population trends in the Blyth area, and the wider region, will have a direct impact upon transport demands; both in terms of the overall levels of population and the spatial distribution of this population.

Historically, the North East region has had a declining population but the wider Blyth Valley area saw a small increase in population between the 2001 and 2011 Census of 1%. Although Blyth Valley saw an increase in its population, the percentage of the working age population is lower than the national average. According to TEMPro software, which presents forecasts from the National Trip End Model, the working age population is forecast to reduce further in the local plan period, with an 8% reduction in Blyth. This suggests that the working age population of Blyth may be moving out of the region in search of better jobs in more prosperous regions. If the economy of Blyth, and the

region, is to grow, it is imperative that the right infrastructure is put in place to facilitate economic development and make Blyth an attractive place for businesses to invest and people to live and work. The strategic employment site at Blyth Estuary will go some way to achieving this, providing that the right infrastructure is put in place to ensure it is delivered.

Figure 2-1: Proposed Housing Development in Blyth

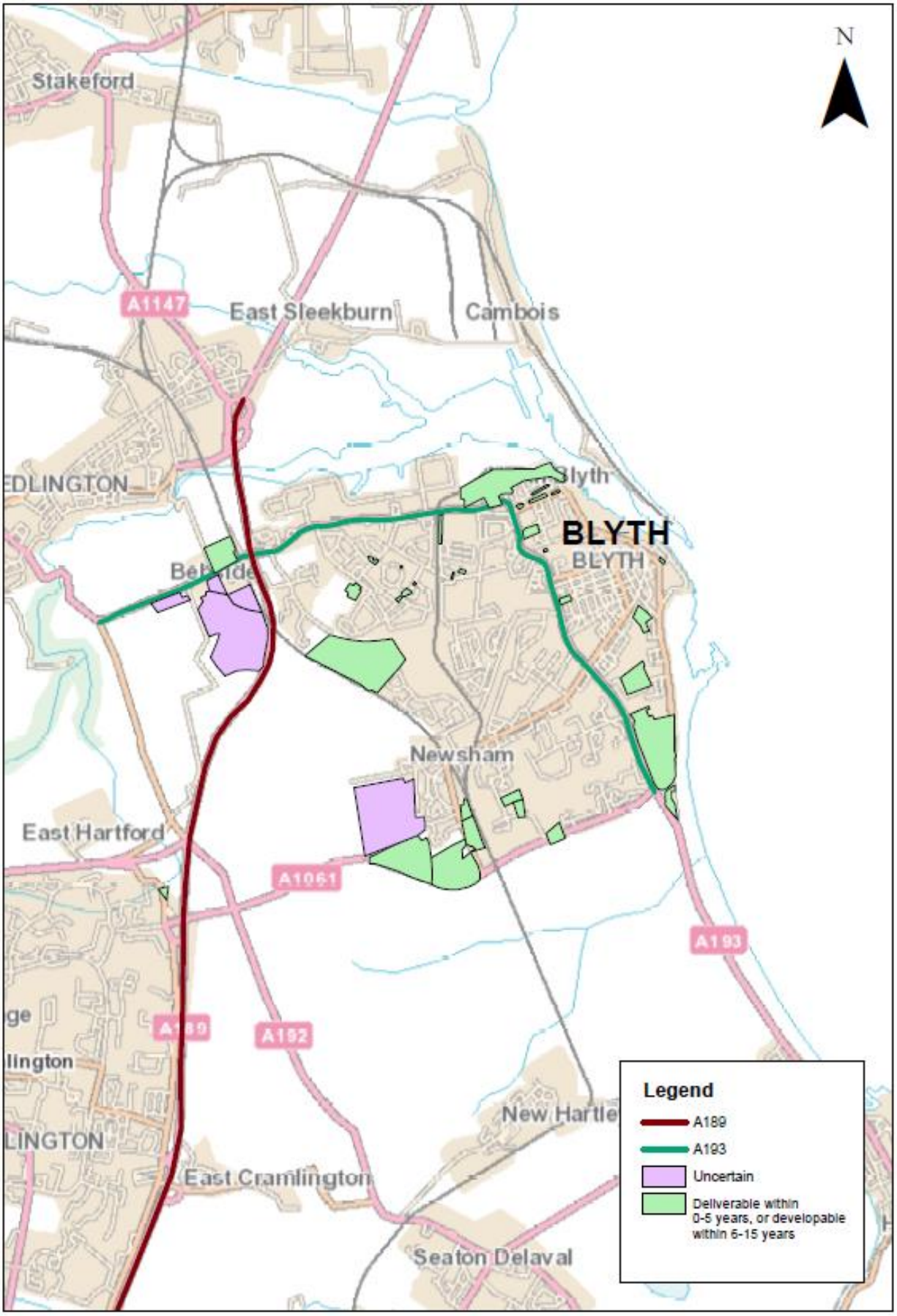
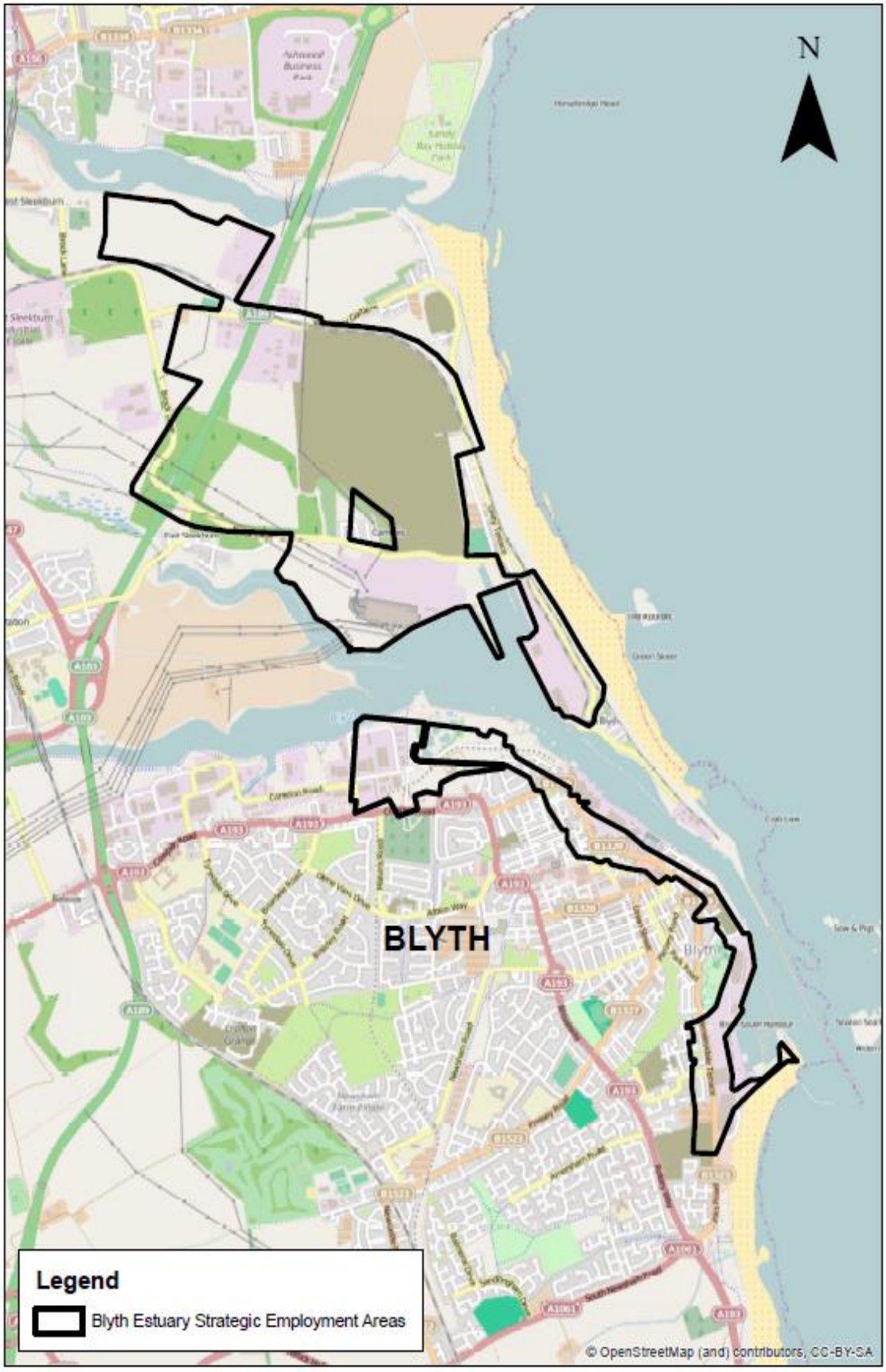


Figure 2-2: Proposed Employment Development in Blyth



2.3.2 Transport Network and Problems

The existing transport network in Blyth is limited to the road network, with the railway line serving the area closed as part of the Beeching cuts in the 1960s. The extents of the transport network in Blyth are illustrated in Figure 2-3. The A189 acts as the key arterial route for Blyth, providing the predominant means of access and egress to the town. The A193 constitutes the primary route through the town, providing access to key services such as schools and Blyth Hospital. The A1061 Laverock Hall Road provides the key route into the south of Blyth and serves a number of residential areas, as well as being an abnormal load route for the Port of Blyth. Both the A193 and the A1061 are known to be congested during peak periods, with issues of congestion illustrated in Figure 2-4 and Figure 2-5

Figure 2-3: Transport Network of Blyth

Figure 2-4: Traffic Queuing on the A189 Slip Road Due to Traffic Congestion on the A193 Cowpen Road

Figure 2-5: Traffic Queued on the A193 Cowpen Road

The traffic congestion identified on the network in the previous figures is caused by the volumes of traffic wanting to access and egress Blyth, with only three key approaches into the town. However, the volume of traffic itself, is not the sole cause of the issues. The A193 Cowpen Road, which is the key radial route to the north of the town, is an urban corridor, which is characterised by a number of pedestrian crossings, right turning pockets and on-street parking. It also serves a number of key destinations, including two primary schools and a retail and industrial facilities. As such, congestion on this corridor is present throughout the day and is not tidal in nature. Whilst the A1061 and A193 Links Road are less cluttered, the A1061 suffers from congestion at key junctions, with noticeable queuing observed on the exit from Blyth in the morning peak and on returning to Blyth in the PM peak.

Queued traffic on the highway network gives a negative impression of the Blyth area. Not only do the traffic queues frustrate the drivers who are travelling around Blyth on a daily basis to go about their daily activities, they act as a deterrent to others who may be considering relocating their home or business to the area. It is therefore essential that these queues are managed so that the future prosperity of the area is not compromised.

These issues of congestion result in unreliable journey times when travelling into and out of Blyth. As highlighted by Eddington in his transport study, journey time reliability is of key importance to transport users, particularly freight operators, as unreliable journey times mean that lost time needs to be accounted for in planning and logistics. Eddington concluded that priorities for long term transport policy should focus on these routes that are showing signs of increasing congestion and reliability in order to facilitate growth. An improvement in journey time reliability for vehicles travelling into and out of Blyth will significantly improve the attractiveness of the Blyth Estuary as an innovation hub. Blyth Estuary is an essential element in the Blyth and wider North of Tyne economy and any measures to improve its attractiveness will benefit the society and the economy of Blyth as a whole.

It is also important to remember that the A193 Cowpen Road and A1061 Laverock Hall Road not only serve highway and freight operations, but are also important public transport routes. Public transport provides an essential service to get those people without access to a car to the places they need to be. This is particularly important when considering the level of deprivation in Blyth and that public transport is often the only real transport option. Bus operators have raised the issue of journey time reliability across the key corridors in Blyth and are supportive of any measures Northumberland County Council can implement to improve the situation. Any improvements to the routes into and out of Blyth will have a positive impact on the operation and attractiveness of public transport as a mode of travel.

It is noted that any improvements to reducing traffic congestion in the Blyth area will positively impact on the local environment, with particular reference to air quality. Blyth was subject to an air quality management area (AQMA) in 2004, but the area was revoked in 2012 due to lower levels of particulates. It is imperative for the quality of life of local residents that this upward trend in air quality improvements does not wane.

Whilst the congestion issues are a concern for journey time reliability, the congestion issues also impact on the number of road traffic accidents in the Blyth area. Improving road safety is a key priority for Northumberland County Council and for achieving national transport goals. However, despite this priority, analysis of accident data between 2009 and 2013 showed 577 accidents across the Blyth area. The location and severity of these accidents is shown in

Figure 2-6 and Figure 2-7.

The figures show that slight accidents are widespread throughout Blyth. In particular, clusters are identified at the A189/A193 and A189/A192 junctions and at Broadway Circle. These junctions are some of the busiest junctions in the Northumberland area, through putting high volumes of traffic on a daily basis.

The data also shows a prevalence of both slight and serious accidents on the A193 Cowpen Road, which is one of the busiest corridors into Blyth in both the peak periods and throughout the day. A

number of causes contribute to accidents in this location, including rear end shunts as a result of traffic congestion. It is therefore anticipated that a reduction in traffic congestion in this location, and the key junctions identified previously, will have positive impacts on the number of road traffic accidents in Blyth. Not only will this benefit the local population in terms of reducing the risk of injury, it will ensure greater network resilience and reduce lost productivity due to injury.

Figure 2-6: Slight Accidents in Blyth 2009-2013

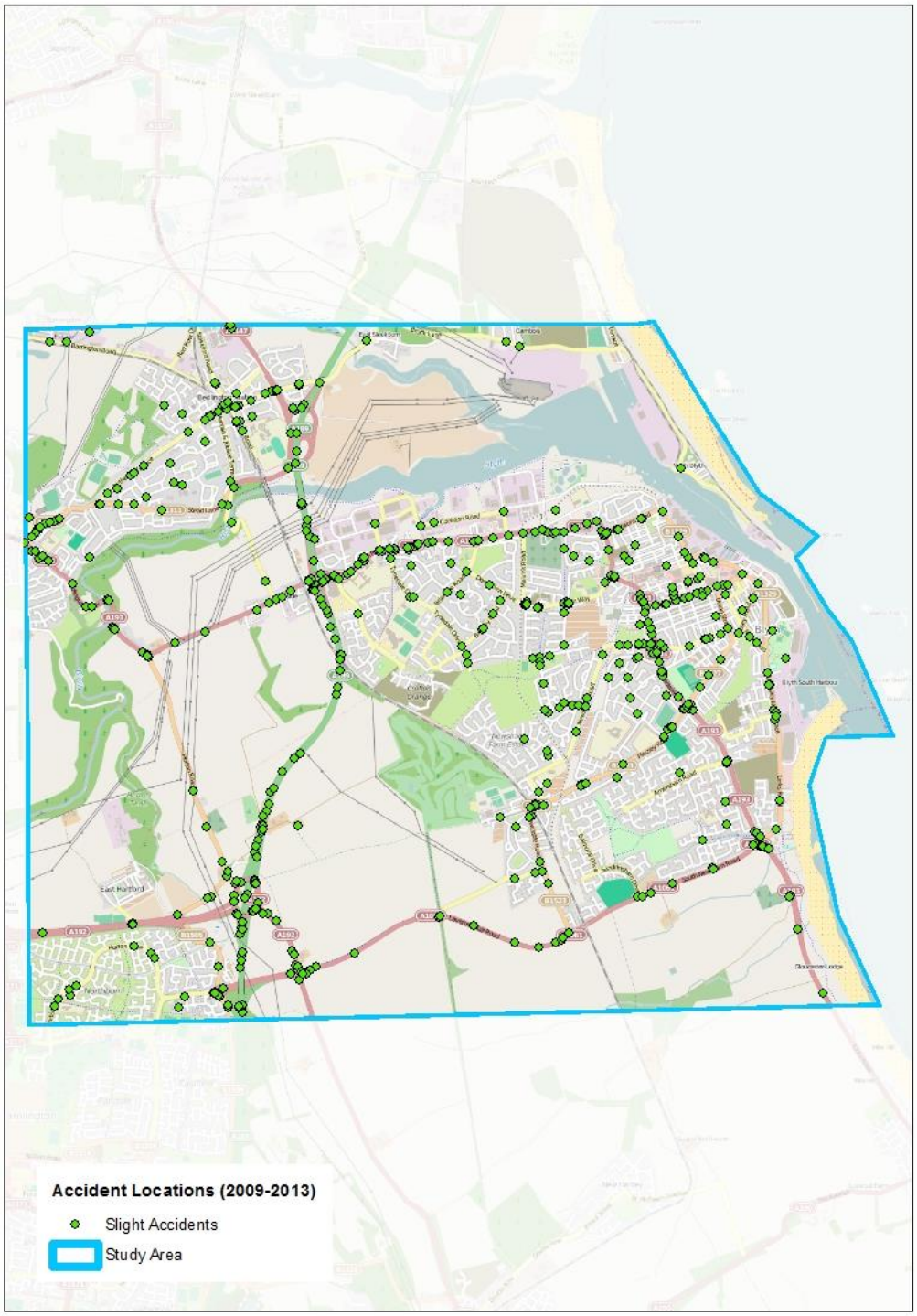
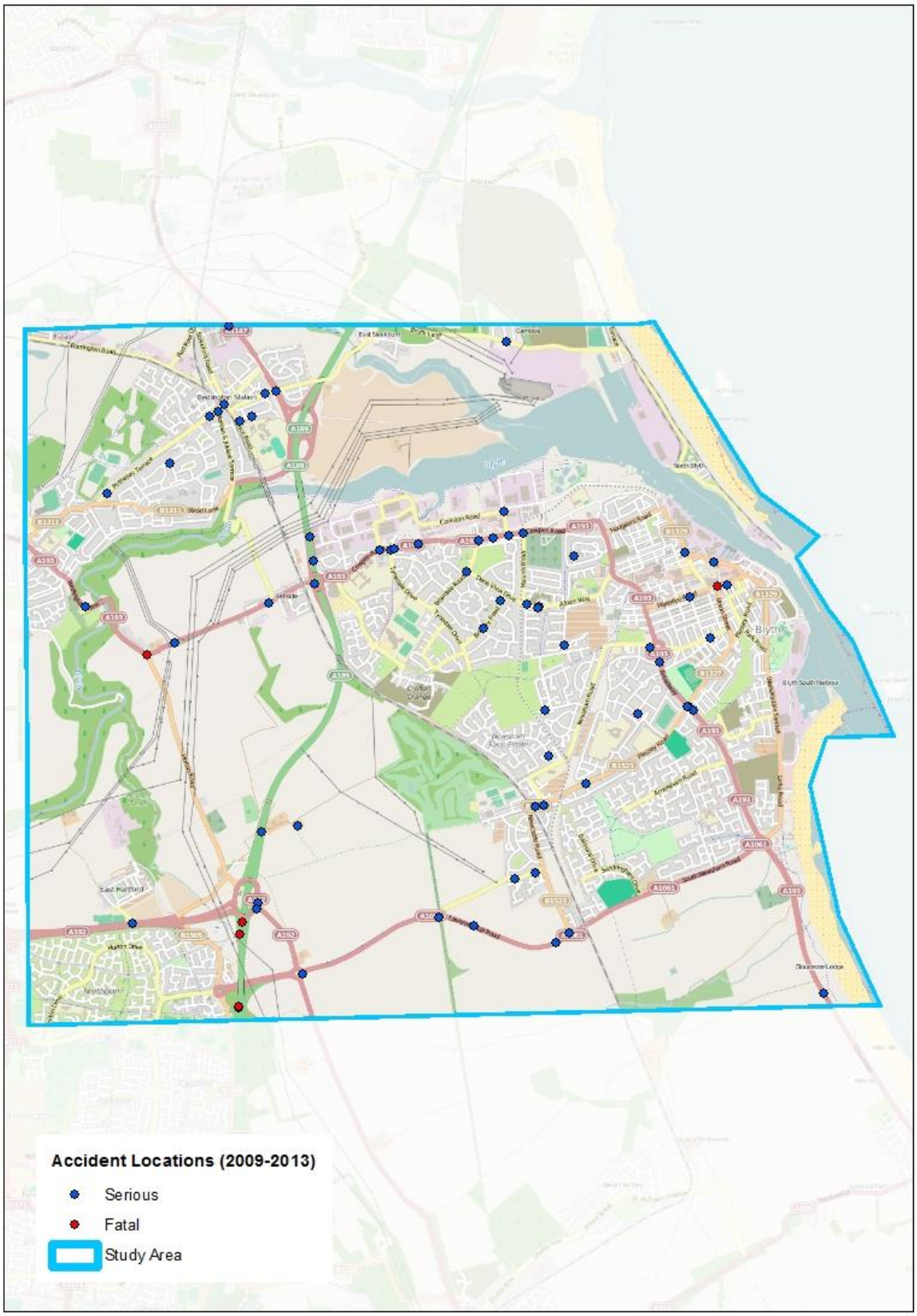


Figure 2-7: Serious and Fatal Accidents in Blyth 2009-2013



2.4 Impact of Not Changing

Without intervention now, the problems identified previously will be exacerbated in the future as car ownership grows and the desire to travel increases. Traffic modelling in support of the Blyth Relief Road shows a number of congestion issues on the highway network which are illustrated in Figure 2-8 and Figure 2-9.

Figure 2-8: Volume to Capacity Ratio in Excess of 85% in 2036 AM Peak

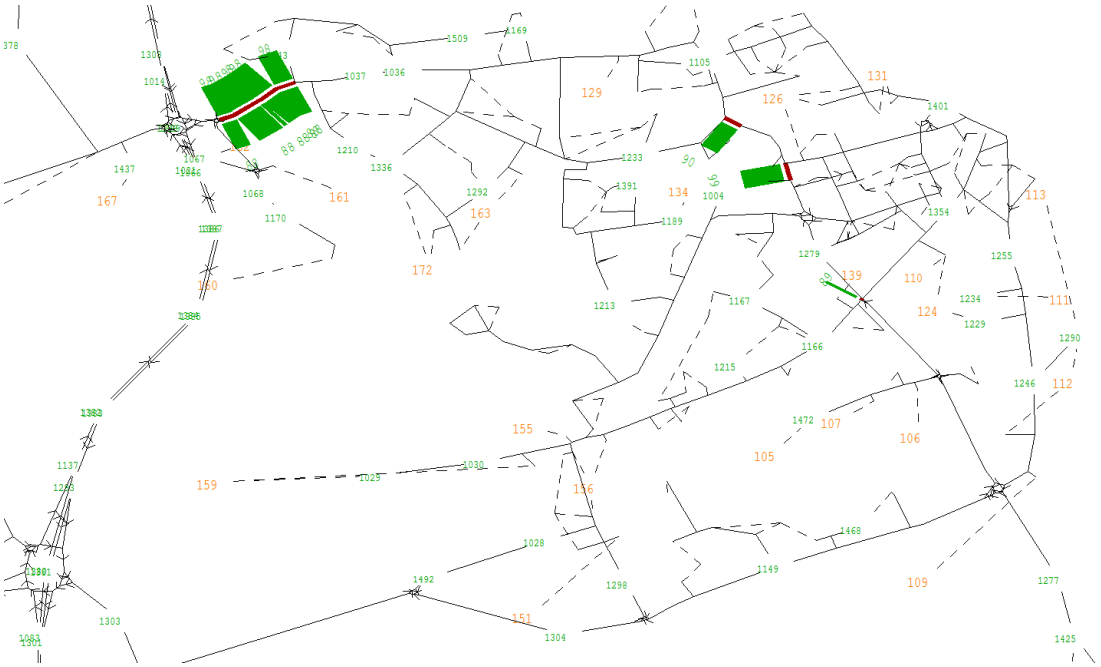
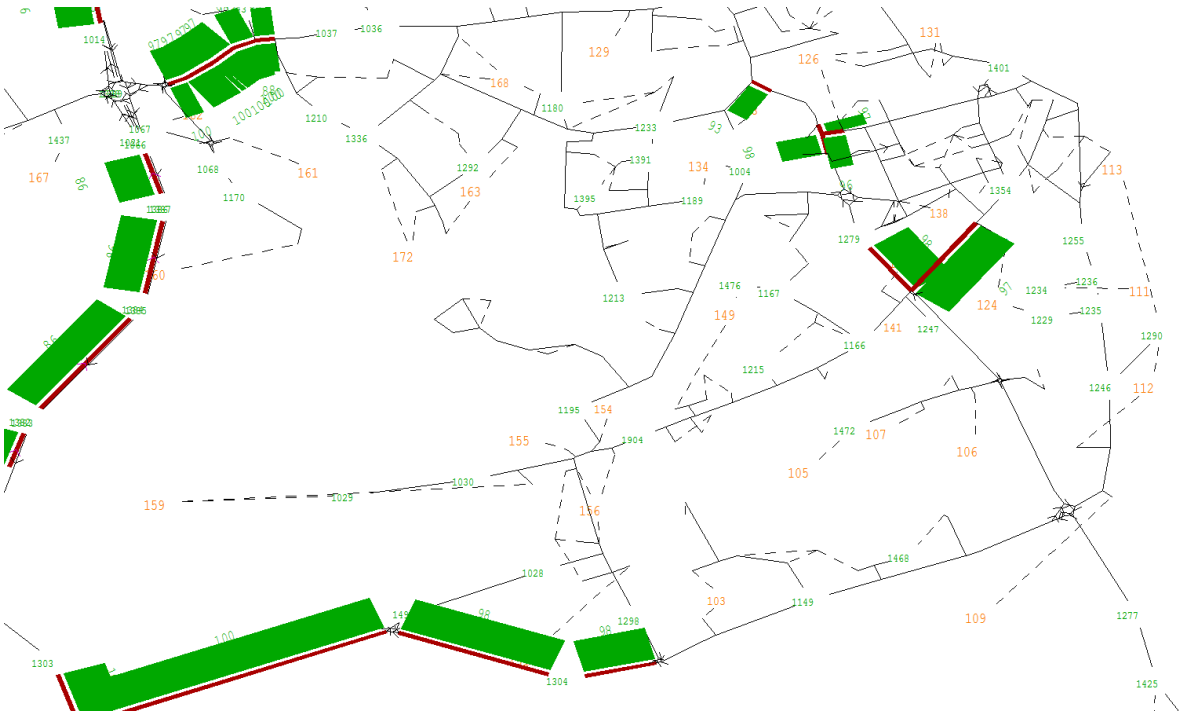


Figure 2-9: Volume to Capacity Ratio in Excess of 85% in 2036 PM Peak



As can be seen in the AM peak, the key issues observed in the model are on the A193 Cowpen Road in both directions and the A193 through the centre of town. Although not flagged as an issue in the

previous figure, the A1061 in a westbound direction is approach capacity in the AM peak with a volume to capacity ratio of 83%.

In the PM peak, issues are still present on the A193 Cowpen Road in both directions and the A193 through the centre of town. However, the modelling shows that the A1061 Laverock Hall Road in an eastbound direction is also a noticeable concern.

The modelling shows an additional problem that will arise in the future if measures are not implemented now to address congestion issues; congestion on the A189 in a northbound direction between the junctions of the A1061 and the A193. Whilst the A189 is an important route serving Blyth, it also serves the wider Northumberland area and congestion on the route will have implications for growth across the region. The relief road that is being proposed will alleviate this route by taking traffic off early that was previously destined for the A193 Cowpen Road.

As eluded to in previous sections, there are wider implications of traffic congestion and poor connectivity in Blyth that will be observed, if money is not invested now in developing the Blyth transport network. It is increasingly recognised that there are critical interdependencies between economic growth and a reliable and efficient transport network. Blyth has been identified as a growth area in local development plans for Northumberland, the SEP for the North East and by Transport for the North as part of proposals to better connect the energy coasts. Any barrier to this growth will impact on the ambitions of the region to increase productivity and play its part in achieving the goals of the Northern Powerhouse.

The transport connections serving Blyth will also help shape the society in that area, impacting on where people live, work, shop and study. Improving access into and out of Blyth will help to increase the number of opportunities available to local residents, which impacts on levels of social inclusion and improves quality of life. Failure to invest now, will increase the gap between Blyth and the key urban areas of the North East, limiting the potential of local residents.

Any investment in the town that reduces traffic congestion will also have a positive impact on the quality of the environment, with improvements to air quality. This will help to achieve the ambitious targets that Northumberland County Council has signed up to in terms of air quality, including the Mayors Covenant, which puts onus on local government to reduce carbon dioxide emissions through their own activities.

In summary, the impact of not investing in the Blyth Relief Road can be summarised as follows:

- Increasing traffic volumes on the A193 Cowpen Road, the A1061 Laverock Hall Road and the A189 will lead to increased congestion, delay to traffic and unreliable journey times;
- The increase in traffic will lead to worsening environmental conditions along key urban corridors, impacting on the ability of Northumberland County Council to reach air quality targets and having a negative impact on the quality of life of residents of Blyth;
- Congestion on the highway network and unreliable journey times could act as a barrier to significant housing and employment development in Blyth. This will impact on the local and regional economy;
- Increasing traffic levels on already congested routes will result in increases in the number of road traffic accidents in the area.

2.5 Objectives

The scheme objectives have been defined to address directly the problems discussed earlier in this chapter of the business case. They align closely with the business strategies for Northumberland County Council and for central government. They have been developed with SMART (specific, measureable, attainable, relevant and timed) criteria in mind, to ensure that they can demonstrate progress and success. The objectives are summarised below.

- Journey time reliability: Improve journey time reliability across the local highway network in Blyth, particularly along the A193 Cowpen Road and the A1061;
- Reduced journey times;
- Road safety: Reduce road traffic accidents amongst all vehicles users on the local highway network in Blyth;
- Air quality: Improve air quality in Blyth by reducing traffic congestion.
- Development: Facilitate economic and housing development by removing barriers to growth.

2.6 Options Identified

The scheme option described in this business case is the culmination of a large amount of analysis, review, revision and consultation over a number of years. The problems of congestion and constrained development were first assessed in 2004, where a relief road was identified as the preferred option to facilitate development. However, in 2015, the problems were revisited, with a long list of options being developed, to address the problems identified. This considered both highway and public transport options, with interventions categorised into short, medium and long term interventions. The short and medium term interventions have largely been delivered, including the recent successful junction improvements on the A193 Cowpen Road, but the relief road remains a longer term aspiration to facilitate future growth and further address public transport reliability, which still remains an issue, even given the introduction of `quick wins' on the highway.

2.6.1 Long List of Options

In total, 48 possible interventions were identified in the stage 1 study covering five categories as set out in Table 2-5 overleaf. The long list was unmanageable for appraisal and was condensed into a shorter list based on the following rationale:

- Grouping: Options which were similar in nature and would have offered identical impacts when rated against challenges and study specific objectives were grouped together;
- Synergies: Options which work together in synergy in a way that would better achieve study specific objectives, compared with assessing each intervention individually, were further grouped together.

The results of this process, which are summarised overleaf, condensed the original 48 options into a manageable list of 17.

The condensed list of options were appraised using the DfT's EAST (Early Appraisal and Sifting Tool). It was agreed that any option scoring negatively against key objectives would be discounted from further appraisal. This removed only one option on safety grounds; the rationalisation of pedestrian crossings. All other options showed varying levels of benefits and it was recognised they could be packaged together for further appraisal and implementation.

Figure 2-10: Packages of Measures

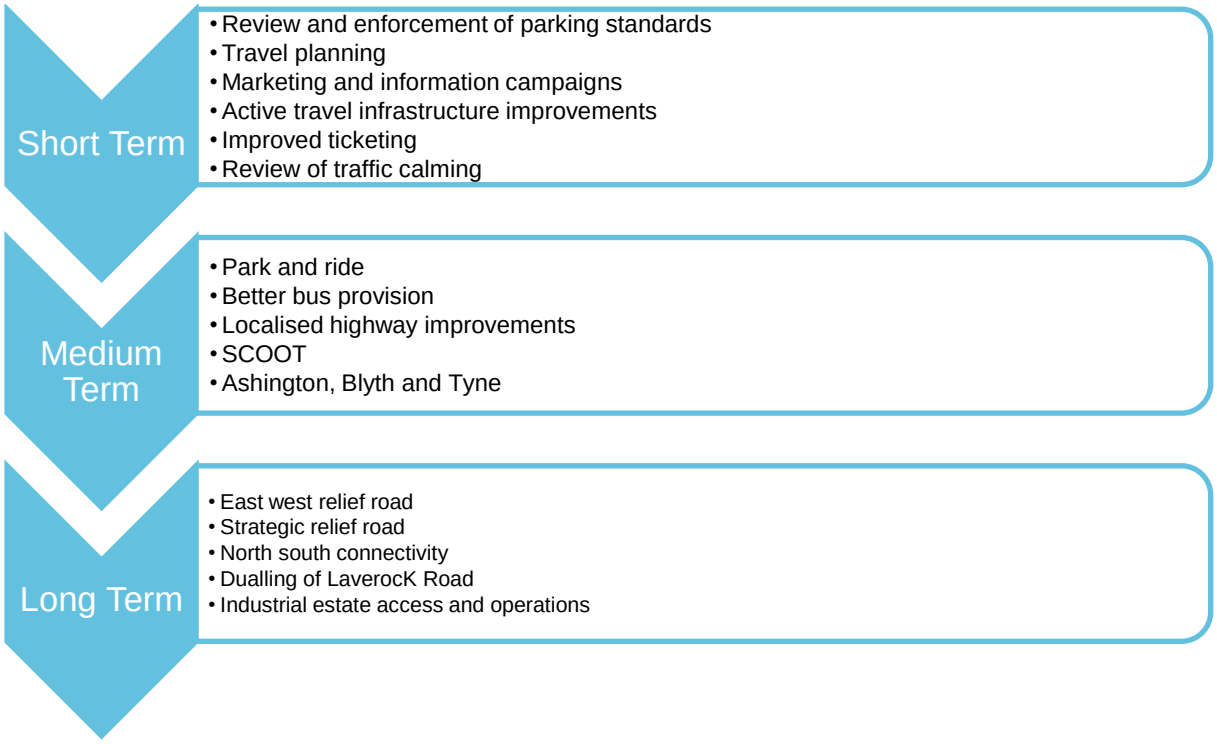


Table 2-5: Long List of Options

Theme	Original Option	Description	Comment	New Intervention Name	Summary of Intervention
Soft Measures	Parking standards	Review of parking standards to ensure adequate but not excessive parking across Blyth with appropriate car parking charges.	Complementary option to parking enforcement and will be appraised as one option	Review and enforcement of parking standards	Develop parking standards which adequately cater for development but do not deter sustainable modes or impact on traffic flows in congested areas.
	Parking enforcement	Greater parking enforcement to reduce level of on-street parking in areas where it impacts on traffic flows.	Complementary option to parking standards and will be appraised as one option		
	Workplace, education and residential travel plans	Work with housing developers, schools and employers, to encourage residents, students and staff, to use sustainable modes of transport. Improvements to existing travel plans could include measures to incentivise public transport travel such as season ticket discounts and loans, a travel buddy system, improved car sharing options, and measures to incentivise walking and cycling.	This intervention is closely aligned with other options and has been consolidated into one option to avoid repetition in the appraisal process.	Travel planning	The implementation of workplace, education and residential travel plans and car clubs and the promotion, and support of flexible working practices.
	Car clubs	Provide car clubs to promote car sharing.	This intervention is closely aligned with other options and has been consolidated into one option to avoid repetition in the appraisal process.		
	Personal travel planning - large employment sites	Work with employers to develop individual travel plans for each employee.	This intervention is closely aligned with other options and has been consolidated into one option to avoid repetition in the appraisal process.		

Theme	Original Option	Description	Comment	New Intervention Name	Summary of Intervention
	Marketing/publicity	Marketing and promotion of different transport options for travel in and around Blyth. Use different mediums such as TV, radio, internet, leaflet drops, advertising boards, on vehicles and social media sites. Consider targeted marketing - key businesses.	This intervention is considered a complementary measure. Whilst the intervention is likely to result in a positive impact against the study specific objectives, it is unlikely that the magnitude of impact will meet the levels required. This intervention will therefore be appraised as part of a package of measures.	Marketing and information campaigns	Better provision of information to inform and educate travellers as to the transport options available in Blyth
	Real time information and on-board information	Provide real time information for public transport services at interchange points and stops. Have signs on board public transport stating next stop.	This intervention is considered a complementary measure. Whilst the intervention is likely to result in a positive impact against the study specific objectives, it is unlikely that the magnitude of impact will meet the levels required. This intervention will therefore be appraised as part of a package of measures.		
	Road safety campaigns	Educate drivers as to the risks involved with driving to try and reduce accident rates in Blyth.	This intervention is considered a complementary measure. Whilst the intervention is likely to result in a positive impact against the study specific objectives, it is unlikely that the magnitude of impact will meet the levels required. This intervention will therefore be appraised as part of a package of measures.		

The short term package would develop the existing transport provision to deliver the greatest transport impact from existing infrastructure. There was an emphasis on revenue supported measures rather than capital measures and the package was largely comprised of non-infrastructure measures such as smarter choices and marketing and publicity. These measures were already being considered by the council as part of the Local Sustainable Transport Fund and it was agreed that they did not require further appraisal. However, it was recognised that, whilst beneficial, it was unlikely they could affect the level of change required to reduce the transport problems identified on the highway network.

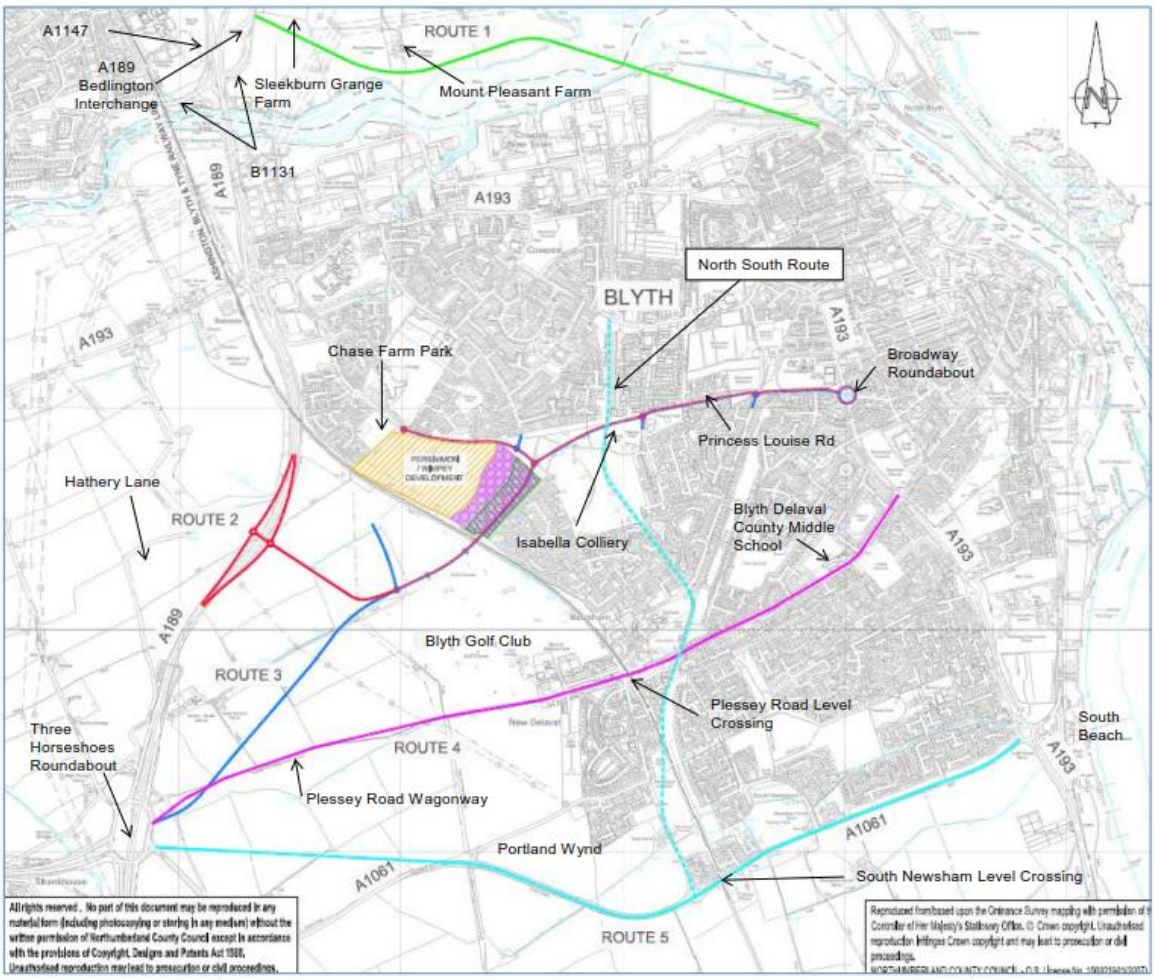
The medium term package of measures required further appraisal to identify the optimum solutions. This package was further appraised in 2016 and resulted in a number of junction improvements to the A193 Cowpen Road corridor. The Ashington, Blyth and Tyne scheme is still being appraised as part of an ongoing study.

The longer term package of measures sought to accommodate the significant growth in traffic expected across the Blyth network associated with future housing and employment development. It therefore focuses on adding capacity to the network with large capital highway projects. It was not intended that all schemes would be delivered, but sufficient information was not available to distil these options further. This shorter list of options therefore required further study.

2.6.2 Short List of Options

In 2016, the Technical Services Design Section at Northumberland County Council undertook an exercise to appraise potential relief road options into Blyth. Five options were considered, alongside a north-south route, as illustrated in the following figure.

Figure 2-11: Blyth Relief Road Options



The options were appraised according to the following criteria:

- Environmental risks;
- Engineering constraints;
- Buildability issues;
- Utilities; and
- Costs.

It was concluded that all route options were viable, but railway level crossing and land acquisition would be an issue. A summary appraisal of each option is given below, with a detailed appraisal report included in Appendix B.

Route	Appraisal
Route 1	Route 1 has significant environmental impact in general, but high environment on the River Blyth Site of Specific Scientific Interest. Ground contamination risk and impact on flow risk are also high. However, it would create a new direct link, opening up regeneration sites to the northern industrial estates. (Total cost estimate of £52.2 million)
Route 2	The viability of Route 2 depends upon successful land acquisition from Persimmon, which could increase the cost substantially. The option has moderate environmental impact in general. The proposed new interchange to the A189 results in a sub-standard weaving length on the A189 between existing junctions.(Total cost estimate of £21.8 million)
Route 3	The environmental impact of Route 3 is generally moderate and would maintain the weaving length on the A189 as existing. (Total cost estimate of £19.7 million, which could increase depending on land costs). As with Route 2, this option would be dependent on successful land acquisition.
Route 4	Route 4 would require a number of adjacent properties to be demolished, which would add to the total scheme cost. The visual, noise and air quality impact is considered to be high for the residents of properties adjacent to the proposed road bridge over the ABT railway. (Total cost estimate of £20.2 million)
Route 5	Route 5 has moderate to low environmental impact. The proposal is compatible with the ABT railway scheme, and the proposed new road bridge will reduce train delays for ABT services and improve road safety for road users. (Total cost estimate of £24 million)
North South Route	The proposed north south route could be built in conjunction with routes 2,3,4 or 5 to improve north-south connections as well as east-west connections into Blyth. The environmental impact is considered to be moderate to low. (Total cost estimate of 24.1 million)

It was considered that the environmental and engineering constraints of Route 1 and Route 2 ruled them out for further appraisal. It was agreed that Routes 3, 4 and 5 would be taken forward to be assessed in the traffic model, to understand the impact of each option on traffic congestion both with and without the north-south route. The traffic modelling and economic appraisal, as discussed in the following chapter of the report, identified that route 3, with the north-south route, would offer the greatest improvement to traffic congestion in the study area. It also delivers a high value for money and has therefore been identified as the preferred option for investment.

2.7 Project Scope

The scope of the project can be defined as: '*To identify a preferred option for improving access and egress into the town of Blyth, reducing existing and projected traffic congestion'*. The key features of the scheme are as follows:

- A new 7.3m single carriageway with a speed limit of 40mph, connecting the A192 at the Three Horse Shoes roundabout with Princess Louise Road;
- A through route connecting Princess Louise Road with Chase Farm Drive;
- A new arterial route to supplement the existing A193 Rotary Way, which will be a 6.75m single carriageway with a 40mph speed limit;
- Improved access to future developments in the Chase Farm Drive area;

- Provision for non-motorised users along the new routes being proposed.

2.8 Interdependencies

The key factors upon which the successful delivery of the project is dependent can be summarised as follows:

- Strategic issues: for example, changes in Government transport policy;
- Appraisal: changes in appraisal guidance, or in gaining formal 'sign-off' from funding decision makers may delay scheme delivery;
- Costs: changes in the outturn costs of the scheme could impact on the value for money of the scheme;
- Environmental: limited environmental surveys have been undertaken and this could identify new habitats or wildlife that need to be considered in the scheme development;
- Consultation: Public consultation is yet to take place and this could result in delays to delivery as a result of issues raised;
- Design: The scheme has only been developed to feasibility stage and detailed design could highlight new issues;
- Statutory: Problems could be encountered when seeking the necessary approvals to construct the scheme.

The successful delivery of the scheme will also be dependent on other transport and development projects that are being delivered in the study area. The key project that needs to be considered is the proposal to introduce passenger services on the Ashington, Blyth and Tyne railway line. Careful consideration would need to be given to the construction of the two schemes to ensure that disruption to the current transport network is minimised; it is noted that the Ashington, Blyth and Tyne scheme is still in the early scheme development stages.

2.9 Constraints

A number of possible constraints exist with the delivery of the preferred option and these will need to be addressed during the detailed design of the scheme:

- Land: Option 3 requires acquisition of land currently owned by Persimmon. Discussions are currently being organised with Persimmon to ascertain their appetite for selling this land. The North South route also requires acquisition of the disused railway;
- Railway: A new road bridge or underpass is required to facilitate the new road across the Ashington, Blyth and Tyne line. The viability of this will depend on discussions with Persimmon and Network Rail;
- Utilities: Option 3 would affect the existing BT apparatus in a number of locations;
- Environmental Issues: Environmental issues are considered to be moderate to low, although detailed additional studies on the environmental impacts of the scheme will be undertaken during the next stage of scheme development.

2.10 Stakeholders

There are a number of stakeholders with an interest in transport provision in the Blyth area. Initial stakeholder consultation was undertaken as part of the stage 1 study, with a broad range of stakeholders invited to a number of workshop sessions. As part of the workshop sessions, the following problems were identified by stakeholders:

- There was a significant problem of traffic congestion on the A1061 Laverock Hall Road during the AM and PM peak hours (which has subsequently been addressed as part of the package of `quick wins'). This is not well evidenced in the data presented in the evidence review. Bus services do not use the Laverock Hall Road bus link as they are unable to exit the junction onto the A1061 Laverock Hall Road. Problems also exist at residential accesses on this section of road;
- There are poor cycling crossing facilities on Laverock Hall Road, which have been improved as a consequence of the package of `quick wins';
- Signing into Blyth to use the A1061 Laverock Hall Road was poor. This means that many vehicles end up using the A193 Cowpen Road. This has now been enhanced as part of the package of `quick wins';
- The level crossing at South Newsham causes traffic congestion when it is lowered for trains. This could be exacerbated in the future if passenger services are reintroduced on the Ashington, Blyth and Tyne railway line;
- Traffic congestion on the A193 Cowpen Road is not just a problem in the peak hours but throughout the day. It also suffers from traffic congestion on a Saturday as people use the A193 Cowpen Road to access retail facilities.

A number of solutions were suggested:

- A review of signal timings on the A193 Cowpen Road to ensure they are optimised to achieve the greatest throughput;
- A review of problem junctions across Blyth to identify junction improvements;
- A relief road to be built in the future to alleviate congestion and accommodate future levels of traffic growth associated with new development.

Given improvements to signal timings and junctions on the A193 Cowpen Road have already been made, the relief road is the final solution to meet the objectives of the study.

As the scheme progresses, further consultation will be undertaken and a stakeholder consultation strategy is currently being developed. Given there is potential for conflict between stakeholder groups over the provision of individual elements, the consultation plan seeks to identify these issues and minimise conflict where possible.

2.11 Measures for Success

Following a process of identifying strategic objectives, in the context of policy, and subsequently identifying suitable project objectives from these, it is possible to align anticipated benefits to each objective. Relevant benefits are derived at this stage through the consideration of a wider framework of both quantifiable and non-quantifiable benefits to ensure the benefits outlined are appropriate to the project. Beyond scheme delivery, the success of the scheme will be measured based on the degree to which the benefits are realised in relation to achieving the scheme objectives. These are outlined in the following table.

Table 2-6: Objective Aligned Measures of Success

Project Objectives	Benefits	Benefit Measure	Relevant Timescale
Improve journey time reliability across the local highway network in Blyth, particularly along the A193 Cowpen Road and the A1061 Laverock Hall Road	A more efficient and reliable road network	Journey time observations	Immediately upon completion
Reduce road traffic accidents amongst all vehicle users on the local highway network in Blyth	Reduction in the number of people killed on injured on the roads, providing benefits to both the economy and society	STATS 19 accident records	Medium term (need time to establish trends)
Improve air quality in Blyth by reducing traffic congestion	A better quality of life for local residents	Air quality emissions	Short term after completion
Facilitate economic and housing development by removing barriers to growth	Improved local economy	Changes in number of jobs Changes in number of houses	Longer term (external factors will also influence)

The delivery against the scheme objectives will be monitored as part of the post-opening scheme evaluation, further details of which are discussed in the Management Case.

2.12 Summary

This chapter sets out the Strategic Case for the Blyth Relief Road and demonstrates how the scheme aligns with the overall strategy of Northumberland County Council and the wider North East region.

The case for change identifies traffic congestion on the key approaches into Blyth as an existing problem and outlines how this is expected to be exacerbated in the future unless investment in the transport network happens now. This will impact on road safety in the Blyth area and air quality issues, with an AQMA previously being designated in the area. The existing and future transport problems in the study area have the potential to hamper proposed development in Blyth and may detract businesses from investing or locating in the area.

Drivers for change include both local and national policy which focuses on job creation and retention within Blyth and the North East. There is also a desire to retain and improve access to key employment sites such as Port of Blyth and the Cowpen Road industrial estate, and facilitate goods vehicle movements to and from these sites.

Four strategic objects have been set out which an improvement scheme must achieve. These are:

- Journey time reliability: Improve journey time reliability across the local highway network in Blyth, particularly along the A193 Cowpen Road and the A1061;
- Road safety: Reduce road traffic accidents amongst all vehicles users on the local highway network in Blyth;
- Air quality: Improve air quality in Blyth by reducing traffic congestion.
- Development: Facilitate economic and housing development by removing barriers to growth.

Key stakeholders have also been identified with a plan for further consultation put in place as the scheme progresses through to detailed design and full business case.

3. Economic Case

3.1 Introduction

The economic case presents the value for money of the preferred option, considering both monetised and non-monetised impacts in terms of their economic, environmental, social and distributional impacts.

The DfT's guidance document, *'The Transport Business Case: Economic Case',* outlines the requirements of the economic case. Table 3-1 shows where the information covering these areas can be found in this document.

Table 3-1: Economic Case Requirements

DfT / NECA GUIDANCE REQUIREMENTS	*DESCRIPTION*	*SECTION IN DOCUMENT*
Introduction	Outline approach to assessing value for money.	3.2
Options Appraised	A list of options (set out in the Strategic Case) that have been appraised.	3.4
Assumptions	Assumptions, in addition to those required by WebTAG) supporting the analysis.	3.5
Sensitivity and Risk Profile	Set out how changes in different variables affect the Net Present Value/Net Present Cost. The risk profile should show how likely it is that these changes will happen.	3.6
Appraisal Summary Table	Produced in accordance with WebTAG.	3.7
Value for Money Statement	Produced in accordance with VfM guidance.	3.8

Further detail regarding the modelling and economics can be found in the suite of traffic modelling reports submitted alongside this business case.

3.2 Approach to Appraisal

Whilst there are many different methodologies available for undertaking economic appraisals of highway schemes, the most common methodology is through the use of Transport User Benefit Appraisal (TUBA). The use of TUBA is WebTAG compliant and acts as the DfT's appraisal software for calculating benefits to transport users and providers.

Inputs of travel distance, travel time, and demand for Reference Case and Do Something scenarios are entered, and the economic value of the scheme over a defined appraisal period is calculated by comparing the user benefits and costs incurred in the proposed Do Something scenario with that of the Reference Case. The comparison is carried out with regard to link transit times, vehicle operating costs and wider public finances. This benefit is then offset against the cost of the scheme to determine its value for money via a benefit to cost ratio.

For the purpose of the assessment of the Blyth schemes, TUBA version 1.9.7 has been used. The TUBA assessment has been carried out using time, distance and demand outputs from the Blyth SATURN model. A summary of the model development is set out below and more detail can be found in the *Blyth Traffic Model Local Model Validation Report.*

Accidents have been appraised using the DfT's Cost and Benefit to Accidents – Light Touch (COBALT) software. COBALT assesses the safety aspects of road schemes using detailed inputs of separate road links and road junctions that would be impacted by the scheme. The assessment is based on a comparison of accidents by severity and associated costs across an identified network in 'Without-Scheme' and 'With-Scheme' forecasts, using details of link and junction characteristics, relevant accident rates and costs and forecast traffic volumes by link and junction. The COBALT software uses inputs from the Blyth traffic model.

3.3 Traffic Modelling

The Blyth Relief Road scheme has been identified to address congestion issues within the town of Blyth; the key areas of concern are on the A193 Cowpen Road and the A1061 Laverock Hall Road. The Blyth traffic model was developed to be used as a tool to appraise the impacts of a number of relief road options.

The Blyth SATURN model has a base year of 2016 and covers the AM, PM and inter-peak periods; 0800-0900, 1700-1800 and an average hour between 1000-1600 respectively. The extents of the traffic model cover the whole country, however only the town of Blyth and the surrounding network have been coded in detail, as illustrated in the figure below.

Figure 3-1: Area of Detailed Modelling

The model contains five user classes as follows:

- Car Commute;
- Car Business;
- Car Other;
- Light Goods Vehicles;
- Heavy Goods Vehicles.

A large scale data collection exercise was undertaken to inform the development of the model, with Roadside Interviews being undertaken to capture traffic travelling into and out of Blyth; these are the trips that will reassign to a new link. Further information regarding the data collection exercise can be found in *Blyth Traffic Model Report of Traffic Surveys.*

The model met all required convergence criteria in the base year and future years. It calibrated and validated well against links flows and journey times. Validation was undertaken against 10 journey times across the Blyth area and all 10 journey times validated in each of the three peaks. Link flow calibration and validation also showed a high percentage pass criteria in each of the peaks. The level of calibration and validation is documented in the *Blyth Traffic Model Local Model Validation Report.*

3.3.1 Development of a Reference Case Model (Do Minimum)

The future year reference case model acts as the reference case future year scenario from which a direct comparison can be made with the option models. The reference case network is often the existing situation but must include any committed transport scheme. Since the start of construction of the base year SATURN model, the A193 Cowpen Road scheme and the Morpeth Northern Bypass have been built. Both schemes were coded into the reference case model.

The base year demand matrices were growthed to represent two future forecast years; 2021 as the scheme opening year, and 2036 as the scheme design year. Development information was included under a range of different sensitivity testing. The demand within the model was constrained back to TEMPro in accordance with WebTAG guidance. Further information on the construction of the future year demand matrices can be found in the *Blyth Traffic Model Traffic Forecasting Report.*

3.3.2 Development of a Scheme Model (Do Something)

Three scheme models were constructed to model the three options being considered:

- Option 3: A single carriageway road from the A192 Three Horse Shoes Roundabout to Ogle Drive. The link between Ogle Drive and Chase Farm Drive will also be connected;
- Option 4: A single carriageway road from the A192 Three Horse Shoes Roundabout to Plessey Road;
- Option 5: Realignment of the A1061 to provide a direct dual carriageway connection to the A192 Three Horse Shoes Roundabout.

3.4 Options Appraised

Following the option appraisal process, three options were identified for further appraisal as identified in the preceding paragraph. It was agreed that once a preferred option was identified, it would be modelled alongside a north-south improvement route to further maximise connectivity improvements within the town of Blyth.

3.1 Economic Appraisal Input and Assumptions

The economic appraisal using TUBA requires the definition of a number of inputs and a number of assumptions to be made. These inputs and assumptions are summarised in this section.

3.1.1 Appraisal Period

A sixty year appraisal period has been defined for the Blyth Relief Road scheme, in line with conventional economic appraisal.

3.1.2 Annualisation Factors

The annualisation factors used with the TUBA economic assessment are used to expand the modelled periods over the whole year to enable a full assessment of the benefits. The Blyth traffic model consists of three peak periods; the AM peak (0800-0900), the inter-peak (average 1000-1600 hour) and the PM peak (1700-1800). The model outputs, which inform the TUBA process therefore represent one hour in a typical weekday.

The first stage of the process is calculating the adjacent peak hour flow to see what proportion of it should be included in the peak period. Analysis has been undertaken of the Automatic Traffic Count data from the four Road Side Interview sites discussed in the *Blyth Traffic Model Report of Surveys*.

Table 3-2: AM Peak Period

Time	Count	% of Peak Hour
0700-0800	4850	90%
0800-0900	5370	100%
0900-1000	4427	82%

Table 3-3: PM Peak Period

Time	Count	% of Peak Hour
0700-0800	6080	97%
0800-0900	6291	100%
0900-1000	5157	82%

If the shoulder peak hours are added to the peak hours, peak hour to period conversion factors are calculated as follows:

- AM Peak: 2.73
- PM Peak: 2.79

It is assumed that there are 6 hours in the inter-peak representing the hours between 1000-1600.

No benefits have been assumed for the off-peak or weekend traffic, although the A193 Cowpen Road is known to be just as congested on a Saturday, as people use this corridor to access the retail developments.

The peak hour to period factors are converted to annual values by multiplying by 253; the number of weekdays in a year less bank holidays. This gives annualisation factors for the TUBA program as follows:

- AM Peak: 690 hours
- PM Peak: 706 hours
- Inter-peak: 1518 hours

3.1.3 Scheme Costs and Optimism Bias

Scheme costs were calculated for all three options by the Technical Services Team at Northumberland County Council in accordance with guidance in TAG Unit A1.2 Scheme Costs. A north-south route was also costed, which will be built alongside the preferred relief road option to improve internal connectivity into Blyth. Costs are presented in Table 3-4 below.

Table 3-4: Calculated Do Something Costs

Cost Element	Base Cost at 2017 Prices (millions of £'s)			
	Option 3	Option 4	Option 5	North-South Route
Construction Cost	7.9	9.1	11.2	6.9
Design and supervision	0.8	0.9	1.1	0.7
Land	2.1	0.4	0.8	2.3
Planning application	0.2	0.2	0.2	0.2
Part 1 claims	1.4	2.0	1.7	5.1
Risk	1.2	1.3	1.5	1.5
Site investigation	0.1	0.1	0.2	0.1
Optimism bias	6.0	6.2	7.2	7.3
Total	**19.7**	**20.2**	**24**	**24.1**

The costs in the table above do not include Value Added Tax (VAT). In accordance with guidance, given that a quantified risk assessment has not yet been undertaken, an optimism bias of 44% has been applied to the costs.

3.1 Sensitivity and Risk Profile

3.1.1 The Core Scenario

To represent traffic volumes in the scheme opening and design years, forecasting methods must be applied to the base year model demand matrices. Traffic from future developments and background traffic growth due to changing car ownership levels and household incomes were analysed to determine the level of traffic growth.

An uncertainty log was developed to determine how likely future developments are to occur. Developments are classified as either Near Certain, More than Likely, Reasonably Foreseeable, or Hypothetical depending on their planning status. This information can be found in the Traffic Forecasting Report.

Background traffic growth is determined from TEMPro. Together the uncertainty log and the TEMRPO growth determine the level of forecast growth between the base year and the opening and design years. Total growth is constrained to that given by TEMPro.

WebTAG Unit M4 provides guidance on how to develop the basis for forecasting. This is known as the Core Scenario which should be:

- based on published plans (not including speculative proposals);

- unbiased (that is, as likely to be over or under achieved, given existing plans and evidence);
- coherent and self-consistent (if X is unlikely to go ahead unless Y also goes ahead, then X should only be included if Y is also included); and
- realistic and plausible.

The Core Scenario includes those developments which are classified as Near Certain or More than Likely.

3.1.2 Uncertainty in Traffic Forecasts: High Growth and Low Growth Scenarios

In addition to the Core Scenario, two alternative scenarios have been developed to answer the key questions:

- Under high demand assumptions, is the intervention still effective in reducing congestion or crowding, or are there any adverse effects, e.g. on safety or the environment?
- Under low demand assumptions, is the intervention still economically viable?

These two scenarios have been titled:

- High Growth Scenario
- Low Growth Scenario

In addition to those developments in the Core Scenario, the High Growth scenario includes Reasonably Foreseeable. It may also include some hypothetical developments

The Low Growth scenario only includes developments which are classified as Near Certain.

Further information on the growth scenarios can be found in the *Blyth Traffic Model Traffic Forecasting Report.*

3.1 Appraisal Summary Table

The Appraisal Summary Table is included as Appendix C.

3.2 Value For Money Statement

The results of the economic appraisal for the Blyth Relief Road options are presented in this section. The monetised impact has been appraised using the results from the TUBA and COBALT assessments. The benefits reported from these assessments have been compared to the scheme costs.

The following table shows the results of the core scenario for each of the three options.

Table 3-5: TUBA Outputs Core Scenario (£'000s)

Scheme Benefits	Option 3	Option 4	Option 5
Consumer User Benefits: Commuting Travel Time	22387	12410	9667
Consumer User Benefits: Commuting Vehicle Operating Costs	3464	1916	1619
Consumer User Benefits: Other Travel Time	22802	11713	8406
Consumer User Benefits: Other Vehicle Operating Costs	4759	2589	2510
Business User Benefits: Travel Time	37621	18502	16630
Business User Benefits: Vehicle Operating Costs	3331	2181	-908
Wider Public Finances	-2682	-1805	-503
Total (including greenhouse gases)	91682	47506	37421
Scheme Costs	Option 3	Option 4	Option 5
Present Value of Costs	14290	14738	17324
Benefit to Cost Ratio	6.42	3.22	2.16

As can be seen above, the overall TUBA benefits are far greatest in option 3 when compared to both option 4 and option 5. As was observed in the analysis of the transport forecasts, option 3 alleviates both the A193 Cowpen Road and the A1061 Laverock Hall Road; option 4 and option 5 have limited impact on the A193 Cowpen Road. However, it is noted that all options offer high value for money.

Given option 3 performs better in terms of performance of the highway network and has the highest level of benefits, it also has a slightly lower cost, it was selected as the preferred option for further appraisal.

It was agreed that the preferred option would be delivered alongside a north-south route to improve internal connectivity within Blyth. The north-south route has been further appraised and more detailed costs for the scheme have been developed. The updated costs for option 3 alongside the north-south route are shown in the table below.

Table 3-6: Option 3 plus North-South Route Costs in 2017 Prices

Item	Cost
Preparation	£42,000
Preliminary Design	£316,000
Transport Assessment	£90,000
Site Investigation	£237,000
Detailed Design	£790,000
Tender Process	£21,000
Ecology Surveys	£60,000
Environmental Appraisal	£60,000
Planning Approval	£15,000
CPO	£20,000
Orders	£36,000
Land Acquisition	£4,358,000
Full Approval Bid	£28,000
Construction	£15,808,000
Supervision	£474,000
Risk	7,415,4221
Total	£29,763,421

These costs have been input into TUBA with a 44% optimism bias applied and discounted to 2010 prices. The results of the optimistic, core and pessimistic growth scenarios are summarised in the following table.

Table 3-7: Preferred Option TUBA Outputs Under Different Growth Scenarios (£'000s)

Scheme Benefits	Core	Optimistic	Pessimistic
Consumer User Benefits: Commuting Travel Time	27249	35852	21786
Consumer User Benefits: Commuting Vehicle Operating Costs	5191	2652	702
Consumer User Benefits: Other Travel Time	31340	51379	23067
Consumer User Benefits: Other Vehicle Operating Costs	6679	9958	5023
Business User Benefits: Travel Time	49197	84938	33784
Business User Benefits: Vehicle Operating Costs	4277	4932	4578
Wider Public Finances	-3934	-3638	-2653
Total (including greenhouse gases)	121669	187739	87559
Scheme Costs	Core	Optimistic	Pessimistic
Present Value of Costs	31024	31024	31024
Benefit to Cost Ratio	3.92	6.05	2.82

As can be seen in the table above, the overall TUBA benefits increase from pessimistic to central to optimistic growth. All growth scenarios demonstrate benefits, which are greater than the option 4 and option 5 previously appraised and deliver high value for money. It is noted that the benefit to cost ratio for the core option is lower than the previously appraised option 3 but this is due to the increase in costs to deliver the north-south route. Although the benefit to cost ratio is lower, the option 3 with the north-south route delivers connectivity benefits for the local residents of Blyth that would not be delivered with the standalone option 3 scheme.

A sensitivity test has been undertaken around the annualisation used in the appraisal. Previous correspondence with DfT recommended that the shoulder peak hours could only be included within the peak hours if the traffic flow in the shoulder peak was within 90% of the peak hour. If they do not fall in the peak hour then they will be added to the inter-peak instead.

Using the information presented in Table 4.1 and 4.2 above, this would give revised annualisation factors as follows:

- AM Peak: 1.9
- PM Peak: 1.97

The TUBA appraisal for the core route 3 option with the north-south route has been ran again to ensure the scheme would still deliver value for money. The results are shown in the table below.

Table 3-8: TUBA Outputs Core Scenario Option 3 and North-South Route with Annualisation Sensitivity

Scheme Benefits	Core
Consumer User Benefits: Commuting Travel Time	21709
Consumer User Benefits: Commuting Vehicle Operating Costs	4234
Consumer User Benefits: Other Travel Time	31737
Consumer User Benefits: Other Vehicle Operating Costs	7101
Business User Benefits: Travel Time	48112
Business User Benefits: Vehicle Operating Costs	4618
Wider Public Finances	-3931
Total (including greenhouse gases)	117513
Scheme Costs	Core
Present Value of Costs	31024
Benefit to Cost Ratio	3.79

The benefits in the above table can be broken down into time periods as follows:

- AM peak: 24%;
- PM peak: 37%;
- Inter-peak: 39%

The inter-peak has the greatest number of hours and therefore a higher share of the benefits; although the inter-peak is traditionally uncongested, the A193 Cowpen Road is congested throughout the day. The PM peak is where the greatest problems on the highway network are observed.

WebTAG guidance requests that the benefits are presented in a series of time bands, showing the level of monetary benefits which are associated with each time saving. The results have been extracted from the TUBA outputs and are shown in the table below for the core scenario for option 3 with the north south route.

Table 3-9: Monetary Benefits Associated with Time Savings (£'000s)

Journey Purpose	Time Banding					
	< -5 mins	-5 to -2 mins	-2 to 0 mins	0 to 2 mins	2 to 5 mins	2529
Business	-174	-56	-1765	27131	21541	2311
Commuting	-56	-411	-1983	14231	13160	2019
Other	-1	-149	-1373	16879	13972	2529

As can be seen in the table above, the majority of time savings lie in the 0 to 5 minute time saving, which is unsurprising given that the new relief road would provide a relatively short new link into Blyth. The outputs do show that there are few disbenefits as a result of the proposed scheme.

To ensure confidence in the results, an analysis of the TUBA warning file has been undertaken to identify the cause of each warning and ensure that the warnings are reasonable. The key warnings relate to fast speeds between zones in the buffer network due to distances being on connectors without journey times. This is present in both the Do Minimum and Do Something scenario and has no impact on the results.

The results of the COBALT appraisal for a 60 year period show a small benefit in the cost of accidents as a result of the preferred scheme. The accident numbers, severity split and costs output table from the accident appraisal are summarised in the table below.

Table 3-10: COBALT Outputs Do Minimum Scenario

		Do Minimum
Category		**Total**
Number of Accidents		3,013.8
Casualties	**Fatal**	37.6
	Serious	421
	Slight	3598.5
Accident Costs (2010 Prices, £000'S)		**146,540.2**

Table 3-11: COBALT Outputs Do Something Scenario

		Do Something
Category		**Total**
Number of Accidents		3,020.8
Casualties	**Fatal**	36.1
	Serious	418.5
	Slight	3595.1
Accident Costs (2010 Prices, £000'S)		**145,612.1**

The results show a small benefit to accidents as a result of the scheme. Although the number of accidents increases, the number of casualties decreases, which is due to the differences in the link categorisation on the routes that vehicles now travel.

Although the results of COBALT only show a small benefit as a result of the proposed scheme, it is expected that the benefit to junctions along the A193 Cowpen Road will be much higher than that predicted by the software. Standard accident rates have been used in the COBALT assessment but the A193 has a high accident rate with many junctions located along its route. The A193 Cowpen Road is shown to benefit from a reduction in trips as a result of the proposed scheme and this is expected to manifest in a greater reduction in the number of road traffic accidents.

The TUBA and COBALT assessment undertaken for the Blyth Relief Road (Option 3 with the north-south route) show that the implementation of the scheme produces an overall net positive benefit. The TUBA assessment has shown that there are significant travel time savings gained for all user classes. The COBALT assessment has shown that there are safety benefits to be gained from reducing the level of traffic on existing congested routes.

The results of the two assessments are combined into a single TEE table for the preferred option core growth scenario. This is summarised below.

Scheme Benefits	
Consumer User Benefits: Commuting Travel Time	27249
Consumer User Benefits: Commuting Vehicle Operating Costs	5191
Consumer User Benefits: Other Travel Time	31340
Consumer User Benefits: Other Vehicle Operating Costs	6679
Business User Benefits: Travel Time	49197
Business User Benefits: Vehicle Operating Costs	4277
Wider Public Finances	-3934
Accidents	928
Total (including greenhouse gases)	**122597**
Scheme Costs	
Investment Costs	31024
Total Costs	31024
Benefit/Cost Ratio	3.95

The overall assessment shows that the proposed scheme delivers a **high** value for money. However, not assessed in the above information is the wider economic impacts of the transport scheme. Eddington highlighted that a high performing transport system is an important enabler of sustained economic prosperity. There is currently a congestion issue in Blyth and this is impacting on potential future development. There is a clear economic need to tackle the significant social deprivation in the South East Northumberland area and any highway scheme that can improve the performance of the transport network is likely to assist in achieving this goal by providing new opportunities to local residents.

Alongside the monetised benefits, which have been quantified above, the proposed relief road will contribute to a reduction in emissions impacting on air quality along congested and populated routes. This will not only benefit the environment but the quality of life of local residents.

An appraisal of the location of the user benefits showed that no vulnerable groups were unfairly disadvantaged by the proposed scheme. This is discussed further in the *Blyth Relief Road Economic Assessment Report.*

4. Commercial Case

The commercial case demonstrates how the scheme will result in a viable procurement and well-structured deal.

The DfT's guidance document, *'The Transport Business Case: Commercial Case',* outlines the requirements of the commercial case. Table 4-1 shows where the information covering these areas can be found in this document. It should be noted that the commercial case has been developed to Outline Business Case standard, modifications may be introduced to Full Business Case submission.

Table 4-1: Commercial Case Requirements

DfT / NECA GUIDANCE REQUIREMENTS	*DESCRIPTION*	*SECTION IN DOCUMENT*
Introduction	Outline the approach taken to assess commercial viability.	4.2
Output based specification	Summarise the requirement in terms of outcomes and outputs, supplemented by full specification as annex.	4.3
Procurement strategy	Detail procurement/purchasing options including how they will secure the economic, social and environmental factors outlined in the economic case.	4.4
Sourcing options	Explain the options for sources of provision of services to meet the business need e.g. partnerships, framework, existing supplier arrangements, with rationale for selecting preferred sourcing option.	4.4
Payment mechanisms	Set out the proposed payment mechanisms that will be negotiated with the providers e.g. linked to performance and availability, providing incentives for alternative revenue streams. (See the Office for Government Commerce's Achieving Excellence briefing for advice on payment mechanisms for construction projects).	4.5
Pricing framework and charging mechanisms	To include incentives, deductions and performance targets.	4.6
Risk allocation and transfer	Present an assessment of how the types of risk might be apportioned or shared, with risks allocated to the party best placed to manage them subject to achieving value for money.	4.7
Contract length	Set out scenarios for contract length (with rationale) and proposed key contractual clauses.	4.8
Human resource issues	Personnel/people management/trade union implications, where applicable, including TUPE regulations.	4.9
Contract management	Provide a high level view of implementation timescales. Detail additional support for in service management during roll-out / closure. Set out arrangements for managing contract through project / service delivery.	4.10

4.1 Outline Approach

The commercial case has been developed following the outline approach below:

- Set the objectives, outcomes and constraints;
- Identify the procurement route;
- Assess how different types of risk might be apportioned and managed.

At this stage of business case development, the commercial case has been developed at a strategic level. It will be finalised and updated subject to approval to proceed with the development of the business case.

4.2 Output Based Specification

The commercial case is based on a number of strategic outcomes:

- Deliver the scheme within the available funding;
- Deliver the scheme to programme;
- Ensure stakeholders' acceptance and support;
- Ensure best value is delivered;
- Ensure that appropriate quality is delivered

A contractor will be appointed at an early-stage in the planning process to achieve delivery of the outcomes identified above. The "Early Contractor Involvement" (ECI) route was used by NCC for Morpeth Northern Bypass and experience has shown that it better informs the procurement process and delivers "Best Value Procurement" (BVP) through;

- True partnering relationship reflected in shared responsibility and full collaboration between NCC and Contractor ;
- Utilisation of Contractor's specialised expertise , high level of technical knowledge and potential innovative or added value solutions;
- Scope and constraints of the project better understood therefore delivering more appropriate design solutions;
- Key decision making is better informed and agreed by all prior to implementation;
- Increased transparency, therefore reduce risk and limits the reasons for litigation;
- More robust delivery programmes both pre and post contract;
- More robust budgetary controls, less unexpected costs and greater certainty of out-turn cost;
- Early supply chain involvement;
- Appropriate incentives for the Contractor including shared pain/gain applicable to Stage2, incentivising the Contractor to keep their target cost down and as well as actively managing costs.

4.3 Procurement Strategy and Sourcing Options

The project will be procured in two stages;

Stage1:	NEC Professional Services Contract for ECI services. N.B. The Contractor is contractually committed to executing the works if the Target Cost is agreed by NCC.
Stage 2:	NEC4 Option C. Engineering and Construction Contract for the construction works

The process is set out in the figure overleaf.

4.4 Payment Mechanisms

Payment of the construction contract will be administered in accordance with the stipulated process within the NEC form of contract, amended as necessary.

4.5 Pricing Framework and Charging Mechanism

Not applicable as part of outline business case submission.

4.6 Risk Allocation and Transfer

The Management Case sets out clear roles and responsibilities for the project, including for risk management activities. The internal governance arrangements, in place before construction begins, will provide a clear distinction between those who:

- Have direct responsibility for the management of risk, e.g. management and staff working within the project;
- Have responsibility for development, implementation, maintenance and oversight of the effectiveness of the risk management strategy together with sponsorship and support for the project's risk management activities e.g. Project Board; and
- Have responsibility for providing independent assurance, e.g. Project assurance.

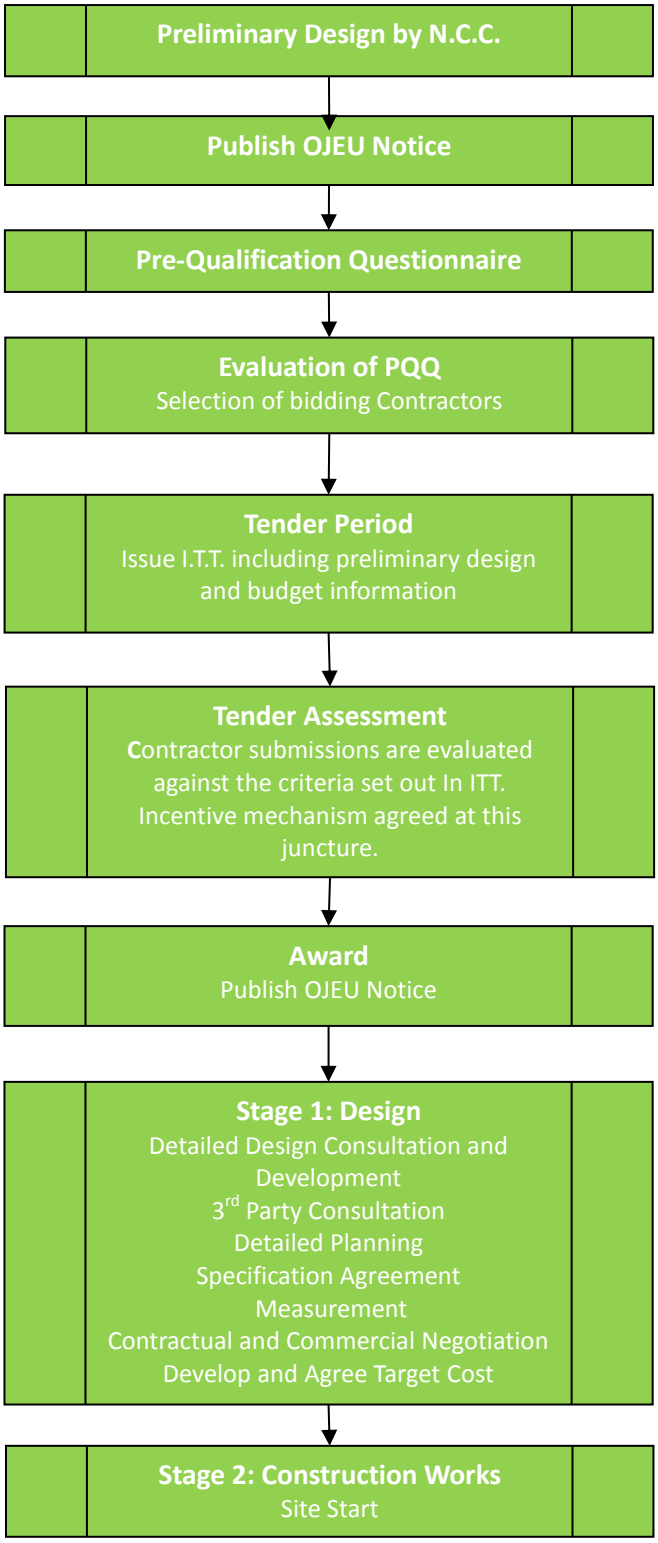
4.7 Contract Length

The contract length has not been determined at this stage.

4.8 Human Resources Issues

No human resources issues have been identified at this stage.

Figure 4-1: Procurement Process



4.9 Contract Management

Contract management will be undertaken using a number of key performance indicators to ensure effective delivery on time and within budget. Table 4-2 summarises the Contract Performance Measures intended as part of the assessment.

Table 4-2: Planned Contract Performance Measures

DESCRIPTION	*COMMUNICATION METHOD*	*COMMENT*
Delivery compliance	Face to face agreement	KPI's stipulated within contract documentation
Health and safety performance	Regular inspections and reports	
Budget stability/control	Face to face and monthly valuations/stage payments and report	Monitored by Client Engineer/QS
Risk management	Face to face (mitigation report)	

5. Financial Case

5.1 Introduction

The purpose of the financial case is to demonstrate the affordability of the proposal, its funding arrangements and technical accounting issues (value for money is scrutinised in the economic case). The estimated costs and likely expenditure profile are therefore presented in this section of the business case, alongside the expected sources of funding.

The DfT's guidance document, *'The Transport Business Case: Financial Case'*, outlines the requirements of the financial case. Table 5-1 shows where the information covering these areas can be found in this document. The Financial Case has only been developed to Outline Business Case standard.

Table 5-1: Financial Case Requirements

DfT/NECA Requirements	*Description*	*Section in Document*
Introduction	Outline the approach taken to assess affordability.	5.2
Costs	Provide details of: • the expected whole life costs; • when they will occur; • breakdown and profile of costs by those parties on whom they fall; and • any risk allowance that may be needed (in the event of things going wrong).	5.3-5.8
Budgets / Funding cover	Provide analysis of the budget/funding cover for project. Set out if relevant, details of other funding sources (e.g. third party contributions, fees).	5.9
Accounting implications	Describe expected impact on organisation's balance sheet.	Covered in other sections

5.2 Outline Approach

The cost of implementing the scheme has been estimated in accordance with WebTAG guidance for - "*The Treatment of Costs*". The overall approach, which is presented in more detail in the remainder of this chapter, can be summarised as follows:

- Derivation of un-inflated base costs;
- Derivation of appropriate inflation assumptions, resulting in an allowance for inflation on base costs;
- Appropriate allowance for risk;
- Development of the funding package that will deliver the scheme, which includes a contribution from Northumberland County Council;
- Acknowledgement of the ongoing revenue liability in relation to maintenance costs;
- Confirmation of the Section 151 Officer sign off to the cost of the scheme.

The cost estimate is based upon a funding package that assumes scheme opening in 2022.

5.3 Costs

To assess the affordability of the scheme, costs have been developed for the construction of the Blyth Relief Road by Northumberland County Council highway engineers. The costs have been developed as part of the design of the scheme and are given in 2017 prices. The total cost for the construction of the scheme is £22.3 million.

5.4 Inflation Assumptions

A key assumption in determining scheme outturn costs is the level of forecast annual inflation anticipated to occur to construction prices. Inflation is applied to real scheme costs, to determine scheme outturn costs. Outturn scheme costs, which are used to determine the Quantified Cost Estimate, provide the actual costs of the scheme in cash terms.

The costs were developed in 2017 base year, and a factor was applied to account for inflation to 2022 at an annual percentage of 2%. The total cost of inflation is £2.3million, which represents 10.4% of the base costs.

This Outline Business Case does not specify how any increase in scheme cost from inflation is funded, however a significant risk allowance has been included in the scheme costs.

5.5 Allowance for Risk

The scheme cost includes a risk allowance which has been developed based on previous experience of delivering similar schemes, including Morpeth Northern Bypass. The Technical Design Team collated all likely risks and assessed the impact of each risk in terms of cost, time the probability of the risk occurring. The estimated risk cost for the scheme is £7.4million.

A risk workshop has been programmed for Spring 2018, where a formal quantified risk assessment will be undertaken.

5.6 Optimism Bias

There exists a systematic tendency for project appraisers to be overly optimistic in developing cost estimates (HMT Green Book, 2003, page 29). To account for this in scheme appraisal, risk adjusted scheme costs should be adjusted to take account of 'optimism bias'. Table 7 in TAG Unit A1-2 states that there are three stages of scheme development with the following optimism bias uplifts:

- Stage 1: Programme Entry 44%
- Stage 2: Conditional Approval 15%
- Stage 3: Full Approval 3%

.

Given that the detailed design of the Blyth Relief Road is still to be undertaken, the scheme is considered to be at stage 1, programme entry. An optimism bias of 44% has therefore been applied to the scheme costs to be used in the economic appraisal.

5.7 Quantified Cost Estimate

The Table below sets out the quantified cost estimate (outturn cost), which includes risk and inflation.

Table 5-2: Quantified Cost Estimate

Element	Cost
2014 Cost	£22,348,000
Inflation	£2,325,997
Risk	£7,415,421
Total	£32,089,418

5.8 Ongoing Maintenance Costs

Following completion of the scheme, all associated infrastructure would be maintained by Northumberland County Council.

5.9 Funding

Northumberland County Council is seeking funding from the DfT Large Major Transport Fund for delivery of the scheme. Northumberland County Council will provide a 10% local contribution.

5.10 Section 151 Officer Sign-Off

In accordance with DfT guidance, the cost estimate for the scheme requires sign-off from the relevant Section 151 Officer. The Section 151 Officer is content that the scheme costs are reasonable.

6. Management Case

6.1 Introduction

The purpose of the management case is to assess whether a proposal is deliverable by examining the resilience of the project planning, governance structure, risk management, communications and stakeholder management. As a result, there needs to be a clear and shared understanding of the requirements, and the measures needed, to ensure these tasks are completed in a manner which helps to manage the likely risks. The management case must set out a plan to ensure that the benefits previously described in the economic case are actually realised. Consequently, the Blyth Relief Road must have a risk management plan prepared which is proportionate to the scale of the scheme.

The DfT's guidance document, 'The Transport Business Case: Management Case', outlines the areas that should be covered as part of the major scheme documentation. The outline approach has been adopted at this stage. The table below shows where the information covering these areas can be found in this document.

Table 6-1. Management Case Requirements

Sub-Section	*DfT Requirements*	*Location in this document*
Introduction	Outline the approach taken to assess if the proposal is deliverable	Section 6.0
Evidence of Similar Projects	Provide evidence of similar projects that have been successfully delivered to support the recommended approach	Section 6.1
Programme/Project Dependencies	Set out deliverables and decisions that are provided/received from other projects	Section 6.2
Governance, Organisational Structure and Roles	Key roles, lines of accountability and how they are resourced	Section 6.3
Programme/Project Plan	Plan with key milestones and progress, including critical path	Section 6.5
Assurance and Approvals Plan	Plan with key assurance and approvals milestones	Section 6.4
Communications and Stakeholder Management	Develop communications strategy for the project	Section 6.6
Programme/Project Reporting	Describe reporting arrangements	Section 6.6
Implementation of Work Streams	Summary of key work streams for executing the work	n/a
Key Issues for Implementation	Issues likely to affect delivery and implementation of the scheme	n/a
Contract Management	Summarise outline arrangements. Confirm arrangements for continuity between those involved in developing the contract and those who will subsequently manage it	n/a
Communications Plan	The development of a communications and stakeholder management plan – how to engage with interested and bodies affected by the scheme	Section 6.7
Risk Management Strategy	Arrangements for risk management and its effectiveness so far	Section 6.8
Benefits Realisation Plan	Set out approach to managing realisation of benefits	Section 6.9
Contingency plan	Summarise outline arrangements for contingency management such as fallback plans if scheme implementation is delayed	n/a
Summary	Summarise overall approach for project management at this stage of the project	Section 6.10

At this stage of the business case development, the management case has been developed at a strategic level. Details on implementation of workstreams, key issues for implementation, contract management and contingency planning will be provided as part of the full business case, subject to identification of appropriate funding and progression of the scheme.

The remainder of this section of the business case describes the initial framework that demonstrates an understanding of the management case, given the current status of the project.

6.2 Evidence of Similar Projects

Northumberland County Council has extensive experience of delivering large capital investment projects, including major highway schemes.

Of particular relevance to Blyth Relief Road, in terms of the scale of investment, is the Morpeth Northern Bypass which was successfully completed in Spring 2017. This major highway scheme, delivered a new junction on the A1 to connect the A1 with the Pegswood Bypass. The aim of the scheme was to reduce congestion and facilitate much needed economic growth and job creation in the area. The bypass is 3.8km long and took approximately 20 months to complete at an expense of £30m, with £21m being contributed by DfT.

Pegswood Bypass is also of particular note. This scheme was successfully completed in July 2007. The Pegswood Bypass is a 2.7km single carriageway road on the A197 linking Ashington and Morpeth, which was constructed to alleviate traffic flows in the former pit community of Pegswood. The capital cost of the scheme was £9.2 million, with Northumberland County Council providing £3 million funding and an additional £6.2 million being provided by the Department for Transport. The scheme was constructed over a 58 week period from start to finish and was completed 10 weeks ahead of program.

The experience demonstrated by Northumberland County Council in the delivery of schemes, and the best practice used in the development of the business case, provides an excellent framework on which to progress the Blyth Relief Road scheme in a timely and efficient manner, whilst helping to minimise risks.

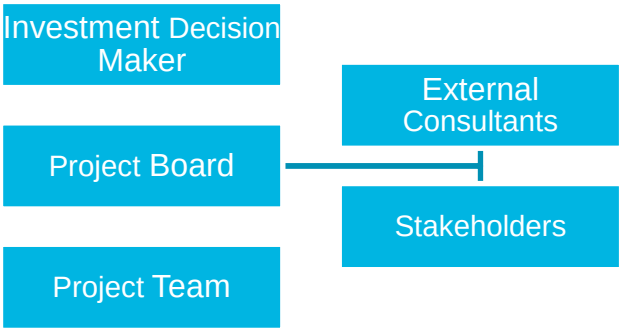
6.3 Programme and Project Dependencies

As the scheme evolves, further updates to the project dependencies will be necessary. The implementation of the work programmes will be managed by responsible officers as defined in the governance and organisational structure (Section 7.4), to ensure the work programme is completed in a timely manner to achieve the required technical standards and ensure the necessary support from stakeholders. Some issues will be critical to the overall scheme delivery, so creating a robust governance structure to manage the work programme will be essential.

6.4 Governance, Organisational Structure and Project Management

The project management for delivering the proposed opening of a Blyth Relief Road scheme will be co-ordinated by Northumberland County Council who will have responsibility for managing external consultants. This will ensure key milestones are reached in an appropriate timescale, progressing towards the overall opening of the scheme in 2022.

The governance structure will operate at a number of levels as summarised below:



Northumberland County Council will be supported in the delivery of the project by council members, external consultants and wider stakeholders.

Investment Decision Maker

Ultimate responsibility for the County Council investment rests with the Executive Committee, comprising elected members of the Council, who make investment decisions regarding the use of council resources (capital, operational and manpower). Decisions are based on the justification of the business case prepared by senior officers. They, along with the Risk Appraisal Panel, are consulted at critical stages in the programme, e.g. where a significant change has occurred, or expenditure is about to be undertaken.

As the Investment Decision Maker position is undertaken by County Council elected members, no delegated authority is required to fulfil the requirements of this role.

Project Board

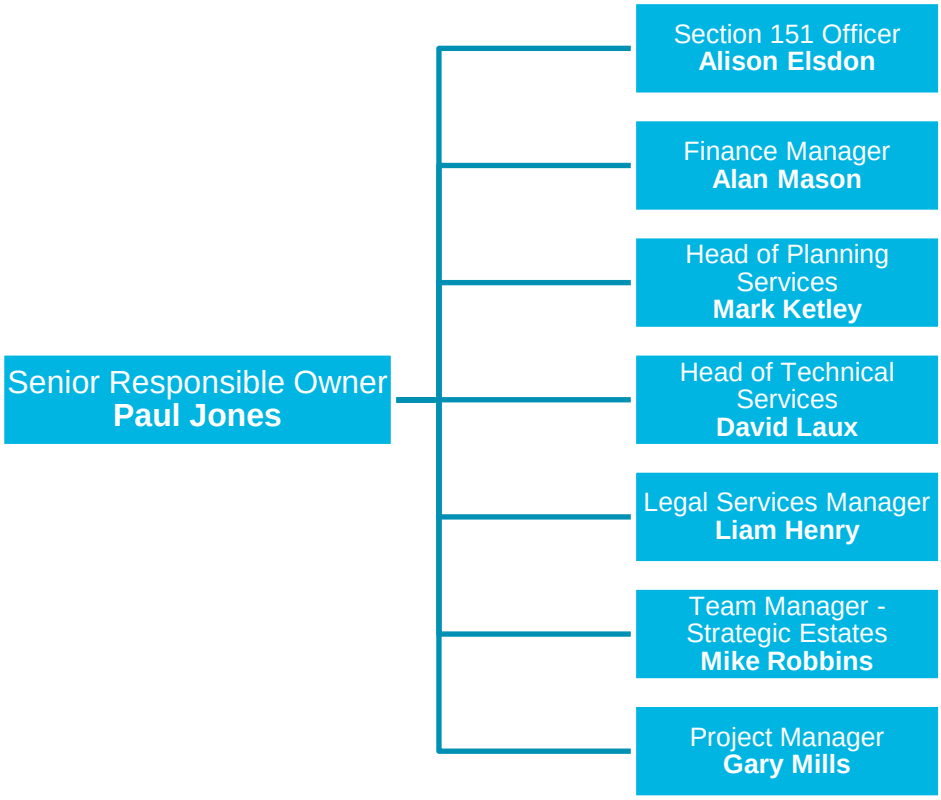
The Project Board is intended to be the key decision making body for the project. They will meet monthly until the completion of the scheme. They will provide the approvals necessary to the Project Team for key elements of the work and, where necessary, will seek authorisation for expenditure or any divergence from the approved scheme, which attracts extra cost or savings.

The Project Board will be chaired by **Paul Jones, the Senior Responsible Owner,** who will take executive decisions relating to the project. He will be supported by the other members of the Project Board who hold senior functions within the Northumberland County Council structure. Specific technical advice will be provided by external consultants as required.

The responsibilities of the Project Board will be as follows:

- To set the strategic direction of the project to ensure the objectives of the study are met;
- To be accountable for meeting project objectives and realising scheme benefits;
- To provide the Senior Responsible Owner with technical information necessary to make key decisions on the project;
- To agree all plans;
- To approve budget and resources;
- To monitor and report on progress; and
- To manage risk.

The Project Board team structure is outlined below:

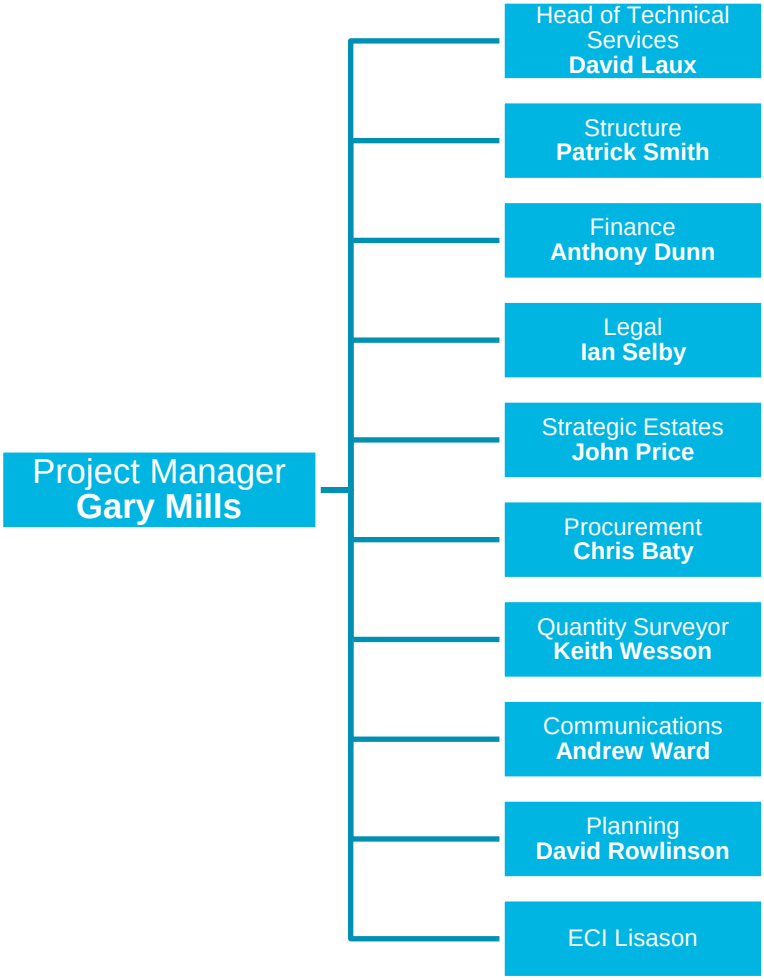


Project Team

The Project Team has responsibility for the delivery of the scheme. The Project Team will seek approval from the Project Board, in line with the programme, for key elements of work and, where necessary, will seek authorisation for expenditure or any divergence from the approved scheme, which attracted extra cost or savings. The Project Team will meet fortnightly to ensure progress is maintained and that all issues are resolved in a timely manner.

The Project Team will be led by the Project Manager. The Project Manager will be responsible for providing instruction to the Project Team to ensure all required tasks are completed. Given the specialist nature of the scheme, the Project Manager will oversee technical consultants who will provide advice on transport, environmental, design and engineering issues relating to the scheme proposals.

The Project Team structure is outlined below.



The Project Board will have responsibility for the assurance of all work streams, or will identify the relevant personnel to provide this assurance.

6.5 Assurance and Approvals Plan

Project assurance gateways will be dependent on identification of an appropriate stream for funding.

The Project Board will have responsibility for the assurance of all work streams, or will identify the relevant personnel to provide this assurance.

6.6 Project Plan

A detailed project plan has been prepared for the scheme and is included in Appendix D. This shows the key milestones which will need to be achieved to take the scheme through from the current stage to implementation. The programme is sufficiently flexible to accommodate any changes which may be necessary as delivery of the scheme progresses. It is the aim of the programme to provide full visibility of the current and future situation with respect to performance, and will be used in conjunction with the Risk Management Plan to predict the potential impacts identified

6.7 Communication and Stakeholder Management

It is important that effective communication is in place both internally, within the project team, and externally to wider stakeholders. The key objectives of the communications and stakeholder management plan are as follows:

- Keep the stakeholders aware of the progress of the scheme through delivery, and give an opportunity for feedback to help endorsement of the scheme;

- Give an opportunity for stakeholders to provide views and recommendations for improvements so that the scheme meets stakeholder requirements as far as is practical;
- Meet statutory requirements;
- Ascertain perceptions of the scheme.

A separate internal and external communication plan will be developed.

Internal Communication

The Project Manager will be responsible for ensuring that the Project Board is kept up-to-date with project developments and progress towards full delivery. He will need to ensure that the Project Board has sufficient information and is involved in all decisions that affect performance and progress of the project.

The Project Manager will also adopt responsibility for communicating information between the Project Board and the Project Team. It will be his responsibility to ensure that all parties are up-to-date with relevant information.

All documentation to be issued to external parties will, in the first instance, be issued to the Project Board in draft via the Project Manager. The Project Board will advise on any changes required before the document can be issued to external parties.

External Communication

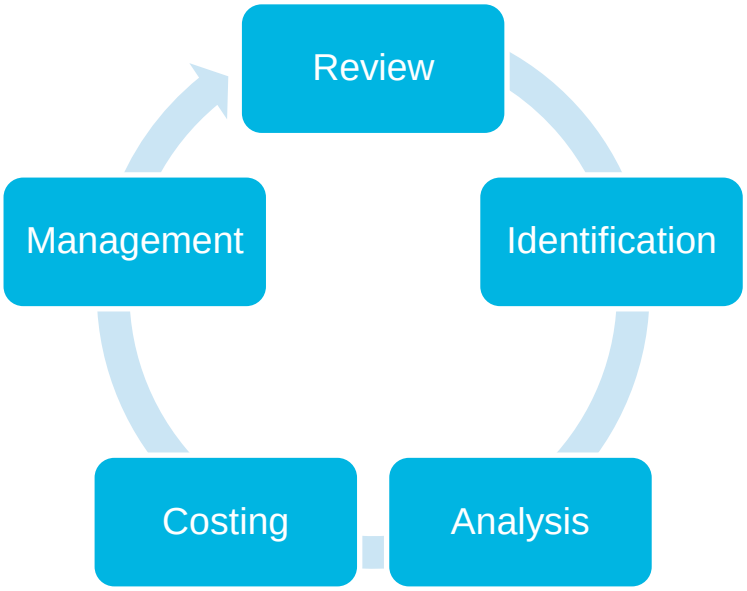
External communications work will help reinforce key messages, and publicise the key milestones of the project, although it is recognised that further engagement will be required during the lifecycle of this scheme. This will include other stakeholder representatives, as follows:

- **The general public**, particularly those living or travelling through Northumberland to raise awareness of the timescale for the construction work and the resulting disruption to traffic flow;;
- **Central Government**, partner agencies, individuals such as MPs, councillors and interest groups;
- **Business sector**, including Blyth Chamber of Trade, House Builders Federation, Port of Blyth and Road Haulage Association and public transport operators.
- **Other Key stakeholders**, including Blyth Town Council, NCC Winter Maintenance and Allotments Association

The proposed stakeholder engagement plan, which will encourage views from a cross-section of interest groups, should help to ensure the potential benefits emerging from the scheme are distributed as widely as possible. A variety of communication methods will be used at different times to reach the specific audiences identified.

6.8 Risk Management Plan

The cyclical risk management approach shown below will be adopted to identify, manage and cost project risks on a continuous basis as the scheme progresses.



An initial Quantified Risk Assessment (QRA) will be completed for the scheme and this will be reviewed on a regular basis. This QRA will be completed through a workshop, which involves all delivery parties, including for example, individuals from procurement, engineers and finance. For each risk identified, mitigation will be considered and the residual risk quantified.

Where the severity of a particular risk impact changes as the scheme progresses, the likely cost and programme implications are recalculated and future actions in accordance with appropriate change management procedures need to be formally agreed. Mitigation performance and residual risk would be subject to review at the end of the project.

When available, the QRA will be included in the scheme costs and the economic appraisal updated.

6.9 Monitoring and Evaluation

The DfT issued guidance on developing evaluation plans in its guidance entitled 'Monitoring and Evaluation Frameworks for Local Authority Major Schemes' September 2012. The purpose of this evaluation is to demonstrate that the funding provided by the national government for local-level investment is providing value for money for the taxpayer.

Monitoring and evaluation of the Blyth Relief Road will help to determine whether the impacts produced by the demand and revenue forecasting exercise, documented in the 'Economic Case', actually occur in terms of their expected scale and distribution. Furthermore, the monitoring and evaluation will also ascertain whether the observed benefits and outturn costs are comparable to the assumptions included in this business case. It is advantageous to sub-divide this task into four stages:

- Stage 1: Prior to Full Approval – the development of an evaluation plan, available for submission to the DfT, along with a delivery plan with all monitoring and evaluation activities;
- Stage 2: Collect baseline data as required for future comparisons to be made and determine the success of the scheme
- Stage 3: During Construction – compile and review programme and cost data for the scheme as delivery is underway;
- Stage 4: Collect post construction data and produce 1 year and 5 year reports;
- Stage 5: Final reporting and economic evaluation.

Proposals for monitoring and evaluation are preliminary at this stage, as the opening date for the scheme is some years away. However, a discussion with the relevant authorities would be welcomed

in due course to discuss the detailed form of the before and after monitoring, after which a detailed monitoring and evaluation plan can then be prepared.

A Benefits Realisation Plan will be prepared alongside the Monitoring and Evaluation Plan. A Benefits Realisation Plan is a management tool that presents the key activities required, such as what needs to be done, when and by whom, to manage the successful realisation of the benefits.

Potential activities which could be undertaken as part of the monitoring and evaluation exercise are summarised as follows:

- Specification of objectives as part of the inception meeting;
- Definition of the scope of the monitoring and evaluation exercise;
- Understanding the scheme inputs (what is being invested in terms of resources), along with the outputs covering car parking, characteristics of the rail service, changes in traffic flows or mode shift, plus other long term impacts including economic, environmental or health benefits;
- Identifying the interface between the factors described above;
- Defining research questions to understand changes in the scheme context, alterations in travel behaviour, extent of any unintended outcomes, or differences in travel behaviour or attitudes from individual user groups;
- Evaluation approach to help identify scheme barriers, challenges, milestones and inter-relationships with programme delivery and the processes which helped keep the timeline on schedule;
- Preparation of the monitoring and evaluation plan.

All of these will be reviewed and fine-tuned as the scheme develops further towards full business case

6.10 Summary

This chapter serves to set out that Northumberland County Council have appropriate resources in place to deliver a scheme of this nature. The personnel identified in the governance structure are of a seniority that they have the required skills and experience to deliver this scheme, and have the decision making responsibility delegated to them to make key decisions in a timely and effective manner to ensure further resources are available to deliver all aspects of the scheme.

This chapter has also provided evidence that Northumberland County Council have delivered similar highway schemes, namely Morpeth Bypass and Pegswood Bypass. These have followed the governance arrangements proposed for the delivery of the Blyth Relief Road. Over the years, any changes to this governance structure have only served to make improvements to delivery and take on board lessons learnt previously.

A project plan has been developed for the scheme. There are several project dependencies which will impact on whether the plan is delivered. Key priorities include the identification of capital funding. These items need to be carefully managed as the scheme progresses.

Effective stakeholder management and engagement is key to a successful delivery of any scheme. The scheme can affect a range of different people and organisations in varying ways. The most effective engagement plans are those which involve stakeholders throughout each stage so that they feel part of the scheme, they have shaped its development and ultimately they endorse the scheme they have been party to delivering. Given the early stage of scheme development, a Quantified Risk Assessment has not yet been carried out. This will form a fundamental part of the scheme costs and will be used in assessing whether the scheme is affordable, minimise any cost overruns and ultimately financial risk. This will be a `live' document and updated as more robust cost estimates are calculated for the scheme as detailed design progresses.

As with all major transport scheme investment, the scheme will be subject to a programme of before and after monitoring. The aim of this will be to demonstrate the extent to which scheme objectives are met and to monitor performance of the scheme and ensure that any potential issues post implementation are identified and addressed. Once again, this affords the opportunity for lessons learnt to build into future investment decisions, so that schemes are developed which offer high value for money returns, and equally important, that the scheme delivers what it set out to, in terms of meeting scheme objectives.

Appendix A – Blyth Transport Study

Appendix B – Option Assessment Report

Appendix C – Appraisal Summary Table

Appendix D – Project Plan

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