

# **Broughton Bypass**


## **Full Business Case**

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## Glossary

AADT	Average Annual Daily Traffic
AMCB	Analysis of Monetised Costs and Benefits
AQMA	Air Quality Management Area
AST	Appraisal Summary Table
BCR	Benefit to Cost Ratio
CDIDF	City Deal Infrastructure Delivery Fund
COBALT	COst And Benefits to Accidents – Light Touch
CPO	Compulsory Purchase Order
DfT	Department for Transport
DI	Distributional Impacts
DM	Do Minimum
DMRB	Design Manual for Roads and Bridges
DS	Do Something
EAR	Economic Assessment Report
ECC	Engineering and Construction Contract
ERDF	European Regional Development Fund
ES	Environmental Statement
GDP	Gross Domestic Product
GVA	Gross Value Added
HA	Highways Agency
HE	Highways England (Post April 2015)
HCA	Homes and Communities Agency
HGV	Heavy Goods Vehicle
HM	Her Majesty's
LCC	Lancashire County Council
LEP	Local Enterprise Partnership
LGV	Light Goods Vehicle
LMVR	Local Model Validation Report
LTB	Local Transport Body
NMU	Non-Motorised User
NPPF	National Policy Planning Framework
NTEM	National Trip End Model
OB	Optimism Bias
OBC	Outline Business Case
PA	Public Accounts



PCC	Preston City Council
POPE	Post Opening Project Evaluation
PQQ	Pre-Qualification Questionnaire
PVB	Present Value of Benefits
PVC	Present Value of Cost
QRA	Quantified Risk Assessment
QUADRO	QUeues And Delays at ROadworks
RAG	Red Amber Green
RSS	Regional Spatial Strategy
RTF	Road Traffic Forecasts
SRBC	South Ribble Borough Council
SRO	Side Roads Order
SU	Statutory Undertaker
TAG	Transport Analysis Guidance
TEE	Transport Economic Efficiency
TFL	Transport For Lancashire
TUBA	Transport User Benefits Appraisal
VOC	Vehicle Operating Costs
VOT	Value Of Time

## Executive Summary

This Full Business Case (FBC) has been completed on behalf of Lancashire County Council's proposed Broughton Bypass scheme. The scheme has been accepted into Lancashire's Local Enterprise Partnership (LEP) delivery programme and is one of four major highways schemes planned to be delivered within the Preston, South Ribble and Lancashire City Deal. The scheme is seeking Full Approval from the LEP and funding towards its £24.3m cost via the Local Growth Deal. In line with the LEP's Accountability Framework, this Full Business Case is required in order to seek Full Approval and draw down funds.

### Scheme Overview

The scheme is a proposed bypass for Broughton village which is located on the busy A6, close to the M6 and M55 Junction 1. Broughton is located approximately three miles north of Preston and 2.7 miles from a proposed large scale housing development at Whittingham.

A lack of highway capacity through Broughton has led to a number of residential planning applications being refused. In support of the new jobs forecast across the City Deal area, there is a strategic need to deliver housing development and recognition that critical highway infrastructure needs to be in place to facilitate this growth, hence the inclusion of the Broughton Bypass scheme within the City Deal programme.

The village of Broughton suffers from peak hour traffic congestion and associated air quality problems and is a designated Air Quality Management Area (AQMA) primarily due to through traffic using the narrow A6 Garstang Road to access the motorway network. As of 2014, approximately 25,000 vehicles per day travelled between Broughton Crossroads and the M55 J1. The bypass will enable the former A6 section through Broughton to be re-designated as a 20mph route for local journeys. £0.5m of the Broughton Bypass scheme cost will go towards A6 traffic management and the implementation of facilities for non-motorised users with the creation of a segregated cycleway linking into the Preston Guild Wheel route. The scheme is predicted to remove all air quality exceedances within the AQMA boundary to the extent that the AQMA designation will no longer be required.

The scheme is highly deliverable in that it is at procurement stage with planning permission granted, Compulsory Purchase Order and Side Road Order powers in place and certainty of funding. Project specific governance is established and operating within the overall City Deal governance structure with monthly reporting to the Central Lancashire Highways and Transportation Masterplan Project Board.

### Value for Money (VfM)

A highway assignment model (Broughton Transport Model) has been developed and used to generate traffic forecasts which supported an industry standard economic appraisal of the Broughton Bypass scheme.

The scheme will deliver significant journey time saving benefits, amounting to £129.5m (2010 prices, discounted over 60 years). The Benefit to Cost Ratio (BCR) of the scheme is 5.8 which represents Very High VfM and exceeds both Department for Transport (DfT) and LEP VfM funding criteria. This was based on a Core Model Scenario without Dependent Development.

The scheme can also potentially generate an additional £153m of Gross Value Added (GVA) benefits which, in line with DfT guidance, have not been incorporated into the BCR but demonstrate the scheme's positive contribution to the wider economy and City Deal.

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1 Introduction

1.1 Background

Lancashire County Council (LCC) is seeking funding towards a proposed bypass scheme for Broughton village. Broughton lies on the busy A6, close to the M6 and M55 Junction 1. It is approximately three miles north of Preston and 2.7 miles from a proposed large scale housing development at the former Whittingham Hospital site currently owned by the Homes and Communities Agency (HCA). The location of Broughton is shown in Figure .

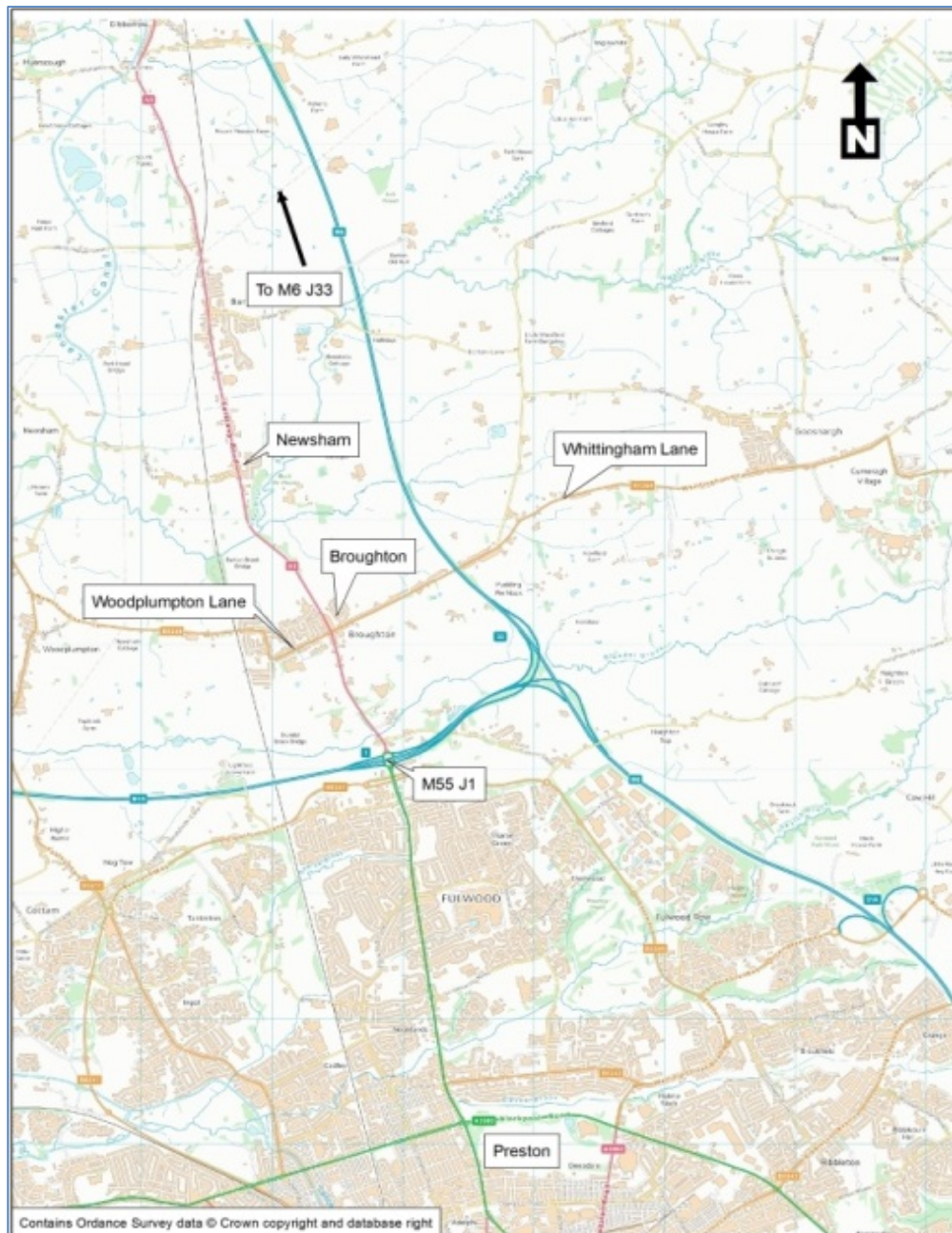


Figure 1-A Location of Broughton

Not only does the village currently suffer from severe peak hour traffic congestion and associated air quality problems, but the lack of network capacity through Broughton has led to a number of residential planning applications being refused on the grounds of insufficient highway capacity. In support of the new jobs forecast across the Preston, South Ribble and Lancashire City Deal area, there is a real need to deliver housing development in the short to medium term.

Hence, in order to realise development sites, support economic growth, ease congestion and deliver on community objectives to improve the local environment and provide opportunities for sustainable travel, improved transport infrastructure needs to be delivered at Broughton.

A bypass option is required because the Broughton section of the north-south running A6 Garstang Road experiences severe peak hour traffic congestion between Station Lane, Newsham; Broughton Crossroads and Junction 1 of the M55 motorway, a total distance of approximately 1.7 miles. Journey times along the west-east running Whittingham Lane to Broughton Crossroads also suffer from significant peak hour delay over a distance of 0.9 miles. The environmental, social and economic impacts of this congestion on both the residential area of Broughton and on commuters travelling to Preston and the nearby M6 and M55 motorway network, are compounded by the narrow width of the A6 road as it runs through the village. This limits the scope for online improvements.

High annual mean levels of nitrogen dioxide (NO<sub>2</sub>) attributed to vehicle emissions in the village have also led to Broughton's designation as an Air Quality Management Area (AQMA).

Prior to the City Deal, Broughton Bypass had been prioritised for devolved DfT local major schemes funding via the Transport for Lancashire (TfL) Local Transport Body. Government has subsequently included all local major transport funding into the single Local Growth Fund which is accessed through the Growth Deals agreed with each Local Enterprise Partnership (LEP). Broughton Bypass has a £15.5m allocation through the Growth Deal in 2016/17 comprising £8.8m of pre-committed Local Transport Body funding and an indicative £6.7m from the competitive element of the Local Growth Fund (LGF). In addition, developer contributions from the HCA are committed, previously via a Section 106 agreement but now due under the Community Infrastructure Levy (CIL) rather than planning obligations. In advance of the collection of HCA contributions, the City Deal offers the facility of forward funding the Broughton Bypass. This certainty of funding means the scheme can commence construction in January 2016, subject to value for money being demonstrated through a Business Case.

Planning permission for the scheme was first granted in July 2001. Due to the five year time limit under the Town and Country Planning Act and lack of funding at the time to materially construct the scheme, the local highway authority was required to reapply for renewals every five years. LCC last successfully resubmitted the planning application in July 2013. Scheme drawings for the proposed bypass are attached as **Appendix A**.

As part of the planning application, a non-technical summary was produced, which set out the alternative options which had been considered to mitigate the traffic problem. These were:

- *On-line improvements to the A6 Garstang Road;*
- *Park and Ride facility in the Broughton Area;*

- *New junction on the M6 in the Garstang/Brock area;*
- *Bypass of Broughton to the west of the village; and*
- *Alternative Bypass route east of the village close to the primary school and Marriott hotel.*

The alternative options were discarded in favour of the proposed scheme because they were less effective in dealing with the high volumes of traffic travelling through Broughton and, the recognition that this section of the A6 is the main route for diverted M6 traffic from the nearby parallel section of the motorway.

The proposed scheme comprises a northern and southern highway with the northern section running from a new roundabout on the A6, 450m north of Broughton Crossroads to south east of the village at a new roundabout on B5269 Whittingham Lane. The southern section runs from Whittingham Lane roundabout southwards to Broughton Roundabout at Junction 1 of the M55. More information on the alternative options explored is provided in the 2013 planning application and the 2015 Broughton Bypass Public Inquiry Statement of Case (**Appendix B**), both available on the LCC website and referred to in more detail later in this document.

In April 2014, LCC advised that in accordance with the LEP's Accountability Framework, a Department for Transport (DfT) WebTAG compliant business case for Broughton Bypass was to be submitted to TfL in order to access Growth Deal funding. Funding had been indicatively allocated subject to the scheme demonstrating it offers high Value for Money (VfM).

In order to support the business case and demonstrate the scheme offered value for money, the Broughton Transport Model (used to inform the 2013 planning application re-submission and subsequent approval) needed updating. This was to ensure the traffic model was in line with current best practice contained within WebTAG. This modelling work was completed in February 2015 with updates and sensitivity tests undertaken in July 2015 in support of the Full Business Case (FBC). This included revised traffic inputs into the environmental and economic business case components.

## **1.2 Purpose of Document**

This document represents the FBC for Broughton Bypass.

It has been developed in line with the structure mandated by the Department for Transport's (DfT) Transport Business Case guidance and adopted by the LEP to establish whether the specified scheme is:

- *Supported by a robust case for change that fits with wider policy objectives (**the Strategic Case**);*
- *Demonstrates value for money (**the Economic Case**);*
- *Financially affordable (**the Financial Case** – accounting analysis);*
- *Commercially viable (**the Commercial Case** – procurement issues); and*
- *Achievable (**the Management Case** – deliverability assessment).*

## **1.3 Document Structure**

The remainder of the document is structured as follows:

- *Chapter 2: Scheme History and Scheme Description*



- *Chapter 3: The Strategic Case*
- *Chapter 4: The Economic Case*
- *Chapter 5: The Financial Case*
- *Chapter 6: The Commercial Case*
- *Chapter 7: The Management Case*
- *Chapter 8: Summary and Conclusions*

#### *Appendices*

- *Appendix A Scheme Drawings – Broughton Bypass & A6*
- *Appendix B Statement of Case for Broughton Bypass*
- *Appendix C Model Forecasting Report - Broughton*
- *Appendix D Local Model Validation Report*
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- *Appendix K Risk Register*
- *Appendix L Signed Letter from Section 151 Officer*
- *Appendix M Scheme Programme*
- *Appendix N Infrastructure Delivery Board Minutes –Procurement Approval*
- *Appendix O Monitoring & Evaluation Methodology Report*
- *Appendix P Communications Strategy*

2 Scheme History & Scheme Description

2.1 Introduction

Broughton is a small village located 3.5 miles north of Preston with a population of approximately 1,700 people. It is broadly residential in a rural setting, with a number of commercial enterprises and public amenities lining the main routes into the village. It centres on the signalised Broughton crossroads between the A6 Garstang Road running north and south, and the B5269 Whittingham Lane/ Woodplumpton Lane running east and west. The A6 provides a key strategic link to the motorway network at M55 Junction 1 to the south of Broughton, as illustrated in Figure 2.1 below, and is also a parallel link to the nearby M6.

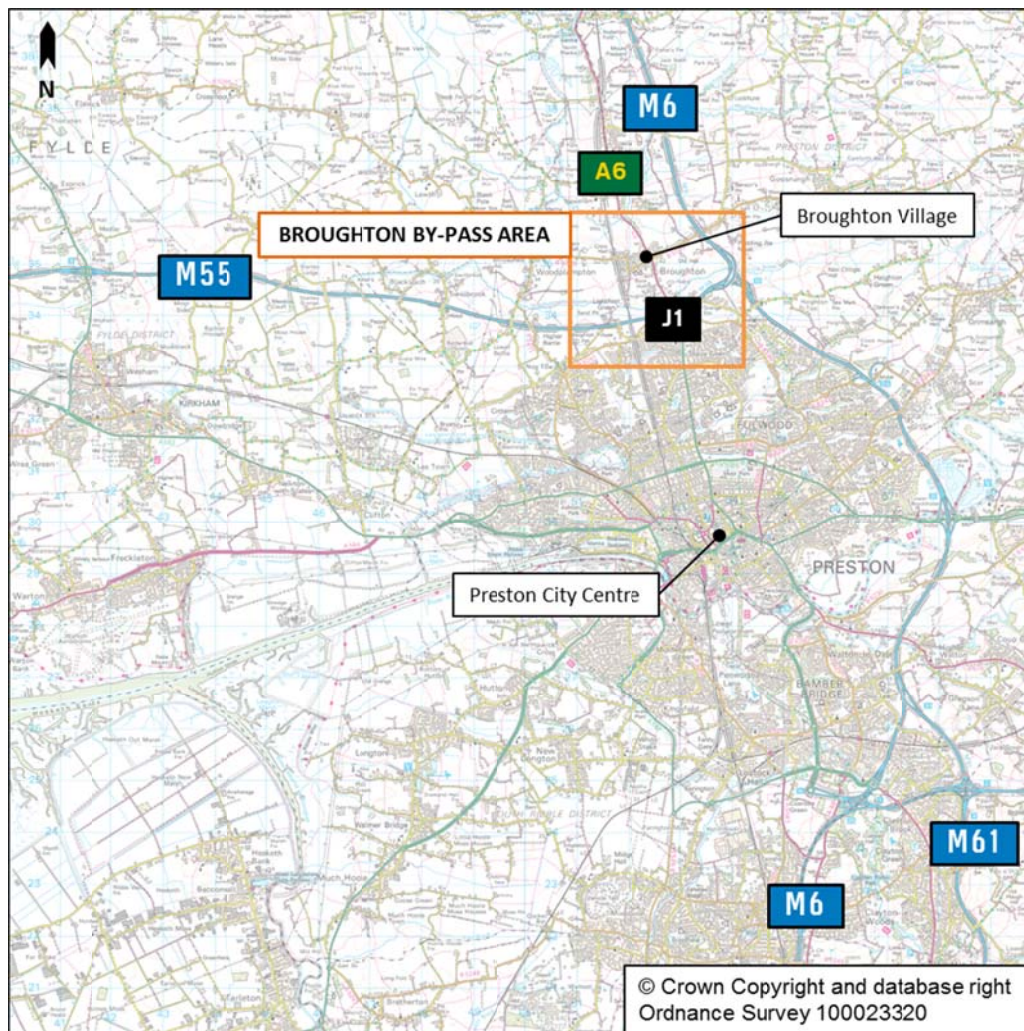


Figure 2-A Scheme Location

The A6 through Broughton experiences congestion from Newsham, just north of Broughton, through the village centre and down to M55 Junction 1 (M55 J1), a total distance of 1.7 miles/ 2.6 km. This is especially so during the weekday commuting peak hours of 08:00 to 09:00 and 17:00 to 18:00. Approximately 25,000 vehicles



travel along the A6 through Broughton on an average 24 hour day and these journeys are subject to wide variations in journey times.

A bypass to relieve traffic from Broughton is proposed by Lancashire County Council (LCC), the scheme promoter. It would provide a link from the A6 north of Broughton, southwards to the B5269 Whittingham Lane, down to D'Urton Lane then re-joining the A6/M55 J1.

The key economic benefits of the bypass are likely to be derived from a reduction in delays to traffic, leading to significant travel time savings around Broughton and across the wider study area. In addition, large potential developments at the nearby Whittingham Hospital Site and Broughton Business Park at Eastway, are currently constrained by planning due to existing traffic conditions and the lack of appropriate highway infrastructure.

The proposed scheme will be combined with traffic management measures along the A6 within Broughton to enable public realm improvements and improved facilities for cyclists, pedestrians and public transport users. Scheme drawings for both the Bypass and the A6 Improvements are attached as **Appendix A**.

## 2.2 Scheme History

The traffic congestion and air quality problems suffered by the village of Broughton are a longstanding issue which have many impacts including social, environmental and economic. No further development is permitted in the local area without increased network capacity because Broughton Crossroads is so constrained. A bypass solution is the most practical option of removing motorway and commuter through traffic from the village.

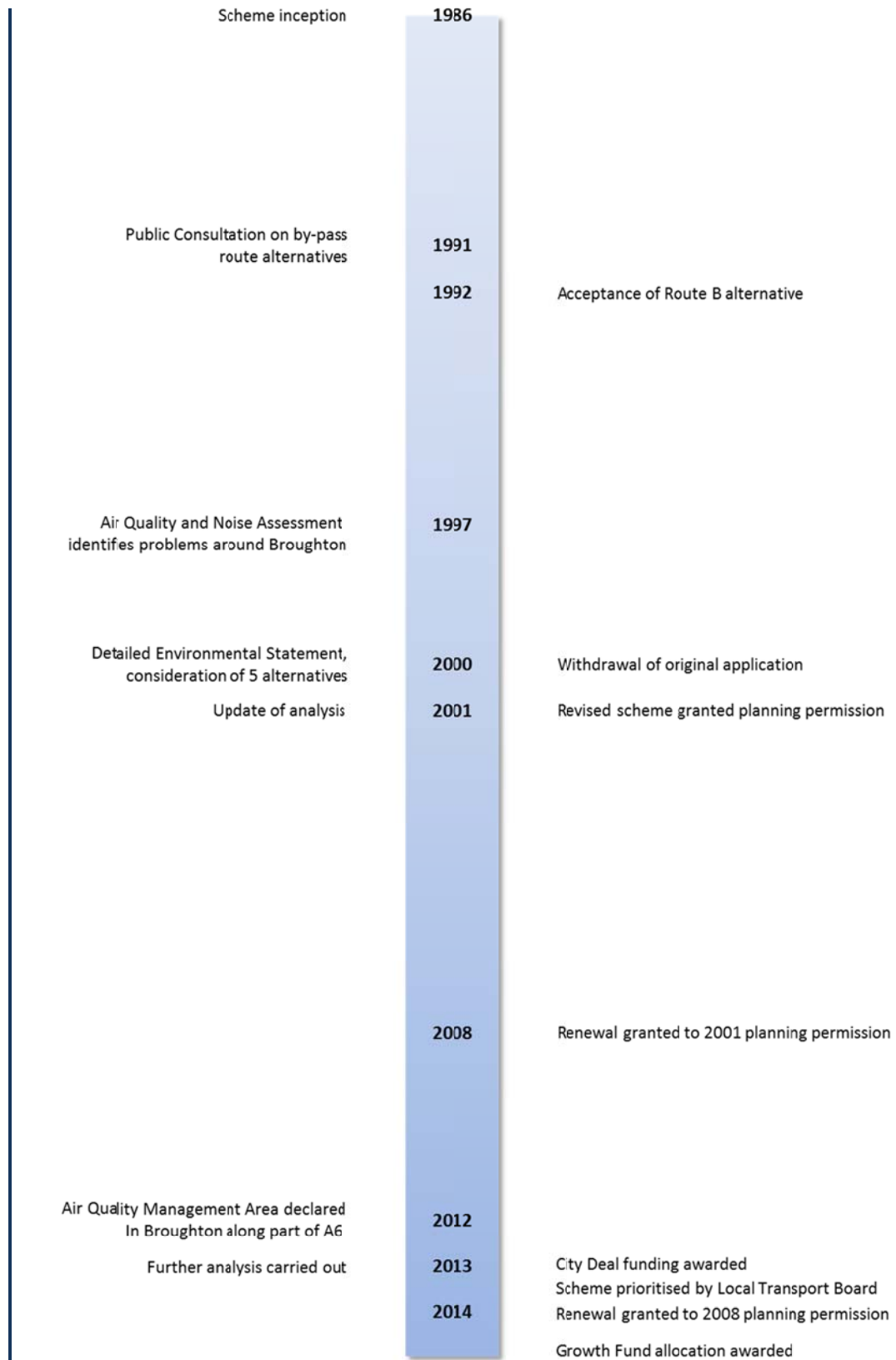
An environmental assessment carried out in 1997 identified air quality levels below acceptable standards and noise levels above acceptable standards. Ongoing environmental problems culminated in an Air Quality Management Area (AQMA) being declared on the A6 Garstang Road in relation to a likely breach of annual and hourly mean nitrogen dioxide (NO<sub>2</sub>) attributed to vehicle emissions. An AQMA represents a local commitment to monitoring and reducing harmful emissions in a designated area.

The bypass proposal has been considered for some time. In 1991, LCC consulted on two bypass routes, known as Route A (mainly offline but online at the southern end, close to the M55) and Route B (offline). The consultation results showed a large majority in favour of the bypass, with Route B, the closest to the current day route option, being the preferred option.

Over time, the preferred option was modified. Planning permission for the scheme was first granted in July 2001, with renewal granted in 2008. Permission for the scheme lapsed again in July 2013, and was subject to further analysis and updates that year to allow for a new application to be submitted. This was supported by the Local Transport Board who identified the scheme as a priority in the Central Lancashire Highways and Transportation Masterplan. Further renewal to the planning application was granted in December 2013.

Two significant public funding decisions have been awarded in support of the scheme which provides certainty of funding including the City Deal for Preston, South Ribble and Lancashire in September 2013 (Preston City Deal), as well as the Growth Deal awarded to the Lancashire LEP in July 2014.

The scheme history is summarised in Figure overleaf.

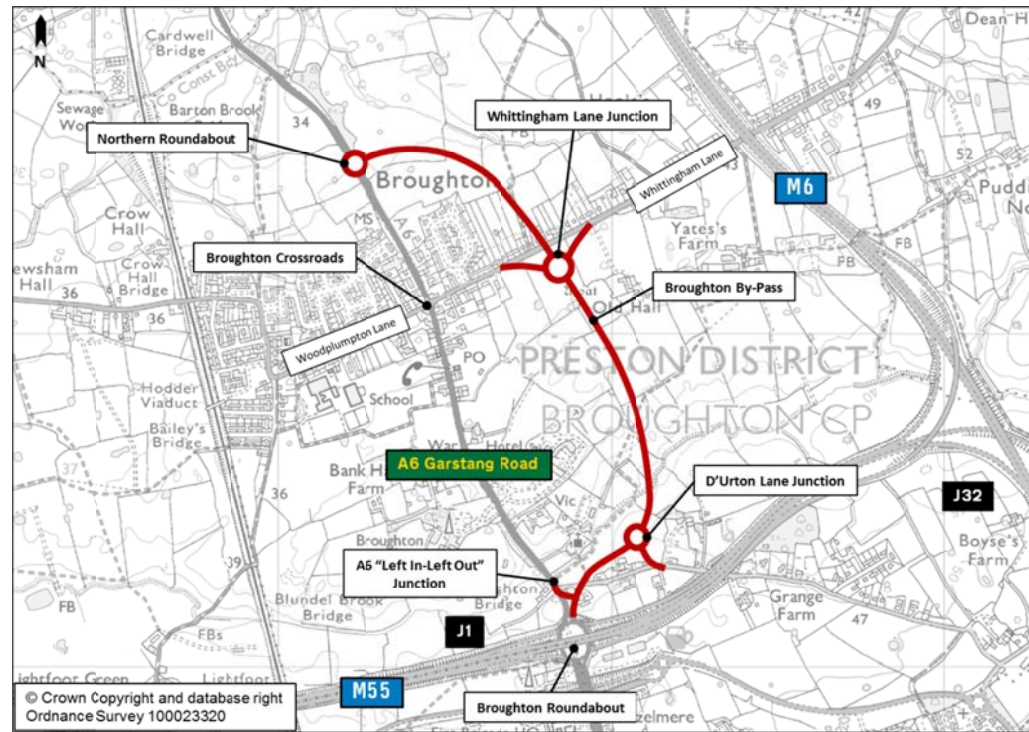


**Figure 2-B Summary of Scheme History**

### 2.3 Scheme Description

The proposed Broughton Bypass is 1.9 km long and its approximate alignment is shown in Figure .

Detailed scheme drawings for the bypass are attached at **Appendix A**.



**Figure 2-C** Approximate Scheme Alignment

The bypass will replace the part urban/part rural single carriageway road currently passing through Broughton with a rural classified road. It will avoid the village, removing through traffic from Broughton Crossroads. The northern section between Whittingham Lane and the A6 has been designed as two lane all-purpose single carriageway road. The southern section will be dual two lane carriageway from the B5269 Whittingham Lane to the A6/M55 Junction 1 roundabout. The D'Urton Lane Link will be a two lane single carriageway.

The scheme can be described in terms of three components:

**Northern Section:** Running south east from a new roundabout on A6 north of Broughton to a new roundabout on Whittingham Lane, to the east of Broughton. This section will form a single 2-lane carriageway with a 40 mph speed limit.

**Southern Section:** Initially runs south of Whittingham Lane to a new junction at D'Urton Lane, before turning south west to connect with the existing A6 at a separate "left in-left out" junction and Broughton Roundabout (M55 J1). This section will form a dual two lane carriageway with a 40 mph speed limit, widening to four lanes for southbound traffic before the roundabout with two lanes of the four lanes joining the slip road for the M55 east.

**A6 through Broughton:** The bypass will improve the environment and local road safety for the residents of Broughton and surrounding communities by removing heavy traffic flows and enabling the introduction of traffic calming measures in the village and the provision of pedestrian, cycling and public transport improvements. Post construction of the bypass, the A6 through Broughton will become a 20mph route with gateway treatments at either end of the village to reinforce the change. Footways will be widened, there will be a segregated cycleway linking in to the existing Guild Wheel cycle route and a new grass verge separating cyclists from traffic.

At the sub-regional level, the scheme will alleviate severe congestion affecting commuters to and from Preston, as well as journeys accessing the motorway network through Broughton and the M55 J1, leading to improved reliability and journey time savings.

The Preston Local Plan 2012-2026 sets out the development plan position and the importance of the City Deal to the provision of infrastructure, development of new homes and employment opportunities. Reference is made to Broughton Bypass being built in one phase by 2017 and the Plan safeguards the bypass alignments including the D'Urton Lane/ Eastway link road under Policy IN2.

The scheme supports development sites in Whittingham (650 dwellings), Longridge (90 dwellings) and the north west of Preston (4,000 dwellings), as well as the development of Preston Business Park, thus contributing to Preston and Central Lancashire's economic growth and Strategic Economic Plan (SEP). The route's alignment via the Eastway Link Road close to the Eastway Business Village in the North Preston Employment Area was a key reason behind selection of the preferred route because it supports delivery of a proposed residential and commercial development north of Eastway, reducing strain on the A6 south of the M55 Junction 1.

The original scheme included measures to alleviate congestion problems at the M55 J1 which affects the M55 slip roads. Junction improvements at the M55 have subsequently been implemented via a Pinch Point scheme. Whilst current journey times are quicker than prior to the M55 J1 improvements (southbound AM peak traffic was observed taking 15 minutes to travel approximately 1km from the Crossroads to the M55 J1), delays along this route are still a problem. They are predicted to worsen in the Forecast Traffic Model Do Minimum scenarios 2017 and 2032.

With the bypass in place providing additional highway capacity, there are forecast journey time savings compared to the Do Minimum 2017 scenario. This is found in the AM and PM Peak periods along the A6 (in the inter-peak the proposed traffic calming and lower speeds off-set any reduced congestion time savings) and for the equivalent journey in all time periods using the new Bypass. It should be noted that a proportion of mainly local traffic will still go through Broughton along the A6 in 2017 in order to access Broughton itself.

In summary, this is a long standing local and sub-regional priority for Lancashire and it has already secured planning permission. Following prioritisation for local major scheme funding by TfL and developer contributions, indicative funding is confirmed, subject to value for money being demonstrated and statutory powers are in place.

The scheme supports a major housing site at Whittingham Hospital, and further residential developments looking to come forward in the A6 corridor through the

Wyre district. Without the scheme, current and future traffic problems will continue to constrain the delivery of these sites and their associated economic growth.

### 3.1 Introduction

The Strategic Case determines whether or not an investment is needed, either now or in the future. It demonstrates the case for change - that is, a clear rationale for making the investment; and strategic fit - how an investment will further the aims and objectives of the Lancashire LEP.

More specifically, the Strategic Case should:

- *Specify the business need for a project;*
- *Set the context and identify a series of investment aims;*
- *Assess the investment aims against what the LEP (and Government) wants to achieve as a whole;*
- *Determining the case for change and strategic fit should be an iterative process as the business case develops, and always supported by robust evidence, such as identifying key risks and constraints; and*
- *Consult main stakeholder groups.*

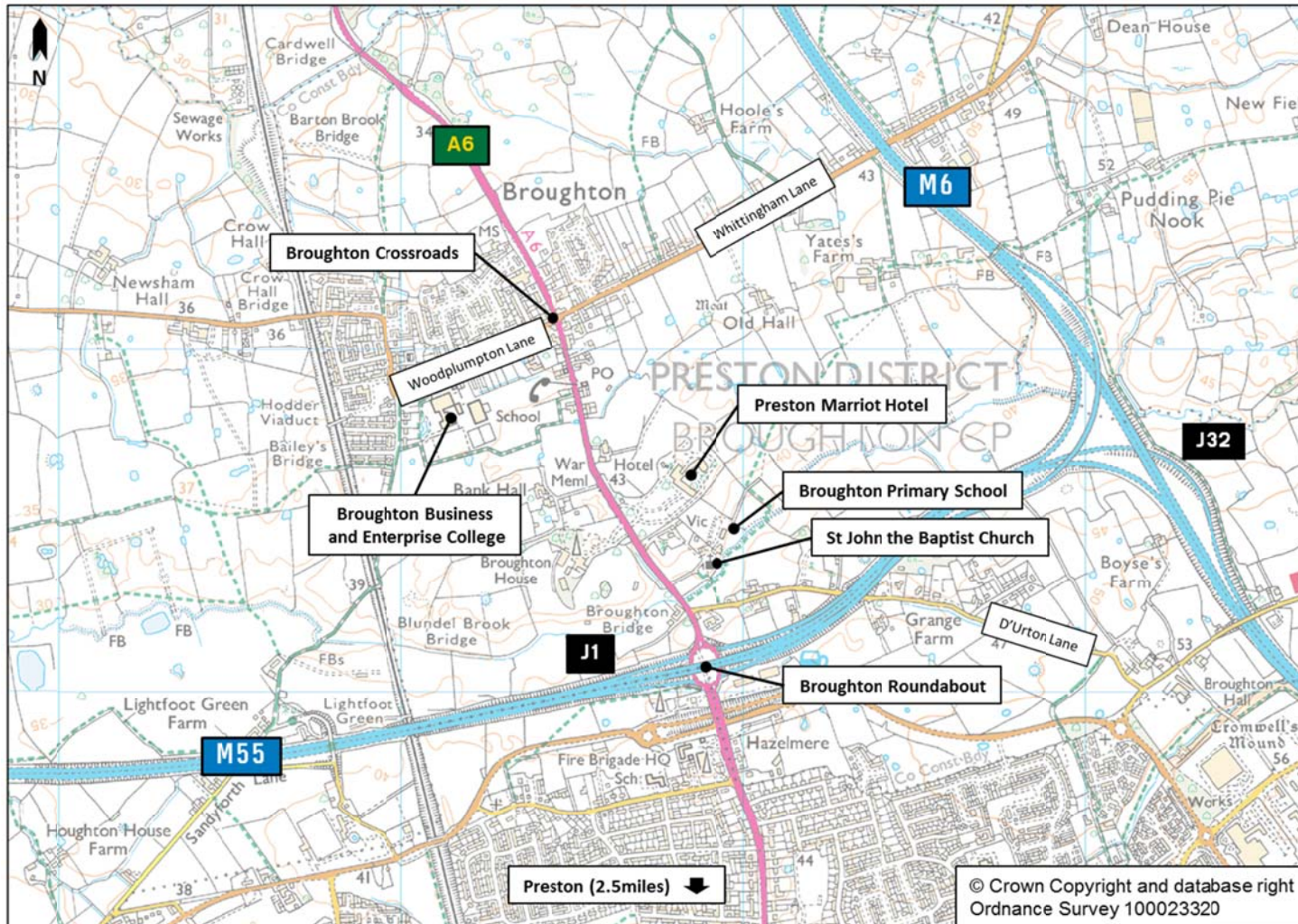
The remainder of this Strategic Case is discussed in detail under the following sub-headings:

- *Existing Arrangements;*
- *Identified Problems and Issues;*
- *Scheme Objectives;*
- *Proposals;*
- *Strategic Fit;*
- *Political Support;*
- *Stakeholders;*
- *Starting Gate Review;*
- *Internal or External Business Drivers;*
- *Synergy; and*
- *Conclusion*

### 3.2 Existing Arrangements

Broughton village is in a predominantly rural location with built-up areas extending as far as the railway line to the west, and Helms Farm to the north. To the east along Whittingham Lane, a row of housing extends towards the M6 motorway. To the south, there are a number of commercial and public properties such as the Preston Marriot Hotel, Broughton Primary School and St. John the Baptist Church. A map of the local area is provided in Figure .





**Figure 3-A Existing arrangements around Broughton**



The A6 Garstang Road forms the main north south route through Broughton village, where it intersects with the B5269 Woodplumpton Lane/ Whittingham Lane at Broughton Crossroads. The M55 J1 lies to the south of the village, offering connections to the wider strategic road network via the M6. Preston, which acts as a regional service centre, is located approximately 3.5 miles to the south of Broughton. Much of the existing traffic travelling through Broughton is associated with vehicles commuting to and from Preston.

As of 2014, traffic between Broughton Crossroads and the M55 J1 was measured by automatic traffic counts as being approximately 25,000<sup>1</sup> vehicles in a 24 hour average day. HGV's accounted for approximately 9% of overall traffic flow.

The Broughton Bypass Environmental Statement (July 2013) describes the existing environmental aspects of the area highlighting that land use is predominantly agricultural, interspersed with mature woodland and the highway network. *“Open rural land extends beyond the study area in all directions, and is very extensive to the north, east and west, interrupted only by the linear corridors of the M6 and West Coast mainline. Small to medium field pattern over gently undulating topography creates a simple landscape pattern with few public rights of way. A network of local minor roads and local lanes extend short distances from the main routes serving scattered groups of properties and farmhouses and give the landscape a typically rural quality. This is overlaid and subdivided by major highways (the M6, M55 and A6 itself), which contrast with the rural quality”*. Other environmental considerations in the immediate scheme area include:

- *Water courses (Blundel Brook, Dean Brook) and drainage courses;*
- *Trees protected by Tree Preservation Orders along Garstang Road;*
- *Broughton Air Quality Management Area (AQMA;)*
- *Potential soil erosion and depletion;*
- *Local heritage assets (buildings & landscapes, archaeological remains);*
- *Ponds containing protected Great Crested Newts; and*
- *Other protected species in the area (bats, otters, barn owls)*

The impact of the proposed scheme on the landscape and environment is considered later in this document.

There is a half-hourly bus service operating on the A6 through Broughton. Along with other traffic, services are subject to delays in the peak periods. The nearest transport interchange is Preston Bus Station, which is a 20 minute journey away. In addition to regular buses, there are dedicated school buses connecting to the Primary School and nearby Business and Enterprise College during the morning peak period.

Non-Motorised User (NMU - walking and cycling) facilities are generally adequate along the A6, but there are no crossing facilities at Broughton Crossroads which contributes to severance and road safety concerns, particularly given the proximity to a number of schools and the public house on the southern side of Woodplumpton Lane.

1

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Source: Automatic Traffic Count located on A6 Garstang Road north of D'Urton Lane, 2014

There are footways alongside the A6 and puffin crossing facilities close to bus stops and the school. A dedicated off-road walking and cycling route the 'Preston Guild Wheel' encircles Preston, passing to the south of Broughton village. It follows an off-road route past the Business and Enterprise College before crossing the A6 via a pelican crossing, from which it then uses the eastern footway of the A6 between the school and M55 J1.

Most of the proposed bypass route will pass through agricultural grazing land, with one large area of arable farming, north of Blundel Brook. Field boundaries are generally demarcated by hedgerows and trees, and the fields themselves are characterised by isolated trees and ponds.

At the southern end of the proposed route, adjacent to the existing M55/A6 roundabout, is a small group of houses, four of which would need to be demolished to create a path for the road. One of the four, Church Farm, has already been demolished. Two houses on Whittingham Lane would also require demolition to allow the scheme to pass through.

A 2012 A6 Options Study identified a number of physical constraints to improving the existing transport network, including;

- *Land ownership / highway boundary issues constrain on-line highway interventions;*
- *The church constrains off-line highway interventions to the east;*
- *Land ownership issues may constrain off-line highway interventions;*

Several housing and employment land use developments are already proposed for areas around Broughton and Preston with a total of 1,281 new dwellings by 2017. These developments are detailed within the relevant authorities' Local Plans; the Preston, South Ribble and Lancashire City Deal; and the Central Lancashire Masterplan. Locations of proposed developments local to the scheme are illustrated in *Figure* overleaf.

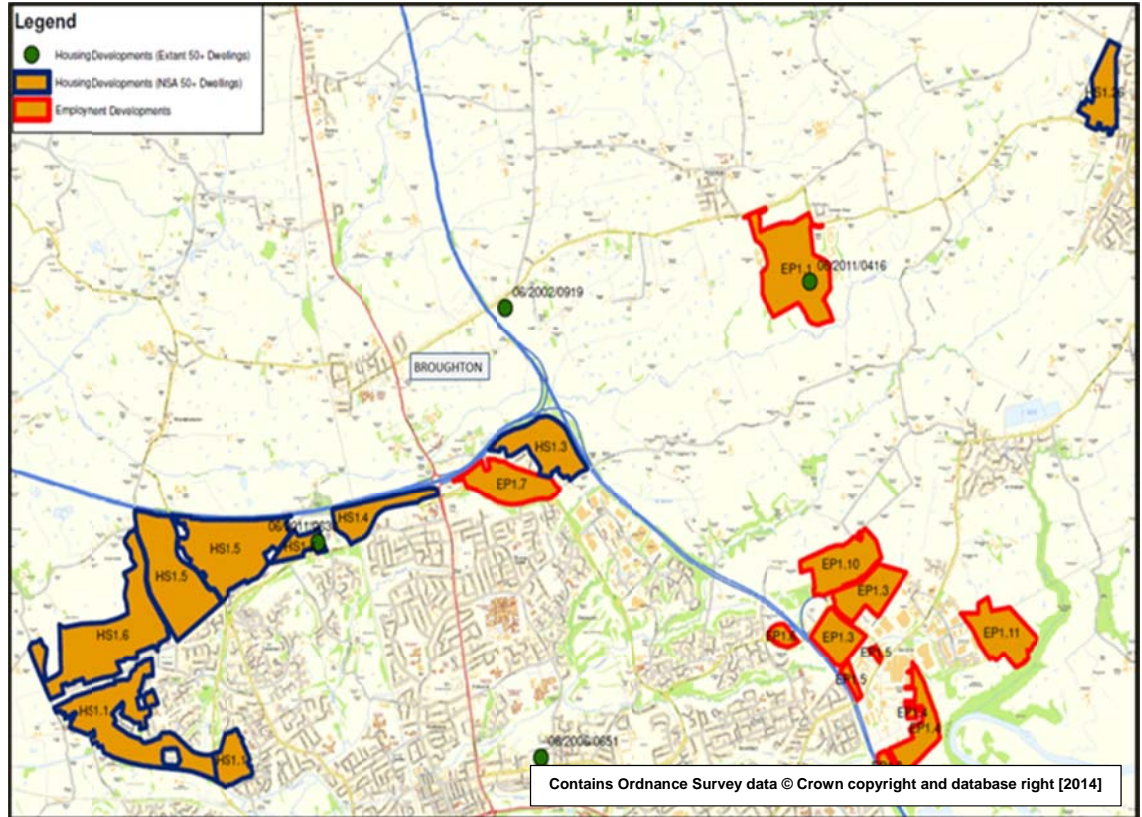


Figure 3-B Proposed Developments around Broughton

**EXISTING ARRANGEMENTS SUMMARY:**

Broughton is a rural village situated to the north of Preston and adjacent to the M55 and M6 motorways and it is bisected north – south by the A6 Garstang Road. The proposed bypass will be constructed on predominantly agricultural land with the requirement for demolition of a total of six residential properties. The route alignment is constrained by a number of physical and environmental factors including water courses, existing properties and the need to tie back in with the existing A6 north and south of Broughton.

A number of housing and employment developments are lodged with the planning authorities with many likely to be in place by 2017. In the absence of the proposed scheme, current high peak hour traffic volumes will continue to blight Broughton with the associated negative traffic and environmental impacts for commuters, residents and non-motorised users.

### 3.3 Identified Problems and Issues

Analysis during the development of the scheme identified the key problems and issues around the village. These are illustrated in Figure and are summarised in Table 3.1.

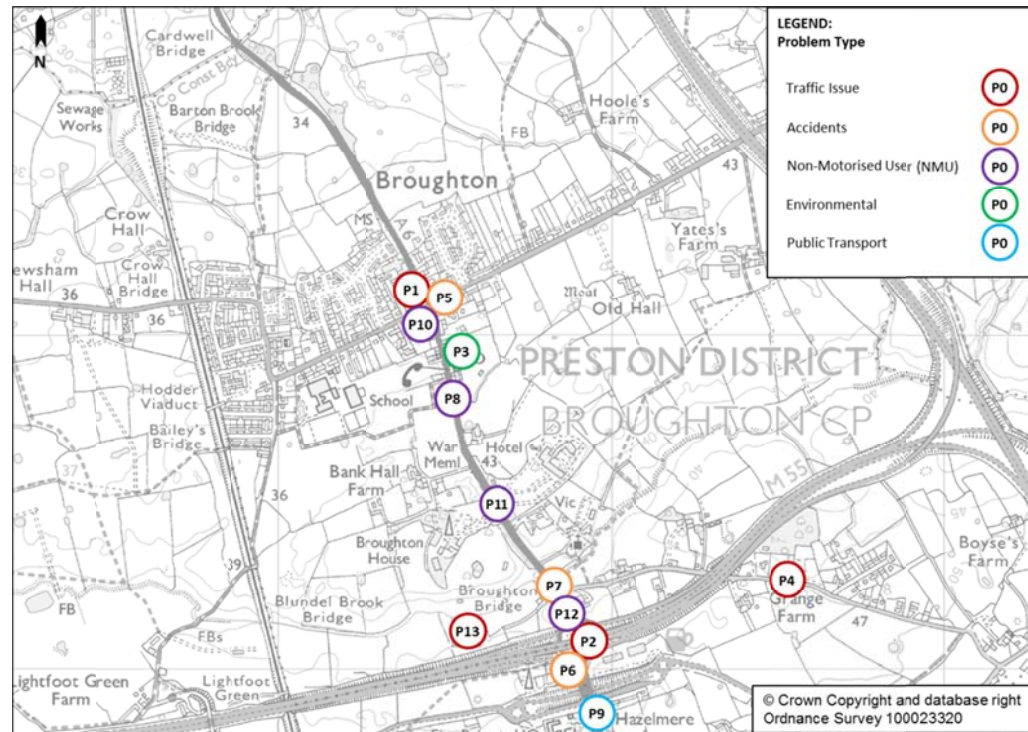


Figure 3-C Location of Problems and Issues around Broughton

Table 3.1 highlights that contemporary problems identified in the initial scoping stages for the scheme would be exacerbated should traffic levels increase which is likely with the proposed development at the Whittingham Hospital site.

Traffic forecasting carried out in late 2014 attempted to quantify some of these increases and determine the impact of not improving the network. It predicted that traffic flows on the A6 would increase by up to 24% by 2032 if no network improvements are built. Similarly, the total time spent travelling would also increase due to congestion.

In summary, the current road network acts as a constraint to future developments if no improvements take place.



ID	Overview	Description
P1	Congestion at Broughton Crossroads	<ul style="list-style-type: none"> <li>• High volumes of traffic on the A6 approaches to signalised Broughton Crossroads</li> <li>• Long queues on the approaches into the village, particularly the A6</li> <li>• Queues regularly extend back from Broughton Crossroads to M55 J1</li> <li>• Blocking back from the M55 J1 also affects southbound flows travelling through the crossroads.</li> <li>• Constrains the network's ability to manage additional traffic</li> <li>• Little scope for upgrading the junction given the close proximity of houses and commerce.</li> <li>• Creates pollution and safety issues</li> </ul>
P2	Congestion at M55 J1	<ul style="list-style-type: none"> <li>• Combination of local commuter traffic and long distance traffic uses junction to access the motorway network.</li> <li>• Experiences congestion within the circulatory carriageway.</li> <li>• Queues block back along the A6 towards Broughton</li> <li>• Creates pollution and safety issues</li> <li>• Improvement works carried out in 2013 will not accommodate the additional forecast traffic in isolation.</li> </ul>
P3	Poor air quality in Broughton	<ul style="list-style-type: none"> <li>• Congestion between M55 J1 and Broughton Crossroads causes pollution Levels of nitrous oxide on the A6 have exceeded thresholds.</li> <li>• An Air Quality Management Area (AQMA) is now in place along a 220 metre length of the A6 corridor from Broughton Crossroads towards Broughton Police Station.</li> <li>• AQMA is monitored and emphasis is on reducing emissions down to acceptable levels.</li> <li>• Forecast increases in traffic and development will further increase emissions within the AQMA.</li> </ul>
P4	Increased volumes of rat running traffic on D'Urton Lane	<ul style="list-style-type: none"> <li>• D'Urton Lane used as a rat run to bypass the M55 J1 and congestion on the A6.</li> <li>• It is predominantly rural with a number of residential properties adjoining it and is not designed for high levels of traffic.</li> <li>• Further developments planned in the vicinity of D'Urton Lane will increase traffic levels.</li> <li>• Increased congestion the A6 would encourage more rat running</li> </ul>
P5	Accidents at Broughton Crossroads	<ul style="list-style-type: none"> <li>• There is an accident cluster at Broughton Crossroads over a six-year period from 2006 to 2011. (12 slights, 1 serious)</li> <li>• Accidents connected to high volumes of traffic, high proportions of turning vehicles and the lack of provision for NMUs.</li> <li>• Accidents are more likely to happen if traffic levels at the junction increase.</li> </ul>
P6	Accidents at M55 J1	<ul style="list-style-type: none"> <li>• There is an accident cluster at the M55 J1 over a six-year period from 2006 to 2011 (24 slights)</li> <li>• Accidents connected to high volumes of traffic and the lack of provision for NMUs</li> <li>• Recent improvements to junction may have improved safety, but increased volumes of forecast traffic are likely to have a negative impact in the long term</li> </ul>
P7	Accidents at D'Urton Lane Junction	<ul style="list-style-type: none"> <li>• High level of accidents on the D'Urton Lane/A6 junction between Broughton and the M55 J1 (6 slights, 2 serious) over a six-year period from 2006 to 2011</li> <li>• The junction is currently uncontrolled with priority given to traffic on the A6, High volumes of traffic using D'Urton Lane as a rat run and congested traffic on the A6 have both contributed to increased accidents</li> <li>• Accidents are likely to increase if no mitigation measures are put in place to counter increased traffic levels.</li> </ul>

ID	Overview	Description
P8	Community severance on the A6	<ul style="list-style-type: none"> <li>• Pedestrian crossing facilities in Broughton village are limited, meaning that there is poor accessibility between individual local services.</li> <li>• The A6 bisects the village and experiences high levels of traffic and congestion, making it difficult for pedestrians and cyclists to cross safely.</li> <li>• Increased traffic congestion on the A6 is likely to exacerbate the level of severance as it will become less desirable and safe for pedestrians to move between key services within the village.</li> </ul>
P9	Public transport journey time reliability	<ul style="list-style-type: none"> <li>• Bus services between Broughton and Preston are regular and the timetabled journey time between them is approximately 20 minutes. However, congestion along the A6 during the peak hours means that buses are rarely on time.</li> <li>• This has a negative impact on their overall reliability and the public perception of buses as a viable alternative to using cars.</li> <li>• If congestion levels increase along the A6 then it is likely that bus service reliability will be eroded as a result.</li> </ul>
P10	Lack of NMU facilities around Broughton Crossroads	<ul style="list-style-type: none"> <li>• Lack of pedestrian crossing facilities at the crossroads which forms the busiest area of traffic and is the focal point for local services.</li> <li>• Signals at crossroads have no pedestrian or cyclist crossing facilities built into the operation of the junction, also no infrastructure in place to allow NMUs to cross at this location</li> <li>• Any provision of pedestrian crossing facilities as part of the current signal operation would have a negative impact on congestion</li> <li>• Traffic levels are predicted to increase, making it harder to integrate pedestrian facilities into signal operations.</li> <li>• However, higher traffic flows and poor crossing provision would make accidents more likely</li> </ul>
P11	Lack of NMU facilities on A6 south of Broughton	<ul style="list-style-type: none"> <li>• The A6 south of Broughton adjoins several large pedestrian trip generators; including a hotel, a church and two schools. There are pelican crossings adjacent to bus stops and school entrances, but none opposite the hotel.</li> <li>• Site observations noted that staff from the hotel regularly cross the A6 in order to get to a northbound bus stop on the other side, however there is no pedestrian crossing provided.</li> <li>• Any increase in traffic levels on the A6 are likely to increase the possibility of collisions involving pedestrians occurring.</li> </ul>
P12	Lack of NMU facilities at M55 J1 and A6 approaches	<ul style="list-style-type: none"> <li>• Recent improvements to the junction have introduced toucan crossings on the western side of the junction and improved cycling facilities. The eastern side of the junction is served by a cycleway and subway tunnels.</li> <li>• No measures in place to address NMU movements between east and west across the A6 approaches, where traffic is forecast to increase and congestion is projected to worsen.</li> </ul>
P13	Sparse road network and limited motorway access	<ul style="list-style-type: none"> <li>• Broughton experiences high levels of through traffic as it is located on a key radial route in and out of Preston.</li> <li>• The surrounding road network is predominantly rural and offers no direct route between the larger settlements.</li> <li>• Similarly, the surrounding strategic network is also limited as there are no further motorway junctions west of M55 J1 for another 7 miles and no junctions north of the M6 J32 for another 13 miles.</li> <li>• The sparse road network has other impacts, namely the use of the A6 as a diversion route for motorway traffic on the M6</li> <li>• If no improvements take place, it is likely that the sparse road network will act as a constraint to future development.</li> </ul>

**Table 3-1 Identified Problems and Issues**

Recent improvements to the M55 at Junction 1 have reduced the levels of queuing and blocking back from the junction through to Broughton, observed in 2012. Surveys conducted in 2014 have confirmed that journey times on the A6 through

Broughton in the southbound direction have reduced since the Junction 1 improvements were made.

However, northbound journeys through Broughton have been relatively unaffected by the M55 improvements, with average journey times still poor and high levels of journey time variability.

Additionally, high levels of development are expected in the area, which, on top of forecasts from DfT's National Trip End Model (NTEM) covering background traffic growth, will lead to significant increases in traffic in the future. This will inevitably have a negative impact on journey times, exacerbating the existing delays in the northbound direction, and potentially leading to new delays in the southbound direction.

Tables 3-2 and 3-3 below summarise the forecast journey times through Broughton on the A6 Garstang Road and the B5269 Whittingham Lane in the 2017 Do Minimum scenario (without bypass scheme). These clearly show the problem of excessive journey times for relatively short distances along the A6. Northbound along the A6 from the M55 J1 to Broughton Crossroads is a distance of only 1.14km yet in the morning and evening peaks the journey is forecast to take almost 8 minutes (07:43 and 07:48 minutes respectively).

Table 3-3 demonstrates the forecast journey times for travellers using Whittingham Lane. The most marked delays forecast on Whittingham Lane in the 2017 Do Minimum scenario are for westbound traffic with a distance of 1.4km estimated to take approximately 6 minutes in the morning peak and 6 minutes 41 in the evening peak.

Section	Direction	Distance (Existing) km	2017 DM model (min:sec)		
			AM	IP	PM
M55 to Crossroads	Northbound	1.14	07:43	02:08	07:48
	Southbound	1.14	02:32	02:09	02:06
Station Lane to Crossroads	Northbound	1.50	01:37	01:47	01:43
	Southbound	1.50	04:17	02:00	02:31
Total – M55 to Station Lane	Northbound	2.64	09:20	03:55	09:31
	Southbound	2.64	06:49	04:09	04:37

**Table 3-2 Journey Times along A6 2017 Do Minimum**

Section	Direction	Distance (km)	2017 DM model (min: sec)		
			AM	IP	PM
Langley Lane to Crossroads	Eastbound	1.43	01:26	01:26	01:26
	Westbound	1.43	06:02	04:08	06:41

**Table 3-3 Journey Times along Whittingham Lane 2017 Do Minimum**

More information on forecast journey times can be found in the Model Forecasting Report, **Appendix C**. For information on the validation of the traffic models and key parameters, please refer to the Local Model Validation Report in **Appendix D**.

**IDENTIFIED PROBLEMS AND ISSUES SUMMARY:**

Analysis of the network problems and issues affecting Broughton produced a list of 13 key problems based on available datasets and site observations. These defined a number of issues associated with heavy through traffic flows, alongside problems associated with road safety, pedestrian accessibility, public transport and the environment. Without intervention, these problems are likely to be exacerbated in future years as adjacent developments are completed and traffic levels continue to grow.

**3.4 Scheme Objectives**

The scheme objectives were set out by Lancashire County Council during the initial planning application stages of Broughton Bypass and have been reiterated in a number of public documents including the Broughton Bypass Classified Road Statement of Case for the Public Local Inquiry into the compulsory purchase and side road orders required as part of the scheme. The objectives are:

- *To improve the environment, particularly that of the bypassed community;*
- *To provide better conditions for public transportation, cyclists and pedestrians, which facilitates and encourages the increased use of transport options other than private vehicles;*
- *To enhance road safety;*
- *To assist economic growth through an efficient and sustainable transport system and maintenance of accessibility to the trunk network for the efficient transport of goods; and*
- *To bring additional capacity to the network and improve accessibility and journey times into and out of Preston and better connectivity to the wider strategic road network, with additional benefit to the delivery of new development and economic growth in the area.*

The scheme also contributes towards the objectives set out in the Local Transport Plan (LTP) for Lancashire, produced in May 2011. The LTP objectives are:

- *Improving access into areas of economic growth and regeneration;*
- *Providing better access to education and employment;*
- *Improving people’s quality of life and well-being;*
- *Improving safety of streets for most vulnerable residents;*
- *Providing safe, reliable, convenient and affordable alternative to the car;*
- *Maintaining assets; and*
- *Reducing carbon emissions*

The Strategic Fit with wider national and sub-regional policy objectives is discussed further in Section 3.6.

It is considered that the objectives would be successfully met if the environment in Broughton village was improved, alongside improved local road safety and pedestrian accessibility. The scheme would also be successful if it was able to improve journey times for traffic on the A6 whilst providing additional capacity for development traffic.



It has been determined that the proposed scheme would successfully meet these objectives as it would;

- *Reduce traffic levels through Broughton village;*
- *Reduce the impact of noise and emissions in Broughton which could lead to the AQMA being rescinded;*
- *Create a more pedestrian friendly environment and provide an opportunity to make improvements to the quality of the public realm, reduce severance in the village and provide for improved NMU conditions for cycling, public transport and pedestrians;*
- *Improved junctions around the bypass, fewer through vehicles and slower speeds as a result of traffic management in the village centre would create a safer environment;*
- *The scheme would support the delivery of new development in the wider area, without which the levels proposed in the adopted Central Lancashire Core Strategy could not be delivered.*
- *Traffic modelling has found that the Bypass would reduce two-way traffic through Broughton on the A6 by 92%. The two-way Average Annual Daily Traffic (AADT) on the A6 (just south of the crossroads) in 2032 is 31,600 in the Do Minimum and 2,600 in the Do Something Bypass scenario, i.e. a reduction of 92%.*

#### **SCHEME OBJECTIVES SUMMARY:**

The scheme objectives emphasise the importance of the scheme and associated A6 Improvements for facilitating economic growth and bringing forward development, whilst improving the environment, local road safety and sustainable travel options. It would improve journey times for access to Preston and the wider trunk road network.

### **3.5 Alternative Options**

As stated by DfT WebTAG guidance and the planning process, as part of confirming a preferred solution or intervention, it is important to consider all potential interventions and modes of transport with the emphasis on identifying interventions which will solve the problems and achieve the objectives.

A detailed consideration of alternative options and packages of interventions has been carried out over the history of the scheme's development and during the initial planning application stages for the bypass. This work included an assessment of alternatives based on DfT's appraisal process known as EAST, as well as an initial traffic modelling test on two potential bypass options.

The rejected alternatives are outlined in the Environmental Statement (July 2013) as well as in the April 2015 Statement of Case for the CPO/ SRO Public Inquiry which is attached as **Appendix B**.

The following sections summarise the packages of interventions previously considered (long list) and then the short list of options investigated further.

For the short listed options in section 3.5.4 there is also a brief explanation outlining the rationale behind why each alternative option was found inferior to the proposed scheme.

### 3.5.1 Broughton Options Study – Long List

The A6 Options Study carried out an option appraisal based on DfT guidance for the identification, shortlisting, filtering and prioritisation of solutions or alternatives.

The analysis first identified the problems and constraints to the highway network in Broughton before listing the route functions and opportunities for improvement. In total, a long list of 44 potential interventions was identified, covering all modes. These included:

- *Bypass / Link Road – 8 interventions;*
- *Cycling / Walking – 5 interventions;*
- *Public Transport – 4 interventions;*
- *Other Highway Improvements – 4 interventions;*
- *Junction Improvements – 18 interventions; and*
- *Behaviour Change / Smarter Choices – 5 interventions.*

In line with DfT guidance, a bespoke appraisal framework based on DfT’s EAST process was used, based on a scoring system applied to the following criteria;

- *Cost Estimate*
- *Timescale Estimate*
- *Technical Feasibility*
- *Contribution towards LTP Objectives*
- *Deliverability (consideration of acquiring land, compensation, existing street infrastructure)*
- *Funding availability*
- *Contribution towards Route Functions*
- *Contribution towards alleviating Route Problems*

This resulted in 33 interventions being discounted from the appraisal process, leaving 11 interventions to be considered further. These were then grouped into four alternative *packages* of improvements at Broughton and one package of improvements at M55 J1, which are summarised in Table 3-4.

These packages drew from some of the discarded interventions if it was determined they would “add value” to the overall package.

Intervention Package	Primary Improvements	“Added Value” Improvements
<b>Broughton Package 1</b>	Early completion of northern section of bypass (due to uncertainty about funding sources in 2012)  B5269 Whittingham Lane severed at Broughton Crossroads	Inclusion of pedestrian / cycle facilities at Broughton Crossroads
<b>Broughton Package 2</b>	Minor widening at Broughton Crossroads  Remove on-street parking on East side of A6, south of the crossroads	Inclusion of pedestrian / cycle facilities at Broughton Crossroads
<b>Broughton Package 3</b>	Southern section of bypass only  B5269 Whittingham Lane severed at Broughton Crossroads	Inclusion of pedestrian / cycle facilities at Broughton Crossroads

<b>Broughton Package 4</b>	Significantly enlarge existing crossroads by demolishing adjacent restaurant  Remove on-street parking on East side of A6, South of the crossroads	Inclusion of pedestrian / cycle facilities at Broughton Crossroads  Opportunity to provide community / retail facilities, and/or replacement parking, in space created
<b>M55 J1 Package 1</b>	Signalise A6 southbound entry  Widen circulatory carriageway  Signalise A6/B6241 Eastway northbound junction  A6/D'Urton Lane junction - provide ghost-island right-turn lane	Segregated left turn lane from A6 North to M55 East  Re-open nearside lane on A6 northbound between B6241 Eastway and M55 Junction 1  Localised widening in the vicinity of the slip-roads

**Table 3-4 Intervention Packages /Themes Identified during Optioneering**

Some of the options proposed in the M55 J1 package were subsequently delivered as part of the junction improvements that took place in 2013.

In 2012, there was potential for funding indicatively allocated by LCC towards the Broughton Bypass to be made available for one or more of these alternative packages, if they represented a more deliverable solution than the Bypass or could be implemented earlier and within more certain funding parameters. It was determined that the Bypass still represented the best and most deliverable solution in terms of the scheme objectives. The smaller packages of measures did not deliver comparable benefits or reduce traffic sufficiently on the A6 through Broughton to meet the scheme objectives.

### 3.5.2 Rejected Options

Following the work to identify packages of interventions, more detailed work was undertaken to consider the main alternative options to the proposed Broughton Bypass scheme.

The alternative options were discounted by LCC in favour of the preferred option, a bypass to the east of Broughton, because they were assessed as dealing less effectively with the range of issues and problems caused by the traffic through Broughton. The alternative solutions would not achieve the proposed objectives for the Scheme.

The alternative options investigated in detail by LCC are summarised in Table 3-5.

Option	Description	Reasons for Rejection
<b>Option 1</b>	On-line improvement to A6 Garstang Road	Improvement would irrevocably alter the appearance and character of Broughton village  High traffic levels would continue to flow through the village.  Noise and emissions would also increase  No opportunity for NMU enhancement or severance reduction.
<b>Option 2</b>	Park and Ride Facility in the Broughton Area	Would not attract high enough patronage as only a small number of potential users along the A6 Garstang Road were likely to use it  Would not reduce through traffic levels in Broughton effectively  Benefits to noise/emissions/NMUs would not be significant

Option	Description	Reasons for Rejection
Option 3	New Junction on M6 in the Garstang/Brock Area	<p>Contravenes National Policy – not essential for delivery of strategic planned growth. Where the DfT strategic growth test cannot be met there will be no additional junctions with access to the motorways.</p> <p>No additional junctions will be approved by Highways Agency</p>
Option 4	Bypass of Broughton to the West of Village	<p>Two route options were considered to the West of Broughton. Both were rejected because of the visible impact of a more elevated route close to the village. Other reasons for rejection included:</p> <p>Additional cost associated with bridging railway in two places</p> <p>Inadequate connection to surrounding network and in particular for the Link to Eastway</p> <p>Adverse environmental impact on landscape and nature conservation interest of Barton Brook and Blundel Brook</p> <p>Route would be longer than eastern configuration</p>
Option 5	Alternative Route for Bypass to the East of Village – Utilising widened section of A6 south of Keyfold Farm and close to Preston Marriott Hotel	<p>Shorter route would introduce additional severance between Broughton village the Broughton in Amounderness Primary School and St John Baptist Church</p> <p>Impacts on village fringe and Preston Marriott Hotel</p> <p>Would affect trees protected by Tree Preservation Orders</p> <p>Would require widening of Garstang Road, affecting the established rural appearance of the route</p> <p>Substantial cost for service diversion</p>

**Table 3-5 Summary of Alternative Options**

The promoted scheme has also been endorsed as the preferred scheme by two Inspectors at different Public Inquiries.

The Inspector at the Public Inquiry into the Preston Local Plan stated in his 1998 report that the Link to Eastway from the bypass via D'Urton Lane is so closely associated with the bypass that he recommended the consolidation of the two routes into one policy. Alternative alignments of the bypass would need to satisfy this additional requirement of the Link to Eastway via D'Urton Lane. The Inspector also stated:

*“The construction of the Broughton Bypass is essential for the resolution of traffic problems at Broughton”.*

Inspector of the Preston Local Plan Public Inquiry, 1998

More recently, the 2015 Inspector for the Public Local Inquiry into the Compulsory Purchase and Side Road Orders for Broughton Bypass concluded in her report to the Secretary of State:

*“There is a compelling case for the scheme to be implemented in order to overcome congestion and improve journey reliability and conditions for travel by all modes of transport, to enable the quality of the environment to be improved in the village centre and along the A6 and to deliver future housing and economic growth in the area. The public benefit will outweigh the private loss”.*

**ALTERNATIVE OPTIONS SUMMARY:**

A number of alternative proposals have been considered for the latest planning application for the Broughton Bypass. These included large scale highways improvements, both on the A6 and the wider highway network and small scale packages of improvements in the local area.

Following analysis and appraisal of these options, it has been concluded that they do not sufficiently achieve the proposed objectives of the scheme, nor do they effectively address the range of issues and problems associated with traffic in Broughton.

**3.6 Strategic Fit**

Throughout the planning process, the strategic fit of the scheme has been appraised against current guidance and policy documentation. Previous applications considered policies in the North West Regional Spatial Strategy (RSS), Lancashire Structure Plan and Preston City Local Plan. Since then, the RSS and Structure Plan have both been abolished and replaced by the National Planning Policy Framework (NPPF).

A Planning Policy Reference Report (May 2013) cites the relevant core planning principles that are pertinent to the scheme. It included a review of NPPF, the Central Lancashire Core Strategy and Preston City Local Plan.

Since May 2013, a number of additional policies at a national and local level have been published. All relevant environmental policy considerations are detailed within the relevant chapters of the Environmental Statement (July 2013). Additionally, the funding arrangements for the scheme have changed.




A Policy Review in relation to the scheme was produced in 2014 and can be found in **Appendix E**. This includes a detailed breakdown of the scheme’s strategic fit against policy documentation.

Table 3-6 below provides a Red Amber Green (RAG) assessment to summarise the strategic fit of Broughton Bypass against the key national, sub-regional and local policy documents

Policy	Summary of Alignment	Strategic Fit
<b>National Policy</b>		
National Planning Policy Framework	Scheme aligns with the principles of NPPF where it is stated that "Planning policies should recognise and seek to address potential barriers to investment, including a poor environment or any lack of infrastructure" (para 21); " and "Local planning authorities should identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice." (para 41).	
Government Response to Heseltine Review	The Government’s response to Lord Heseltine’s plan for growth, "No Stone Unturned" led to the devolution of funding powers and the Single Local Growth Fund aimed at fostering and promoting growth across the UK. The scheme aligns with these aspirations and provides the infrastructure needed to facilitate development and housing in the north	

Policy	Summary of Alignment	Strategic Fit
	Preston area.	
<b>Sub National Policy</b>		
Lancashire Local Transport Plan 3	Scheme aligns with LTP3 priorities. In LTP3 the highest priority is given to supporting private sector led economic growth and the creation of jobs and access to employment, education and training. The approach focuses on "the links between areas of economic opportunity and their prospective workforce and markets, with sustainable transport being a priority for appropriate journeys." (p11). LTP3 highlights the need to "reduce congestion and delay and increase road capacity on our most congested transport corridors, improve highway links and junctions to support the growth of our key economic centres of Preston and Lancaster" (p13). LTP3 promotes the case for major infrastructure investment which contributes to Lancashire's economic success, including "major new road building including proposals to support growth in central Lancashire with the Broughton Bypass" (p13) The associated LTP3 Implementation Plan includes Broughton Bypass with a construction start of 2015/16.	
Preston, South Ribble and Lancashire City Deal	The scheme is included in City Deal as one of four critical road infrastructure schemes required to deliver the City Region's development and economic growth aspirations. The City Deal identifies the scheme as providing critical relief and improved connectivity to the A6, North East Preston and M6, unlocking housing sites to create over 1,400 new homes, as well as enabling full development of new and future employment sites in East Preston.	
Lancashire Strategic Economic Plan- A Growth Deal for the Arc of Prosperity	The case for the scheme is strongly supported by the Lancashire SEP 2014. It states "A new Broughton Bypass will provide critical congestion relief on the A6 to the north of Preston. This new road will also unlock housing sites to create over 1,400 new homes, as well as enabling full development of new and future employment sites in Preston East creating over 5,000 new jobs".	
Lancashire Growth Plan 2013/14	The plan set out how Lancashire intended to achieve strong economic growth. It stated it will ensure Lancashire's major transport projects are fully aligned with the delivery of key economic priorities and that Transport for Lancashire will agree major transport investment priorities which will be underpinned by local Transport Master Plans. Through this approach, Broughton Bypass was prioritised for investment.	
Lancashire LEP Growth Deal	The scheme will form part of the infrastructure investment programme. Following the devolution of funding to LTBs, the Government has subsequently allocated all local major transport scheme funding to the single Local Growth Fund from 2015/16. This funding is accessed through Growth Deals agreed with Local Enterprise Partnerships. Broughton Bypass now has a £15.5 million allocation through the Growth Deal in 2016/17 (including the £5.6m previous LTB allocation).	
<b>Local Policy</b>		
Central Lancashire Masterplan	The scheme is identified as a strategic priority in the Central Lancashire Highways and Transport Masterplan. The master plan confirms the need to deliver congestion relief to Broughton with a bypass the only practicable means of removing motorway through traffic from the village. It confirmed the timetable for delivery as per the LTP Implementation	



Policy	Summary of Alignment	Strategic Fit
	Plan.	
Central Lancashire Core Strategy	Policy 3 of the Central Lancashire Core Strategy July 2012 included a measure to improve the road network with a bypass at Broughton.	
Preston City Local Plan	The Preston Local Plan was adopted in April 2004 and it identifies and safeguards an alignment for Broughton Bypass. Policy T5, noted the scheme's importance in improving conditions in the village, and recognised its role in supporting strategic growth at Goosnargh/Whittingham, and the Whittingham Hospital development.	
<b>Strategic Fit with Broughton Bypass</b>  Strong strategic fit with policy  Neutral / minimal strategic fit with policy  Negative strategic fit with policy		

**Table 3-6 RAG Analysis of strategic fit of Broughton Bypass**

There is evidence of a strong policy alignment and strategic fit for the Broughton Bypass, with documented strategic and planning policy specifically stating that implementation of the scheme is vital to ensure that sustainable development can take place. The current traffic and highways situation is a barrier to development that could be overcome by the implementation of the bypass.

### 3.7 Political Support

The scheme has strong and broad political support in LCC. It is identified in the Central Lancashire Masterplan and supports other schemes put forward in the Central Lancashire Core Strategy and Preston Local Plan.

The planning application notice for Broughton Bypass was issued in December 2013, accompanied by a Unilateral Undertaking Notice. Following publication of the planning permission approval, a number of County Councillors have demonstrated their support for the scheme including:

*"The City Deal is a massive investment...that we expect to trigger the creation of thousands of new jobs and thousands of new homes over the next decade. The road network in north Preston is already creaking because of the volume of traffic and simply cannot cope with this pace of growth. The bypass would make a tremendous difference to Broughton village itself while greatly improving journey times for people passing through the village into and out of Preston."*

#### **County Councillor Jennifer Mein, Leader of Lancashire County Council**

*"I'm glad the development control committee has renewed the planning consent for this vital scheme. Congestion has been an issue in Broughton village for the last 40 years....we need a bypass now more than ever."*

#### **County Councillor John Fillis, Lancashire County Council, Cabinet member for Highways and Transport**

*"We welcome the renewal of the planning permission for the Broughton Bypass and look forward to working with Lancashire County Council and local communities to bring forward the best possible scheme for the area."*

**Councillor Peter Rankin, Leader of Preston City Council****3.8 Stakeholders**

As part of the statutory process for planning applications, the scheme underwent a consultation process with key stakeholder groups and members of the public between August and October 2013.

There were also three specific local consultation events to view the plans, see maps of the route and speak to council officers and these were held in Goosnargh, Fulwood and Broughton on the 16<sup>th</sup> July, 17<sup>th</sup> July and 20<sup>th</sup> July 2013.

The stakeholder groups and their responses are summarised in Table 3-7.

Overall, there were no objections to the scheme raised by any of the stakeholder groups, with Natural England requesting that additional information be made available to demonstrate habitat connectivity. This was provided and resolved as part of the consultation process.

In addition to engaging with stakeholder groups, the council organised consultation events in the local area that allowed members of the public to view the plans. Further to these events, the application was advertised by press and site notices, and neighbouring residents informed by letter.



Stakeholder Group	Response
<b>Broughton Parish Council</b>	<p>Parish Council has campaigned in favour of a bypass for over 30 years</p> <p>Believe that only a full bypass will resolve the existing problems of high traffic volumes, congestion and pollution.</p> <p>View the bypass as a requirement irrespective of any future development.</p> <p>Do not believe that there are any other solutions to the traffic problems e.g. a new junction on the M6 near Garstang would conflict with Highways Agency policy and would have severe environmental and engineering problems.</p> <p>A range of sustainable transport measures proposed to be developed alongside the bypass so that the scheme as a whole would greatly improve quality of life in Broughton village.</p>
<b>Whittingham Parish Council</b>	No response received
<b>Goosnargh Parish Council</b>	No response received
<b>Preston City Council</b>	<p>No objection to the bypass</p> <p>Permission subject to the LCC taking into account the need to comply with Section 2 of the Civil Contingencies Act 2004 with regard to the movement of radioactive material, the desirability of providing lay-bys or other refuges for broken down vehicles</p> <p>Consideration required for the Guild Wheel cycle route in the design and construction of the bypass.</p>
<b>Environment Agency</b>	No objection subject to conditions being imposed relating to surface water drainage and contaminated land.
<b>English Heritage</b>	<p>The bypass has the potential to impact upon the settings of various designated and non- designated heritage assets e.g. St John's the Baptist Church.</p> <p>It is considered that due to the topography and vegetation around the church, it is unlikely that the bypass will have significant impacts on the setting of the church and the ability to appreciate the significance of the church from a historical perspective.</p>
<b>Natural England</b>	<p>Natural England advise that the development is unlikely to affect any statutorily protected sites or landscapes.</p> <p>Mitigation measures should maintain local bat populations at their existing levels.</p> <p>The bypass would divide habitat used by Great Crested Newts and it therefore necessary to demonstrate how habitat connectivity for this species will be maintained.</p>
<b>United Utilities</b>	No response received
<b>Highways Agency</b>	No response received
<b>Sport England</b>	No response received
<b>Public Rights of Way</b>	<p>A number of comments were made with regards to the surfacing of diverted rights of way north of Whittingham Lane</p> <p>Provision to be made at the southern end of the scheme where a number of rights of way are affected by the route.</p>
<b>Ramblers Association</b>	Existing rights of way should be accommodated within the scheme, particularly north of Whittingham Lane and in the D'Urton Lane area.

**Table 3-7 Stakeholder Group responses**

Representations to the planning application from members of the public were also received. Key reasons for objections included concerns about:

- *Lack of consideration for cheaper alternatives which could have a lesser impact than the Broughton Bypass e.g. a new M6 junction at Garstang;*
- *The proposed development would have an unacceptable impact upon the church and primary school. Classrooms and play fields would suffer increased noise and air quality impacts;*
- *Air quality and noise pollution impacts would be increased; Many residents feel that the proposed development will increase rather than reduce the amount of vehicles travelling through Broughton;*
- *The bypass would have a negative impact upon the environment;*
- *The bypass should be incorporating stronger public transport link; and*
- *There is no funding package in place for the road.*

The reasons for supporting the scheme at planning included;

- *The bypass is the only solution that will allow roads to handle the additional traffic that will be created by further development;*
- *The bypass would provide better connections to the wider road network and benefits for development and economic growth in the wider area;*
- *The bypass will create a village community by removing 80% of the traffic from the village;*
- *Reduce the stress of congestion, air and noise pollution;*
- *Capital project benefits should be looked at beyond Broughton;*
- *The bypass would provide a safer environment for cyclists and pedestrians; and*
- *The bypass would help improve conditions for local businesses.*

As conditions had not changed since the previous planning approval in 2008, the scheme was still the preferred solution. Alternatives had been considered and rejected on the grounds of policy and deliverability and the scheme was predicted to reduce noise levels and improve air quality. The mitigation measures around the school and church were deemed to be effective, as were the environmental measures to protect the natural habitat. Planning was consequently approved.

### **3.8.1 Broughton A6 Local Village Improvements Consultation**

During spring 2015, LCC held consultation and an information sharing event on the proposed traffic management and NMU options for the A6 through Broughton, post the bypass opening.

<http://www.blogpreston.co.uk/2015/03/broughton-500000-plan-to-be-viewed-at-public-event/>

The consultation event was held in Broughton village hall on Saturday 21<sup>st</sup> March and the proposals included increased and segregated space for cyclists and pedestrians on the A6, reduced space for vehicles as well as a lower speed limit of 20mph. Indicative plans of the proposed A6 options displayed during the Broughton A6 consultation are included within **Appendix A** Scheme Drawings.

The designs covered the stretch of A6 from the M6 motorway junction to the north of the village including the crossroads where the A6 Garstang Road meets Woodplumpton Lane and Whittingham Lane. Attendees at the event were able to

provide comments on the designs via feedback forms or by placing comments and coloured dots on large scale plans. Over 90 post-it comments were provided and 31 feedback forms were completed. The majority of attendees were Broughton residents.

The comments received have been reviewed and the main themes which came out of the event will be fed into the A6 Broughton Improvement proposals. In particular, road safety concerns about removing the traffic lights at Broughton Crossroads once this stretch of the A6 is a 20mph zone; need to introduce weight restrictions to deter HGV traffic using Woodplumpton and Whittingham Lanes and questions about enforcement of the proposed 20mph speed limit on A6 Garstang Road. Proposed plans to create a separate cycle path on the western side of the A6 were welcomed.

**3.8.2 Historic Consultation**

The document ‘Proposed Broughton Bypass, Preston, Supporting Statement’ dated July 2013 set out the Consultation Statement for the renewal of the planning permission for the Bypass and provides a summary of historic consultation undertaken of relevance to the Bypass.

<http://planningregister.lancashire.gov.uk/Attachments/6369/BB%20Planning%20Statement%20Final.pdf>

The Supporting Statement highlights that in addition to the consultation specifically related to planning permission, full consultation on the Central Lancashire Highways and Transport Masterplan was also undertaken during January and February 2013. A key issue which came out of this more strategic consultation was the problem of congestion at Broughton.

**POLITICAL & STAKEHOLDER SUMMARY:**

The scheme has strong political support, both from the local council and from LCC and the City Deal partners. This has been the case throughout the scheme history and through previous planning approvals in 2001 and 2008. Since 2008, it has been demonstrated that the scheme is still necessary and aligns with the latest policy.

A stakeholder engagement process was undertaken as part of the planning process, and comments were sought from both local councils and from interest groups. There are no outstanding objections from any of these groups.

A public consultation was also conducted, which yielded a range of views regarding the scheme. The decision to approve the scheme was based on the fact that circumstances had not significantly changed since the previous planning approval in 2008.

It is believed that many of the public objections raised during the planning application stage may now be resolved following recent information sharing and consultation on the proposed traffic management changes to the A6 Garstang Road which include a 20mph speed limit and segregated cycle and pedestrian routes.

### **3.9 Internal or External Business Drivers**

As set out by the County Council during the April 2015 Public Inquiry, LCC has determined that there is a compelling public need to provide an improved highway network, through the construction of Broughton Bypass. The scheme will alleviate present and future environmental impacts that will result from increased traffic generated by existing and future development and is complementary to wider infrastructure initiatives and growth aspirations in Lancashire. Without the scheme, Lancashire's growth aspirations would be constrained.

A number of sites around Broughton have been identified for future development, including the major Whittingham Hospital site located to the east. The majority of other future development sites are located south of the M55, including Preston Business Park. Given the location of the above development sites, it is likely that there will be a high dependency on private car trips to access them, and a large proportion of trips to and from Whittingham will need to travel through Broughton.

#### **3.9.1 Whittingham Park (Hospital Development)**

Of all the development around Broughton, this site is perhaps the most significant in terms of potential scale. The 81ha site is situated to the north east of Preston on the edge of the village of Goosnargh, just off Whittingham Lane. It contains a number of redundant buildings which formerly constituted a residential mental health facility which closed in the early 1990s.

The site was part of a programme run by the former English Partnerships (now part of the HCA) which aimed to regenerate redundant and derelict hospital sites into new sustainable communities.

Following the granting of planning permission, Taylor Wimpey were appointed as the developer and obtained planning in 2008 for a mixed use scheme comprising up to 650 dwellings, 9,000 square metres of office space as well as sport and community facilities. However, due to the traffic conditions around Broughton, a planning condition limits the number of houses that can be built to 150, prior to the commencement of the Broughton Bypass.

The potential economic benefits of the full development are hugely important for the Broughton and north Preston area. Even with only 150 houses based in approximately 3.6ha of the site, the economic and community benefits are estimated by the developer in their planning proposals to equate to 45 temporary construction jobs on site per annum; and an additional £3.2m of new expenditure in the local shops and services when the homes are occupied.

#### **3.9.2 Summary of scheme's link to business growth**

Delivery of further housing and employment developments are essential to this part of Lancashire's economic growth and to meet demands for housing including affordable homes, but would not ordinarily be permitted without the proposed bypass, based on existing problems associated with traffic congestion. Broughton Bypass is named as part of the critical infrastructure needed to support delivery of developments as set out in the Local Transport Plan, and City Deal. The current traffic issues along the A6 corridor consequently act as a constraint to development in this part of the City Deal area.

The proposed scheme would provide the additional benefit of the delivery of new development and economic growth in the wider area promoted by the Lancashire LEP, without which the levels of development proposed in the adopted Central Lancashire Core Strategy could not be delivered.

Since the approval of both the City Deal for Preston, South Ribble and Lancashire and the Growth Deal for Lancashire LEP, it is more likely that business growth in the region will increase, thus increasing the need for the scheme.

### **3.10 Synergy**

There are synergy and compatibility benefits associated with this scheme and the wider aspirations of the City Deal and the Central Lancashire Highways and Transport Masterplan.

The scheme improves access within an area identified for economic growth and reduces journey times to key employment areas in Preston. Central Lancashire has had one of the best rates of new job creation in the UK over the last decade, with more than 20,000 new jobs in the private sector. City Deal is based on the assumption that this rate of growth could continue if the core infrastructure is strengthened in order to provide the extra capacity further growth would require. Without this infrastructure, growth will be constrained. Key to the City Deal is more investment in new transport infrastructure, which will improve access by road to Preston and South Ribble from other parts of Lancashire and the UK.

Broughton is one of four major new road schemes to the North, South and West of Preston aimed at opening up new opportunities to create housing and employment.

Prior to the introduction of the Preston Community Infrastructure Levy (CIL) which came into effect in September 2013, developer contributions had been secured towards provision of Broughton Bypass from developments for 650 dwellings and 9000 sq. metres of employment land on Whittingham Road and 65 dwellings at nearby Forest Grove Barton. Funding has subsequently become due from the CIL and not the planning obligations for this scheme but these developer contributions demonstrate the synergy of this scheme with wider employment and development aspirations and the need for more supporting transport infrastructure.

Furthermore, Broughton Bypass's implementation will deliver benefits to a much wider geographical area than Broughton village and will strongly support the recently completed £2.6 million scheme to improve the M55 J1 as well as capacity upgrades to the nearby M6 J32.

The scheme is also complementary to the proposed Preston North Western Distributor (PNWD) scheme and associated link roads aimed at supporting planned housing in North West Preston. The PNWD will include a new Junction 2 on the M55 just west of the M55 junction 1 south of Broughton.

### **3.11 Conclusion**

Broughton Bypass has a strong strategic fit at the local, sub regional and national level with broad political party support. Broughton village experiences a number of historic problems associated with high volumes of through traffic, including poor air quality, local road safety issues, community severance and the traffic acting as a constraint to future development.

Construction of the scheme will not only support economic and housing growth in the north Preston area, it will facilitate improvements to the Broughton public realm including enhanced facilities for cyclists and pedestrians along the A6 Garstang Road through the village. There is certainty of funding with the importance of the scheme in providing relief to the M6, A6 and North East Preston area reflected in the scheme's inclusion in the City Deal Infrastructure Delivery Programme.

There is also synergy with recent trunk road improvement schemes to the M55 and M6 as well as the proposed Preston North Western Distributor scheme and the scheme will support the continued development of housing sites and employment sites in the area.

The long history of support for the scheme at the local and strategic policy level is evident by its inclusion in the Central Lancashire Core Strategy adopted in 2012 and its safeguarded alignment in the Preston Local Plan, adopted in 2004. In addition, there is support for the scheme in the Central Lancashire Highways and Transport Masterplan 2013/12 which identified the Bypass as the only practicable means of removing through traffic out of the village, and the 2015 Public Inquiry into the CPO and SRO powers also concluded that there is a compelling case for the scheme in order to relieve traffic congestion in Broughton and deliver wider economic growth.



**4 The Economic Case**

**4.1 Introduction**

The Economic Case identifies and assesses all the impacts of the proposed scheme, and the resulting value for money, to fulfil HM Treasury’s requirements for appraisal and demonstrate value for money in the use of taxpayers’ money.

In line with HM Treasury’s appraisal requirements, the impacts considered are not limited to those directly impacting on the measured economy, nor to those which can be monetised. The economic, environmental, social and distributional impacts of a proposal are all examined, using qualitative, quantitative and monetised information. In assessing value for money, all of these are consolidated to determine the extent to which a proposal’s benefits outweigh its costs.

The economic appraisal has been tailored to reflect the needs of the Broughton Bypass Business Case and is discussed under the following headings:

- *Methodology*
- *Assumptions*
- *Transport Economic Efficiency*
- *Safety Benefits*
- *Environmental and Social Impacts*
- *Wider Economic Benefits*
- *Appraisal Summary Table (AST)*
- *Value for Money Statement*
- *Conclusion*

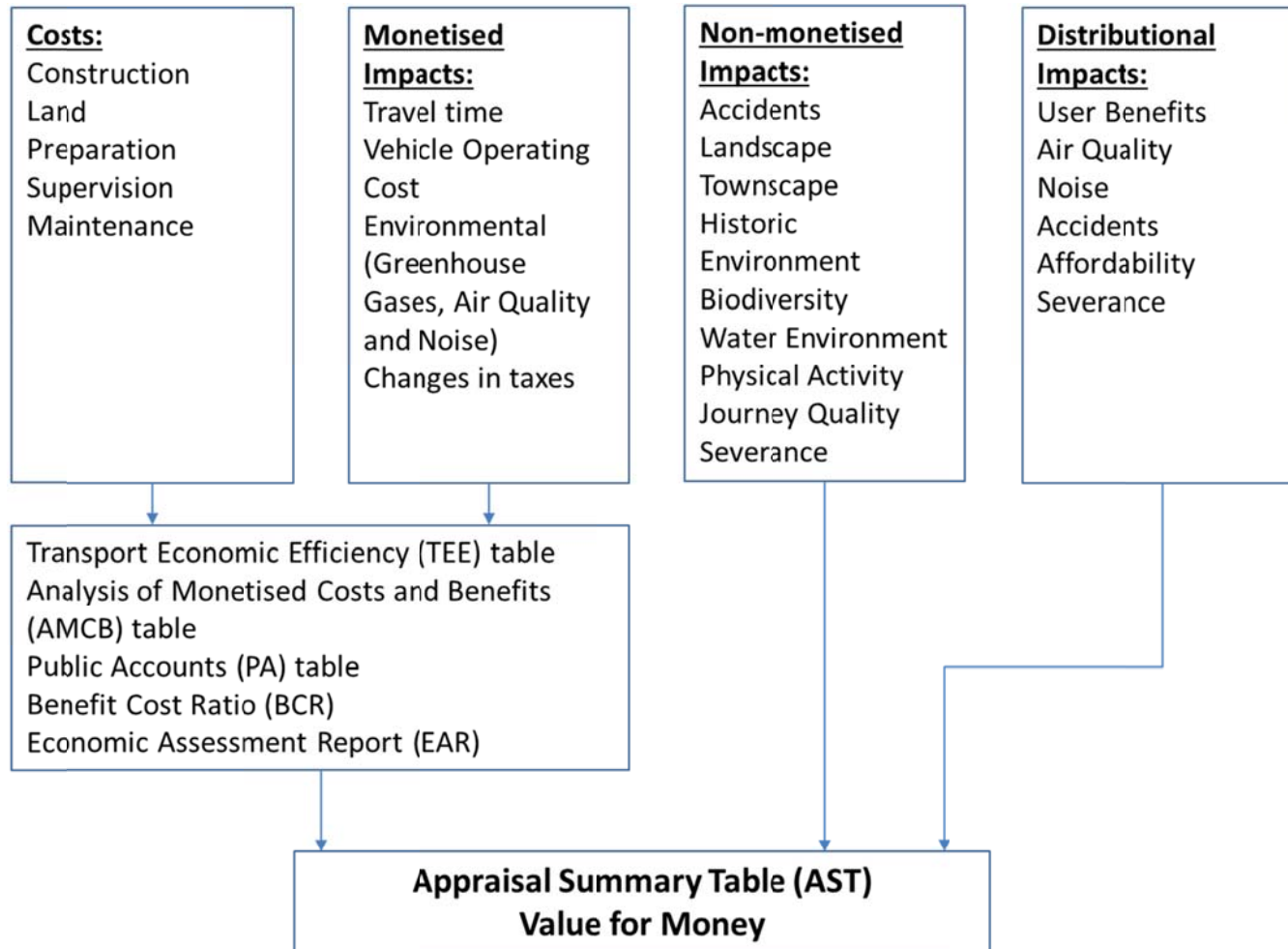
**4.2 Methodology**

**4.2.1 Overview**

Figure overleaf shows the diagram which provides details of the methodology for the Value for Money assessment of the Broughton Bypass scheme.

The Value for Money assessment is a staged process which includes appraisal of the scheme’s economic, environmental, social, distributional and fiscal impacts using qualitative, quantitative and monetised information.

It starts with analysis of monetised costs and benefits and calculation of the Benefit Cost Ratio of the Scheme. The next stage is to capture and analyse those impacts which cannot be monetised but can be presented as qualitative information. Finally, it looks at how the impacts of the scheme are distributed across different social groups - the Distributional Impacts Analysis.



**Figure 4-A Value for Money Assessment Process**

#### 4.2.2 Analysis of Monetised Impacts and Costs

In line with DfT guidance, Value for Money assessment starts with the calculation of those impacts that can be expressed in monetary terms. These monetised impacts are summed to construct an Initial Benefit Cost Ratio (Initial BCR) – that is the amount of benefit being bought for every £1.00 of cost.

The summary of the monetised information along with the BCR is presented in the standard Analysis of Monetised Costs and Benefits Table, part of the Economic Assessment Report (September 2015) **Appendix F**.

The DfT Advice Note on Value for Money Assessment for Local Transport Decision Makers (December 2013) suggests a flexible approach to economic appraisal to ensure time and resources spent on the development of a business case are proportionate to the size of the investment.

Having considered the nature of the scheme and its potential impacts on the economy, environment, and social well-being and taking into account lessons learnt from previous projects, it was agreed with LCC in consultation with the Independent Assurer that the key benefits of the bypass are likely to be derived from a reduction in delays to traffic and subsequently significant travel time savings around Broughton and across the wider study area. Calculation of benefits was based on the output from the VISUM transport model which was updated and cordoned specifically for the purpose of supporting the Business Case.

The Model Forecasting Report and a Local Model Validation Report (LMVR) are available for the Broughton Bypass Transport Model. The Model Forecasting Report is attached as **Appendix C** and the LMVR is attached as **Appendix D**.

The following benefits and dis-benefits have been included in the economic assessment:

- *Travel time benefits*
- *Vehicle operating cost benefits*
- *Greenhouse gases emission*
- *Air Quality and Noise benefits*
- *Changes in Indirect Taxes*

Estimation of the scheme costs including both the actual cost of the scheme during its construction as well as any changes in the capital cost of maintenance in future years.

Base costs for construction, land / property, preparation / administration and supervision, including adjustment for risk have been estimated by LCC based on the latest scheme design. The maintenance cost estimate has been produced using the typical maintenance profiles, costs, durations and timings for new roads as per the DfT QUADRO manual (DMRB Volume 14 Sec 1 Part 2 Chapter 4).

In line with WebTAG, an additional 15% Optimism Bias adjustment has been made for the purposes of economics modelling to take into account the stage of development the scheme is at and the tendency for scheme appraisers to be overly optimistic about scheme costs. The 15% uplift is recommended in TAG Unit A1.2 for Stage 2 of scheme appraisal and 3% uplift is used for Stage 3 (e.g. Full Business Case post procurement). This has only been used for the economic assessment and

has not been applied to the scheme costs set out in the financial case and the funding profile.

It should be noted that costs and benefits occur in different years throughout the assessment period, e.g. the construction costs occur before the scheme opens, whilst the benefits occur over the DfT standard appraisal period of 60 years. Therefore, the costs used in scheme appraisal differ from the outturn costs used for funding decisions. The appraisal costs are discounted and converted to the DfT's standard present value year for appraisal (2010) to allow direct comparison with the monetised benefits.

The combination of having costs and benefits in a standard price base and discounted to a common year means that all costs and benefits in this Economic Case are in 2010 prices, discounted to 2010 (unless explicitly stated).

### 4.2.3 Analysis of Non-monetised impacts

The second stage of a Value for Money assessment builds on the initial monetised costs and benefits and considers qualitative and quantitative information on those impacts which cannot be monetised and how these contribute to the Value for Money of the scheme.

The impacts which are difficult to monetise but which have nevertheless been appraised using qualitative and quantitative information and given an overall qualitative assessment score are listed below:

- *Impacts on Accidents;*
- *Impacts on Landscape;*
- *Impacts on Townscape;*
- *Impacts on Historic Environment;*
- *Impacts on Biodiversity;*
- *Impacts on Water Environment;*
- *Impacts on Physical Activity;*
- *Impacts on Journey Quality;*
- *Impacts on Severance; and*
- *Dependent Development Impacts.*

The analysis of non-monetised impacts have been undertaken in accordance with the methodology recommended within the relevant WebTAG units and the results have been summarised within the AST (**Appendix G**) and section 4.6 of this chapter.

### 4.2.4 Analysis of Distributional Impacts

Finally to understand the impacts of the scheme on different social groups, including those which are potentially more vulnerable to the effects of transport the Distributional Impacts (DI) appraisal has been undertaken. The DI analysis is mandatory in the scheme appraisal process and as a minimum is required for the following five impacts: User Benefits, Noise, Air Quality, Accidents, and Personal Affordability. The DI analysis was undertaken at the Outline Business Case stage in March 2015.

Full details of the methodology and results for each DI impact are given within the Distributional Impact Appraisal Report (March 2015) and included as **Appendix H**.

The results of the DI Appraisal are also reported within the AST and section 4.7 of this chapter.

#### **4.2.5 Uncertainty and Sensitivity Tests**

To take into account the uncertainty regarding future economic growth, fuel prices, employment and their impact on the traffic growth and, in line with WebTAG requirements, two sensitivity tests were undertaken. A Low Growth sensitivity test has been carried out to investigate what effect the use of the low growth traffic forecasts would have on the Value for Money of the scheme.

An additional sensitivity test has been undertaken for 'dependent development'. Without the introduction of the scheme, the level of development surrounding Broughton is likely to be constrained due to the lack of highway capacity. Once the proposed scheme is in place, additional development may be permitted.

To understand the impact of dependent development if it was permitted without the scheme, travel demand associated with the dependent development has been excluded from the Core scenario. For the Sensitivity Test, dependent development was included and the model was re-run with and without the scheme.

Full details of tests and the results are reported in **Appendix F** Economic Assessment Report.

### **4.3 Assumptions**

#### **4.3.1 Overview**

This section summarises the key assumptions supporting the Value for Money analysis. This includes the assumptions set out in WebTAG as well as further assumptions specific to the Broughton Bypass scheme.

#### **4.3.2 Transport Model, Time Periods and User Classes**

The impacts of the proposed scheme are based on the differences between forecasts of the without-scheme and with-scheme scenarios. These forecasts have been developed within the Broughton transport model.

The VISUM highway assignment model for the proposed scheme was developed for the Base year 2014.

Future traffic growth for the development of model forecasting scenarios was based on planning data from the relevant planning authorities together with national data from NTEM v6.2, and RTF13 for LGV and HGV traffic.

Model development and traffic forecasting have been carried out in line with WebTAG units for the modelling practitioner (Units M1-1, M1-2, M3-1 and M4) and the Appraisal Specification Report approved by LCC. Full details of modelling and forecasting can be found in the Local Model Validation Report (August 2015) and the Model Forecasting Report (August 2015).

Analysis of the forecast induced traffic arising from the Broughton Bypass demonstrated that the variable demand responses would not influence the economic case of the scheme. Therefore, the traffic model for the proposed scheme is a Fixed Demand Model covering the peak and inter-peak traffic periods and conditions. The following time periods have been modelled:

- *Morning (AM) weekday peak hour between 08:00 and 09:00;*
- *An inter-peak weekday hour representing an average hour between 10:00 and 16:00; and*
- *Evening (PM) weekday peak hour between 17:00 and 18:00.*

Weekday night-times, Weekends (day-times and night-times) and Bank Holidays (day-times and night-times) were not modelled as the benefits generated in these time periods are unlikely to be significant due to lower levels of traffic.

The model used for forecasting splits the travel demand into different vehicle categories and different journey purposes. As a result, the following user classes are represented in the assignment model:

- *Heavy goods vehicles (HGV);*
- *Light goods vehicles (LGV);*
- *Cars – employer’s business;*
- *Cars – commuting; and*
- *Cars – other.*

**4.3.3 Appraisal Period**

In line with WebTAG guidance, the impacts of the scheme have been assessed over the 60 year period after the scheme opens, capturing the planned period of scheme development and implementation. The 60 year appraisal period for the Broughton Bypass scheme is 2017-2076.

The transport model provides estimates for two forecast years: the opening year (2017) and the design year (2032). The results of the model have been interpolated and extrapolated to cover the whole appraisal period of 60 years. To ensure a conservative approach to the calculation of scheme benefits, it has been assumed there will be no growth in traffic flows after the design year 2032 which is a standard approach.

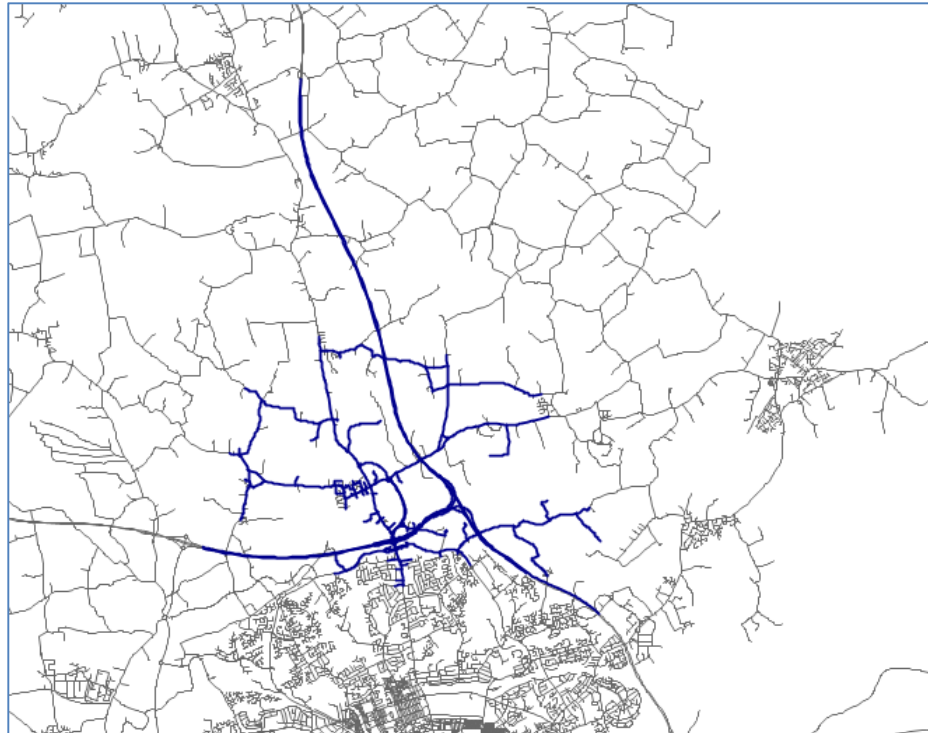
**4.3.4 Benefits Capture and Annualisation**

The benefits and disbenefits captured in the assessment are not limited to those on the scheme itself. They include lower and higher levels of congestion, noise, air pollution, and greenhouse gas emissions on both the new road and existing roads across the full area of impact.

Travel time and vehicle operating cost benefits assessed in TUBA are calculated for a cordon model of the network. Further details of the cordon agreed with the Independent Assurer can be found in the Economic Appraisal Report **Appendix F** and the cordon network is shown in Figure 4-B overleaf.

In summary, the study area of the full Broughton Transport Model extends over quite a wide area, modelled in varying degrees of detail. To ensure benefits were not overstated, a cordoned network was used for the economic appraisal and has been agreed with the LEP Independent Assurance team. The cordoned network was defined on the basis of the changes in traffic flows and changes in delays in the design year of the scheme.





**Figure 4-B Cordoned network**

In accordance with the guidance, the benefits generated in the modelled time periods have been annualised using annualisation factors. The annualisation factors are defined as a number of times each time period occurs over a full year.

For the Broughton scheme, the modelled peak periods (AM and PM) have been extended using annualisation factors to include any adjacent periods where there is no significant change in traffic volume (<7.5%). These annualisation factors have been derived using the automated traffic count data on the A6 Garstang Road, north of Broughton crossroads, a representative road carrying the traffic which will be expected to benefit from the scheme.

It should be noted that the annualisation factors used for the TUBA analysis of the Broughton Bypass are lower than the expected maxima suggested in the TUBA General Guidance and Advice (November 2014), again proving a conservative approach in the calculation of the scheme benefits

#### **4.3.5 Inflation**

As mentioned above, to take account of the effects of inflation all monetary values in the calculation of costs and benefits are expressed in real prices and converted to 2010 prices using the GDP deflator series as published in the November 2014 WebTAG databook.

To ensure that the scheme costs account for real changes above and below general inflation in the economics modelling, a further adjustment was applied based on the conservative assumption of 5% per annum construction related inflation after the current year.

#### 4.3.6 Core Scenario

All economic results in this Chapter relate to the Core Scenario. The Core scenario has been produced in line with WebTAG guidance and does not include trips associated with Dependent Development. More details on the Core forecasting scenario can be found in **Appendix C Model Forecasting Report**.

#### 4.4 Transport Economic Efficiency

The Transport Economic Efficiency (TEE) benefits consist of three key components, set out below and summarised in **Appendix I**:

- *Travel time and Vehicle Operating Costs (VOC) benefits as a result of the scheme;*
- *Travel time and Vehicle Operating Costs (VOC) disbenefits as a result of construction activities; and*
- *Travel time and Vehicle Operating Costs (VOC) benefits as a result of maintenance activities.*

Construction and maintenance delay benefits are not expected to have a significant effect on the scheme BCR and Value for Money. Therefore construction delay benefits have not been included in the analysis and maintenance delay benefits would only have been assessed if the BCR lay close to the boundary of a VfM category, which it does not.

Conversely, travel time and VOC benefits are expected to constitute the biggest part of the scheme's benefits. Therefore, the analysis of TEE benefits for the Broughton Bypass scheme was mainly driven by Travel time and VOC benefits which were calculated with the use of TUBA.

TUBA is the industry-standard software used to derive the travel time and VOC elements of the TEE benefits of a scheme. TUBA requires input from the transport model in the form of trip, time and distance matrices by year, time period and user class as well as scheme specific information such as years of appraisal, time slices, costs etc.

TUBA assesses travel time savings over the modelled area and then applies monetary values (known as Values of Time (VOT)) to derive the monetary benefits of those time savings.

TUBA also calculates Vehicle Operating Cost (VOC) changes which occur due to changes in costs associated with such items as fuel, maintenance, and wear and tear. These occur due to changes in speed and distance when the scheme is implemented and can include both positive and negative values depending upon the scheme's impact upon traffic flows and routing.

The diagram in Figure 4-C shows the process of the derivation of the TUBA benefits.

The full details of TUBA analysis for the Broughton Bypass can be found in the Economic Assessment Report **Appendix F**.

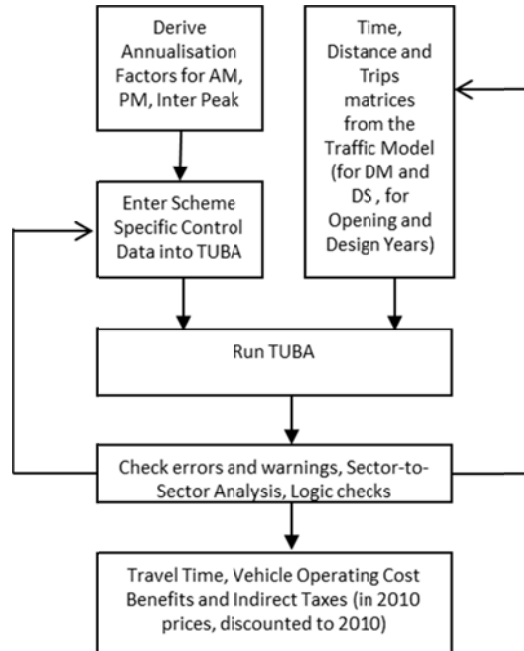


Figure 4-C TUBA Analysis

The results of the TEE assessment show that the **Broughton Bypass will deliver significant benefits from journey time savings, amounting to £129.5m.**

The scheme also produces a net VOC benefit of **£2.7m.**

The TEE benefits are reported in a standard table known as the TEE table. The completed Transport Economic Efficiency (TEE) table is included in **Appendix I.**

As can be seen in the TEE table, 42% of travel time benefits are associated with Business trips and 58% with non-business trips. The high proportion of business benefits is due to the higher value of time of business trips compared to other journey purposes such as commuting, shopping, leisure etc.

The journey time benefits have also been assessed against the level of time saved, as shown in Table 4-1 below.

Net journey time changes (£m)	0 to 2 mins	2 to 5 mins	More than 5mins
Business	£6.8m	£14.8m	£33.2m
Commuting	£2.2m	£8.0m	£17.6m
Other	£6.8m	£12.5m	£27.8m
<b>Total</b>	<b>£15.7m</b>	<b>£35.3m</b>	<b>£78.5m</b>

Table 4-1: Monetised Time Benefits by Size of Time Saving  
(PVB, 2010 prices, discounted to 2010)

The table shows that as expected the majority of benefits are associated with journeys with a decrease in travel time of more than 5 minutes. This represents the highest thresholds provided by DfT for travel time savings analysis. Travel time savings of up to 8-9 minutes are noted in the Broughton Bypass Model Forecasting Report (**Appendix C**).

Travel time savings of greater than 5 minutes account for £78.5m of benefits which is more than 60% of the total travel time benefits of the scheme.

The sector to sector analysis of TEE benefits demonstrated that the results are logical in terms of how the benefits are spread across different geographical areas. As expected, the largest benefits occur between the **following sectors which will experience reductions in travel time** as a result of the bypass:

- A6 South to A6 North
- M6 South to A6 North
- West of Broughton to North of Broughton

The sector map is shown in Figure 4-D.

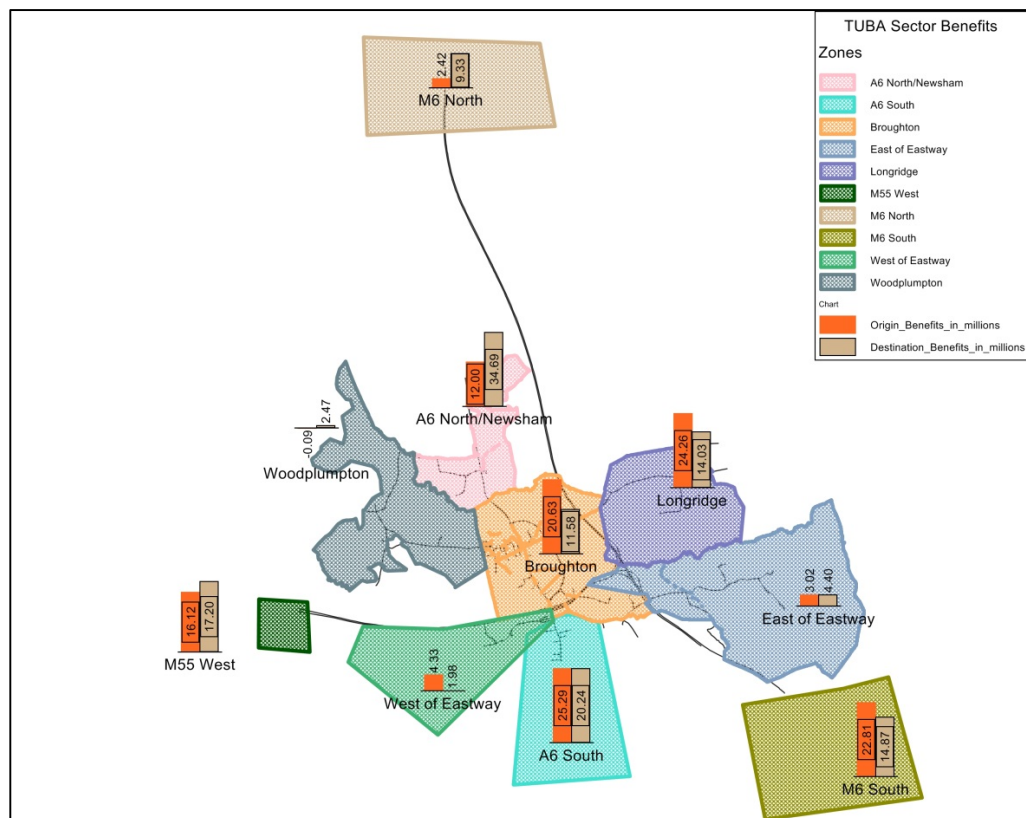


Figure 4-D Sector Map

There are small disbenefits for some traffic movements as a result of increased traffic on certain roads when the scheme is in place.

In particular, due to a slight increase in the amount of traffic travelling in a NW direction along the M6 and M55, those trips will experience a slight increase in journey time with the scheme in place.

In addition, TUBA calculated the changes in Indirect Taxes as a result of changes in speed and distance. These changes affect the amount of fuel being used and therefore affect the amount of taxes the Government receives. Changes in Indirect Tax are not included in TEE benefits. However, according to WebTAG they should

be included as part of the Present Value of Benefits (PVB) and reported within the AMCB and PA tables.

#### **4.5 Safety Benefits**

Transport interventions may alter the risk of individuals being killed or injured as a result of accidents. Therefore, WebTAG recommends that the impact of the scheme on safety should be assessed.

Analysis of accident benefits at the Outline Business Case stage of the appraisal demonstrated a very low scale of change in numbers of vehicle accidents as a result of the scheme. This is likely to be due to the fact the local network is generally safer than the national average. A qualitative assessment rather than further quantification and monetisation of accident benefits was therefore undertaken for the Full Business Case.

The qualitative assessment also concluded that the scheme is unlikely to have a significant impact on number of accidents across the area of impact. It will potentially reduce the number of accidents on the bypassed section of A6, thereby contributing to scheme objectives. However, this positive impact will be neutralised by the additional 2 km of highway network.

Therefore, the overall impact of the scheme on accidents is expected to be **neutral**.

To mitigate against any potential increase in accidents attributed to the bypass, the scheme has been through the Road Safety Audit process with a Stage 1 Road Safety Audit being undertaken in October 2014, and the Stage 2 audit programmed in for late 2015.

The Audit was based on the principles contained within the Highway Advice Note HD 19/03 (Road Safety Audit) of the Highways Agency's Design Manual for Roads and Bridges. The problems identified were noted in the report 'Stage 1 Road Safety Audit, CA 307/1255, Broughton Bypass' together with associated safety improvement suggestions that Jacobs has recommended should be considered for implementation in the scheme design.

#### **4.6 Environmental and Social Impacts**

##### **4.6.1 Overview**

This section summarises the impacts of the scheme on the environment, as well as the social impacts. The environmental impacts include monetised impacts (Noise, Air Quality and Greenhouse gases) and non-monetised impacts (Landscape, Townscape, Historic Environment, Biodiversity and Water Environment). The social impacts described in this section are not typically monetised and have therefore been assessed using quantitative and qualitative information. They include Physical Activity, Journey Quality, and Severance.

##### **4.6.2 Environmental - Air Quality**

The likely effects on air quality once the scheme is in place, relate predominantly to the changes in traffic emissions from vehicles travelling along affected roads in the study area. The standard Air Quality Worksheet from WebTAG Unit A3 has been used to calculate the impact of the scheme on local air quality, regional air quality and the economic valuation of air pollution for the life of the scheme.

The results of the air quality assessment are detailed in **Appendix J-1**. The scheme is anticipated to lead to an improvement in air quality (exposure to PM<sub>10</sub> and NO<sub>2</sub> concentrations) overall as well as within an existing AQMA in Broughton, with 16 properties removed from exceedance of the annual mean Air Quality Objective.

The decrease in PM<sub>10</sub> concentrations will provide a monetary benefit over 60 years of £0.25m.

The total value of the change in Air Quality is a benefit of £0.2m and most of this benefit is located in the vicinity of Broughton, directly benefiting Broughton residents.

The scheme will result in beneficial impacts within the Broughton Air Quality Management Area (AQMA) which had been declared as a result of high level of NO<sub>2</sub>. The scheme is predicted to remove all exceedances within the AQMA boundary so that the AQMA designation will no longer be required.

#### **4.6.3 Environmental - Noise**

Changes in traffic flows can also result in changes in noise, depending on whether properties are located adjacent to affected roads or not. The standard Noise Worksheet from WebTAG Unit A3 has been used to calculate the change in noise levels during the life of the scheme, the change in numbers of people “annoyed” and the monetary value of those changes (PVB).

The results output from the Noise spreadsheet presented in **Appendix J2** show that **there is predicted to be a benefit from changes in noise levels, equating to £1.2m over the 60 year appraisal period**. There will be 24 less people affected by noise after the scheme is in place.

The scheme is therefore expected to reduce the impact of road traffic noise for Broughton residents who have been affected by noise and emissions from through traffic for the past 40 years.

#### **4.6.4 Environment – Greenhouse Gases**

Changes in greenhouse gas emissions from the vehicles depend on changes in flows, speeds and distance travelled. The standard Greenhouse Gases Worksheet from WebTAG Unit A3 has been used to calculate the total carbon dioxide emissions (tonnes) for the life of the scheme. The spreadsheet outputs information on carbon dioxide emissions per year. Benefits are output in tonnes and as a monetary value (PVB).

The results output from the Greenhouse Gas emissions spreadsheet presented in **Appendix J3** for the study area predict an increase in carbon dioxide emissions in the opening year of 1,626 tonnes and an increase of 64.618 tonnes over the 60 year appraisal period. There is no change in traded carbon dioxide emissions as a result of the scheme. The monetary value of the **increase in carbon dioxide emissions over the 60 years appraisal period is a disbenefit of -£3.0m** which is a logical result based on the additional highway distance.

The monetary values of Air Quality, Noise and Greenhouse Gas impacts have been added to the PVB and included in the calculation of the scheme BCR.



#### 4.6.5 Environment – Landscape

The impact assessment on landscape was undertaken using the standard Landscape Worksheet from WebTAG Unit A3. The output of the assessment was that the scheme without mitigation would significantly affect landscape character by passing through or being adjacent to mature woodland and hedgerows and locally important non-designated cultural heritage sites.

However, this potential impact will be partially reduced by mitigation planting. Furthermore a new bypass will affect the tranquillity of this large rural area. The scheme will also have an adverse effect on the landscape character due to lighting at junctions causing a minor urbanising effect to the open countryside. However, the countryside around Broughton is already disrupted by roads and residential development and proposed landscape mitigation will help reduce the impact of the scheme.

The results of the Landscape impact appraisal presented in **Appendix J4** show that the scheme will have a **moderate adverse effect on the local environment**.

#### 4.6.6 Environment – Townscape

Townscape covers the physical and social characteristics of the built and non-built urban environment and the way in which people perceive those characteristics. The methodology used for appraising the impact of the scheme on townscape is based on a qualitative approach and uses the standard Townscape Worksheet from WebTAG Unit A3.

The results of the Townscape impact appraisal presented in **Appendix J5** show that the **scheme will provide moderate benefits to the local population from the reduction in traffic and removal of signage** which would reduce landscape impacts and visual impacts.

#### 4.6.7 Environment – Historic Environment

The Historic Environment comprises buildings and sites of architectural and historic significance. The impact of the scheme on historic environment has been appraised qualitatively using the standard WebTAG Worksheet.

The results output from the Worksheet presented in **Appendix J6** show that the scheme will have a **slight adverse impact on the historic environment** mainly due to the physical impact to archaeological remains, undesignated structures and historic landscape types.

#### 4.6.8 Environment – Biodiversity

In common with the other non-monetised environmental impacts, Biodiversity has been assessed using the qualitative and quantitative techniques set out within the WebTAG and by completing the standard TAG Worksheet presented in **Appendix J7**. The effects of the scheme on biodiversity range from slight adverse to neutral.

There are six Biological Heritage sites and four Local Nature reserves within 5 km of the scheme. However, none of them will be directly or indirectly affected by the scheme. The predominant habitats through which the route would pass are improved grasslands and associated field boundaries. The potential adverse effect for some species with the introduction of the new road will be mitigated by appropriate habitat management.

Therefore the **overall impact of the bypass on biodiversity is expected to be neutral.**

#### 4.6.9 Environment – Water Environment

The Water Environment Appraisal Worksheet (see **Appendix J8**) has been completed to assess the potential impact of the scheme for different water environment features. The results show that impacts of the scheme on the water environment would range in magnitude from negligible to slight beneficial or slight adverse. Most of the impacts on the identified water environment attributes would be insignificant. Only one of the attributes (biodiversity of Barton Brook) would experience an impact of low significance.

As a result, an **overall neutral score has been awarded to the Water Environment** impact.

#### 4.6.10 Social – Physical Activity

According to WebTAG the latest research shows a correlation between physical inactivity and the risk of all-cause mortality. A qualitative only assessment has been undertaken for Broughton Bypass in line with the WebTAG guidance (Unit A4.1) which is summarised in **Appendix J9**.

Once the bypass has been built restrictions will be placed on the main A6 Garstang Road between the new A6 Garstang junction and new D'Urton Lane junction through Broughton village. Restrictions would significantly reduce the traffic flow through this section, reducing the likelihood of conflict for non-motorised users (NMUs).

With less traffic there would be improved amenity value with improved views, safety and air quality. Children attending Broughton Business and Enterprise College and Broughton in Amounderness C of E Primary School are likely to feel safer walking or cycling to school. NMUs would therefore experience a long-term significant beneficial effect as a result of the additional restrictions. Overall, NMUs would experience significant long-term beneficial effects as a result of improved connectivity, improved safety and improved amenity along the A6 and side roads.

These effects outweigh the effect of stopping up and diverting some of the PRow's. The overall beneficial effects on the NMU network are likely to encourage physical activity, primarily through encouraging walking and cycling throughout the study area by reducing road traffic and improving connectivity. For each new walking or cycling trip, which arises as a result of the proposed scheme, there would be health benefits to each individual undertaking the journey, having a beneficial effect on physical activity and associated health benefits, including reductions in short-term absence from work. No data is available to monetise these effects on the scheme.

The results of the **qualitative assessment therefore show that overall, non-motorised users would experience long-term beneficial effects** as a result of the improved connectivity, improved safety and improved amenity around the study area.

#### 4.6.11 Social – Journey Quality

Journey Quality depends on a number of factors all of which have been qualitatively assessed in line with WebTAG, with and without the bypass to make a judgement on the impact of the scheme on journey quality. These factors include traveller care, traveller views, traveller stress as well as additional sub-factors.

The results of the assessment presented in **Appendix J10** show that the Broughton Bypass will have a **moderate beneficial effect on journey quality**.

The improvement in traveller stress due to a reduction in driver frustration, fear of accidents and journey uncertainty as well as the improvement in NMU facilities would result in a moderate beneficial impact on journey quality. The insignificant adverse impact on travellers' views on the local road network would be balanced out by the improved views along the A6 Garstang Road.

#### 4.6.12 Social - Severance

Severance is defined within WebTAG as the separation of residents from community facilities and services caused by substantial changes in transport infrastructure or by changes in traffic flows. To understand the impact of the Broughton Bypass on severance, the difference in the levels of severance in the with-scheme and without-scheme cases have been examined.

The results of this assessment are presented in **Appendix J11**. Overall the scheme is considered to have a beneficial impact on community severance between Broughton and the surrounding communities.

The majority of pedestrian movements in Broughton are along the A6 Garstang Road with lesser movements along Whittingham Lane and Woodplumpton Lane. Many of the pedestrian movements are made by children attending Broughton Business and Enterprise College coming from residential areas in the surrounding communities. School children travelling from the south of Broughton to join up with the existing A6 Garstang Road would experience beneficial impacts when travelling through Broughton due to the reduced congestion. However, a proportion of them would need to cross the new bypass which could cause an adverse impact to their journey due to fear of potential accidents.

In summary, the bypass would reduce traffic flows through Broughton village thereby reducing the disturbance from road traffic and encouraging surrounding communities such as Barton and Fulwood to travel to Broughton to utilise the facilities. As a result, people travelling from the surrounding communities to access the current facilities within Broughton would experience a beneficial impact due to the reduced congestion.

The scheme would result in a **moderate beneficial impact on severance**.

### 4.7 Distributional Impacts

The assessment of Distributional Impacts (DIs) is designed to help understand the impacts of transport interventions on different groups of people, including those potentially more vulnerable to the effects of transport. Consideration of the DIs of transport schemes is a mandatory requirement of the Department for Transport's (DfT) Transport Analysis Guidance (WebTAG). As per TAG Unit A4.2, the DI Appraisal requires the consideration of the following eight DI Indicators:

- *Noise;*
- *Air Quality;*
- *Accessibility;*
- *Security;*
- *Severance;*
- *User Benefits (journey times and vehicle operating costs);*
- *Affordability; and*
- *Accidents*

The full appraisal process is based on a three step approach:

- *Step 1 – Screening Process*
- *Step 2 – Assessment*
- *Step 3 – Appraisal of Impacts*

Step 1 identifies which of the eight DI indicators should proceed to Step 2, by assessing whether their impacts are either significant or concentrated.

Six of the DI indicators were found to fulfil the criteria to be taken to Step 2 of the Appraisal. Only Security and Accessibility did not need to be taken further.

In line with WebTAG the identification of social groups within the affected area is initially limited to identifying the groups of people with different level of income based on the national quintiles for each Census output area within the scheme impact area. The income segmentation is based upon the Indices of Income Deprivation at the Lower Super Output Areas (LSOAs) level.

Using the national deprivation ranking (as a proxy for income), the LSOAs have been divided into 5 quintiles. Income Group 1 represents the 20% most deprived LSOAs whereas Income group 5 represents the 20% least deprived LSOAs.

Population estimates for each of the Income Quintiles within the User Benefits Affected Area are summarised in Table 4-2 below. It shows that 43% of the population in the area of impact live in the least deprived LSOAs and only 6.4% live in the most deprived areas.

	Income Quintiles					Totals
	Most Deprived ←		→ Least Deprived			
	1	2	3	4	5	
Number of LSOAs in Affected Area	3	4	6	14	22	49
Number of Dwellings in Affected Area	1,982	2,203	4,044	9,397	13,299	30,925
Population in Affected Area (2.36 factor)	4,678	5,199	9,544	22,177	31,386	72,983
	6.4%	7.1%	13.1%	30.4%	43.0%	100%

**Table 4-2 LSOAs and Population by Income Group in Broughton Bypass area of Impact**

The findings of the DI Step 2 assessment are that **Broughton Bypass is expected to have an impact on the following DI indicators: User Benefits, Affordability, Accidents, Noise, Air Quality and Severance.** Not all those impacts were distributed evenly among different social groups. Results of the DI analysis for User

Benefits and the Affordability Indicator are based on the model outputs produced prior to the latest changes following the Independent Assurance review.

The DI assessment for different income groups showed that **income group 5 (the least deprived) is expected to benefit the most from the scheme**. It receives a Large Beneficial Score for the User Benefits, Air Quality and Noise indicators. This is due to the fact that the largest area in the vicinity of the scheme is populated by income group 5.

Conversely, income group 1 (the most deprived) receives a Slight Beneficial score for the User Benefits indicator and a Large Adverse score for Air Quality. All income groups are expected to experience personal affordability dis-benefits proportionate to the size of their population.

The DI assessment for vulnerable groups showed that the effect of the scheme will be neutral or imperceptible for most indicators. However, children, young male drivers and cyclists will be affected by the scheme.

**Children are expected to receive a slight adverse effect from change in noise levels but they will benefit from reduction in severance**. Young male drivers and cyclists are expected to benefit from accident impact as there will be a reduction in numbers of casualties among representatives of these two groups when the scheme is in built.

The results are consistent with other highway schemes, recognising that new highways will always have an impact on User Benefits, Noise, Air Quality, Accidents and Affordability, may have an impact upon Severance, but should never have anything more than, at most, a negligible impact upon Security and Accessibility.

The full details of the DI appraisal including the methodology and results for each indicator can be found in the Distributional Impacts Appraisal Report (March 2015) at **Appendix H**.

The final consolidated results of the analysis are presented in the DI Appraisal Matrix and included in the Environmental and Social Benefits appendix as **Appendix J12**.

#### **4.8 Wider Economic Benefits**

The scheme's BCR is 5.8 which represents very high VfM and means there was no need to demonstrate further economic benefits from a formal WebTAG Wider Impacts Assessment. However, the Gross Value Added (GVA) benefits of the scheme have been analysed to complement the standard economic appraisal and provide an indication of the total GVA that could be realised if the scheme is implemented.

The GVA analysis is particularly important given the specific aims and objectives of the Local Growth Fund, and in support of the overarching Strategic Economic Plan produced by the LEP, to which Broughton Bypass significantly contributes.

In the absence of a singly recognised and adopted methodology for estimating GVA impacts, analysis has been undertaken using an evidence-led, theoretically consistent framework approach, based on available studies and parameters, as well as collaborative working with LCC.

This framework of potential GVA benefits has been previously used by Jacobs for the TfL Major Schemes prioritisation work. It defines GVA as Transport-induced changes in jobs, multiplied by GVA per job, adjusted for changes in productivity (agglomeration and labour), plus savings in direct transport costs.

It was determined that two types of the potential GVA benefits would be relevant for the Broughton Bypass: Unlocking development and Productivity uplifts.

The bypass is expected to significantly enhance labour connectivity to/from Preston. It is also a precondition for the commercial development in Whittingham on the site of the former Whittingham Hospital.

Based on the **analysis there is a forecast increase in GVA to the local economy of £153 million over the 60 year period which can be directly related to the impacts of the Broughton Bypass.** This is a 'net' GVA figure, and incorporates the impacts of displacement, deadweight, leakage and substitution which show that the scheme would have positive impacts by strongly supporting local economy activity.

It is worth noting that 99% of the assessed GVA benefits come from unlocked residential development and the creation of employment opportunities Whittingham and the Business Park which are currently constrained by the lack of available transport capacity – rather than productivity impacts that are more a function of travel time savings.

The full details of the methodology and results of the GVA analysis are reported in Chapter 9 of the EAR in **Appendix F**.

As GVA analysis is not currently included as part the WebTAG transport scheme appraisal the GVA benefits have not been included in the calculation of the BCR and are not reported as Wider Impacts in the AST.

#### **4.9 Appraisal Summary Table**

The AST presents evidence from the analysis that is undertaken to inform the Economic Case of an intervention. Applying the principles of HM Treasury Green Book, the AST has been designed to record all impacts - Economic, Environmental, Social, Public Accounts and Distributional - at the national level.

The Scheme AST is included in **Appendix G**.

#### **4.10 Value for Money Statement**

The Value for Money assessment of the Broughton Bypass scheme has been undertaken in line with the WebTAG and the ASR to support the Business Case of the scheme. As part of the assessment the economic, environmental, social, distributional and fiscal impacts of the proposed bypass have been appraised using qualitative, quantitative and monetised information.

WebTAG guidance recommends Benefit Cost Ratio (BCR) metrics to define the Value for Money category of a scheme. The categories include:

- Poor VfM if BCR is below 1.0
- Low VfM if the BCR is between 1.0 and 1.5
- Medium VfM if the BCR is between 1.5 and 2
- High VfM if the BCR is between 2.0 and 4.0



- Very High VfM if the BCR is greater than 4.0

The BCR represents the amount of benefits of the scheme being bought for every £1.00 of cost and is calculated by dividing the Present Value of Benefits (PVB) by the Present Value of Cost (PVC).

Based on the Analysis of Monetised Costs and Benefits (AMCB) the total monetised benefits of the scheme will exceed the cost by more than £107m.

The BCR of the scheme is 5.8. Any BCR over 4 indicates the scheme offers Very High Value for Money based on DfT guidance criteria and when set against the criteria of the TFL Assurance Framework.

The scheme can potentially also generate an additional £153m of GVA benefits not incorporated in the BCR.

As expected the majority of the benefits generated by the bypass are associated with travel time savings for business and non-business road users. Improvement in Noise and Air Quality also provide a small contribution to the total monetised benefits of the scheme as does a decrease in vehicle operating costs.

On the other hand, negative benefits are expected from greenhouse gases emissions. In addition there will be a decrease in indirect tax paid to the Exchequer which has also been added to the total value of benefits.

However, these changes are minor compared to the total value of benefit. Their effect on the BCR and Value for Money is marginal.

The non-monetised impacts of the scheme have also been considered as part of the Value for Money assessment.

It is anticipated that the scheme will have a **moderate adverse effect on the local landscape** by passing through mature woodland and locally important non-designated cultural heritage sites. Conversely, the **townscape** incorporating Broughton village being bypassed by the scheme will receive **moderate beneficial effect from the reduction in traffic** and removal of signage which would reduce landscape impacts and visual impacts.

There will be a slight beneficial impact associated with the dependent housing unlocked by the scheme.

The scheme is expected to have a **moderate beneficial impact on journey quality** due to reduction in driver frustration, fear of accidents and journey uncertainty as well as the improvement in Non-Motorised User (NMU) facilities.

The scheme will also have a **slight beneficial impact on Severance and Physical Activity and slight adverse effect on Historic Environment**.

The **impact on Accidents, Water Environment and Biodiversity is expected to be neutral**.

As expected, the majority of the benefits generated by the bypass are associated with travel time savings.

#### 4.11 Sensitivity Testing

The economic assessment results for Broughton Bypass were calculated using the most likely traffic forecasts known as the 'Core Scenario'. To test the robustness of the appraisal, two sensitivity tests were undertaken. Both of these tests used the results of the cordon traffic model produced for the Full Business Case. Use of a cordoned area within the model reduces the danger of over estimating benefits by focusing on a more localised area and excluding any external to external trips.

	Low Growth Scenario Forecast	Inclusion of "Dependent Development"	Core Scenario Forecast
TUBA Benefits (Travel time, VOC and Indirect Tax benefits)	£86.9m	£157.1m	£130.8m
Greenhouse Gas, Noise & Air Quality Benefits	-£1.6m	-£1.6m	-£1.6m
<b>TOTAL PVB</b>	<b>£85.3m</b>	<b>£155.5m</b>	<b>£129.2m</b>
<b>TOTAL PVC</b>	<b>£22.1m</b>	<b>£22.1m</b>	<b>£22.1m</b>
<b>Benefit to Cost Ratio (BCR)</b>	<b>3.9</b>	<b>7.0</b>	<b>5.8</b>

*Table 4-3 Core, Low Growth and Dependent Development Test Results*

It should be noted that the assessment for both sensitivity tests was undertaken in TUBA only because TUBA benefits have the most significant effect on the scheme Value for Money. Even in a low growth scenario the value for money of the scheme was found to be 3.9 representing high value for money.

The scheme's VfM is therefore robust to lower levels of traffic growth in the future and is not sensitive to dependent developments which may be permitted once the scheme is in place.

The dependent development sensitivity test scenario produced a BCR of 7.0 which represents very high VfM. This is because the addition of extra network capacity with the bypass in place means dependent development trips can be accommodated without causing the level of delays they would cause if the scheme were not built.

#### 4.12 Environmental Benefits

Additional non-monetised impacts of the scheme have also been assessed.

It is anticipated that the scheme will have a moderate adverse effect on the local landscape by passing through mature woodland and locally important non-designated cultural heritage sites. Conversely the townscape incorporating Broughton village being bypassed by the scheme will receive **moderate beneficial effect from the reduction in traffic and removal of signage** which would reduce landscape impacts and visual impacts.

The scheme is expected to have a **moderate beneficial impact on journey quality** due to reduction in driver frustration, fear of accidents and journey uncertainty as well as the improvement in Non-Motorised User (NMU) facilities.

The scheme will also have a **slight beneficial impact on Severance and Physical Activity and a slight adverse effect on Historic Environment.**

The scheme impact on Water Environment and Biodiversity is expected to be neutral.

#### **4.13 Summary of Benefits**

A summary of the key Economic, Environmental and Social benefits of the scheme outlined above is provided overleaf as Table 4.3.

	Description	Summary Impact
Economy	<b>Business Users and Transport Users:</b> These users are estimated to get significant benefits (£129.5m) from reductions in journey times, 60% of which have a reduced travel time of more than 5 minutes due to existing congestion. £54.7m of the travel time benefits are for Business users. Business users also experience benefits (£2.7m) through a reduction in Vehicle Operating Costs.	
	<b>Journey Time Reliability:</b> Positive journey time reliability effects are expected due to the reduction in congestion	
	Regenerative impact was assessed only as part of the GVA benefit analysis which considered increase in the employment as a result of the scheme. However, over 750 jobs are expected to be unlocked by the scheme.	
Environment	<b>Noise:</b> Total people annoyed without scheme = 729; Total people annoyed with scheme = 705; Total change in people annoyed = 24 less people. A school and a church close to the scheme likely to see "minor adverse" noise impacts. Overall, predicted to be a benefit from changes in noise levels, equating to £1.2m over the 60 year appraisal period.	
	<b>Air Quality:</b> scheme is anticipated to lead to an improvement in air quality (exposure to PM10 and NO2 concentrations) overall. Anticipated to improve air quality within an AQMA declared for NO2, with 16 properties removed from exceedance of the annual mean Air Quality Objective.	
	<b>Greenhouse Gases:</b> Scheme leads to an increase in CO2 emissions primarily due to increased vehicle flows and distance travelled due to the scheme.	
	<b>Landscape:</b> The scheme will significantly affect landscape character by passing through / adjacent to mature woodland and hedgerows and locally important non-designated cultural heritage sites and cause a minor urbanising effect to the open countryside. It will also affect the tranquillity of this rural area.	
	<b>Townscape:</b> Bypassing Broughton village and D'Urton Lane would provide benefits to the local population from the reduction in traffic and removal of signage which would reduce landscape impacts and visual impacts.	
	<b>Historic Environment:</b> Due to the impact on setting and some archaeological sites there is predicted to be a slightly negative impact.	
	<b>Biodiversity:</b> No Biological Heritage Sites or Local Nature Reserves in the area will be directly or indirectly affected by this scheme. Route will mainly pass through improved grasslands and associated field boundaries (hedgerows with some mature trees). Some moderate adverse effects on habitat during construction reducing to slight with mitigation 15 years after construction.	
	<b>Water:</b> Most of the residual impacts on the identified water environment attributes would be insignificant. One of the attributes would experience an impact of low significance. As a result the overall impact would be neutral.	
SOCIAL	<b>Commuting and Other Users:</b> The scheme generates significant benefits (£74.8m) to consumer and other users from reductions in journey times. Commuting and other users also experience a dis-benefit (-£2.5m) through an increase in Vehicle Operating Costs.	
	<b>Impacts on Physical Activity, Journey Quality and Reliability Impact for Commuters and other users</b> were not quantified but from a qualitative assessment are expected to be Positive. The scheme is expected to lead to an increase in physical activity through an improvement in connectivity and amenity for non- motorised users.	
	<b>Accidents:</b> A reduction in number of accidents is expected on the current A6 route in and around Broughton. However, additional 2 km of highway network may neutralise the positive effect. Road Safety Audits will be utilised to mitigate any potential increase in accidents and a Stage 2 Audit is programmed for Summer 2015.	

	Description	Summary Impact
	<b>Security and Access to Services</b> are unlikely to be significantly changed by the scheme.	
	<b>Affordability:</b> Slight change in Vehicle Operating Costs for commuting and other car users.	
	<b>Severance:</b> It is likely that current severance to pedestrian users walking to and from Broughton, Barton and Fulwood would be reduced by removing heavy volumes of traffic from local roads in and around Broughton. Children attending Broughton Business and Enterprise College and travelling on foot from the south of Broughton will benefit from reduction in severance due to reduced congestion on A6 Garstang Rd. Residents will benefit from improved crossing facilities and access to services once the A6 Traffic Management measures are put in place.	
	<i>Positive Impact</i>	
	<i>Neutral / Minimal Impact</i>	
	<i>Negative Impact</i>	

**Table 4-4 Summary of Economic, Environmental and Social Impacts of Scheme**

#### 4.14 Conclusion

Analysis of the monetised impacts of Broughton Bypass concluded that based on a BCR of 5.8, the scheme offers Very High Value for Money.

In addition, the GVA assessment found that the scheme could potentially add a further £153m to the economy in net terms. The bypass is expected to significantly enhance labour connectivity to/from Preston. It is also a precondition for the commercial development in Whittingham on the site of the former Whittingham Hospital and it supports a proportion of potential future development elsewhere such as the Business Park. The majority (99%) of the GVA benefits come from unlocked residential development and the creation of employment opportunities associated with the two dependent development sites.

Sensitivity testing has shown that even with lower levels of future growth of the economy and traffic the Broughton Bypass scheme is expected to continue to have Very High value for money and is not sensitive to dependent developments which may be permitted once the scheme is in place.

### 5.1 Introduction

The Financial Case concentrates on the affordability of the proposal, its funding arrangements and technical accounting issues (value for money is scrutinised in the Economic Case).

The Financial Case is discussed under the following headings:

- *Methodology*
- *Assumptions*
- *Base Costs*
- *Quantified Risk Assessment (QRA)*
- *Optimism Bias*
- *Scheme Costs Adjusted for Risk and Optimism Bias*
- *Preferred Funding Arrangements*
- *Alternative Funding Arrangements*
- *Conclusion*

*Tenders for the Broughton Bypass construction works were received on 11 September 2015. **LCC will provide an update to the October TfL Board with the outcome of the tender review process. At this stage it is only possible to confirm that the tenders are in alignment with the LCC Cost Estimate.***

*As the successful Contractor will be procured under a Priced Contract with Activity Schedule, the estimated cost of works will have a high degree of certainty when presented to the LEP Board in October 2015 as part of the Business Case submission.*

### 5.2 Methodology

The Financial Case for Broughton Bypass is based on significant scheme development, optioneering and the identification and costing of the preferred bypass option which already has planning permission, a fully defined design and has commenced procurement. The proposed funding arrangements are set out and described, including the substantial contribution committed by the Homes and Community Agency (HCA) as owner of the Whittingham Hospital development site and the Local Growth Fund / City Deal indicative allocations.

The full scheme cost was initially developed in 2012 and last updated in October 2014 following further design.

The current cost estimate, broken down by item and year of spend, is shown in Table 5-1. The funding breakdown and spend by financial year is discussed later in this chapter. LCC has determined that rather than undertake a further cost estimation exercise in 2015 just prior to procurement, it represents better value for money if the costs are verified and or updated following the conclusion of the current procurement exercise. Tenders are due back on 11 September 2015 and this will provide the scheme with an independent verification of costs.



As the Conditions of Contract being adopted by LCC for the scheme's construction will be NEC Option A (Priced Contract with Activity Schedule) and the contract being awarded will be lump sum for each activity, there will be a high degree of cost certainty.

The October 2014 estimated costs for the scheme, as set out in Table 5.1 include preparatory costs associated with the scheme design, business case, land acquisition, construction preliminaries and scheme construction. Scheme delivery arrangements and commercial terms have been taken into account as has the determination of base costs and risk.

The costs are based on the construction of a 1.95km bypass which will commence at the existing A6/M55 roundabout to the south of Broughton and the north of Preston and will run to the east of Broughton village, crossing the B5269 Whittingham Lane east of Broughton crossroads (Whittingham Lane junction). The Bypass will then pass northwards and westwards to re-join the A6 at a proposed new roundabout, north of Broughton crossroads. A spur from the Bypass (the D'Urton Lane Link) will be constructed linking the Bypass via a new roundabout. The northern section of the bypass between Whittingham Lane and the A6 has been designed and priced as a two lane all-purpose single carriageway road. The southern section will be a dual two lane all-purpose carriageway from the B5269 Whittingham Lane to the A6/M55 Junction 1 roundabout. The D'Urton Lane Link will be a two lane single carriageway.

The following general assumptions have been made in the preparation of LCC's cost estimate:

- *The cost estimate has been prepared from the design information available during this stage of the project which is full detailed design;*
- *Construction Works generally to be undertaken during normal working hours;*
- *Access to the site is unrestricted;*
- *Estimate only covers those works within the "red line" planning permission boundary;*
- *The rates used reflect construction projects of a similar size and nature and are at Q3 2014 prices;*
- *An allowance has been made for Utility services to cover alteration works;*
- *An allowance of £500,000 has been made for A6 Mitigation Works; and*
- *Part 1 Claims and Property estimates comprising the land costs have been developed by LCC valuers experienced in Lancashire property matters.*

### **5.3 Assumptions - Works**

The Bypass will be constructed between January 2016 and January 2017 covering an estimated works period of 260 days. It is scheduled to open in spring 2017. The tender process commenced in July 2015 and tenders are due back on 11<sup>th</sup> September. Award of tender for the construction is programmed for December 2015.

The works consist of:

- New dual and single lane carriageways
- Three new roundabout junctions;
- Connection to existing highways;
- Bridge crossing over Blundell Brook;
- Subway for agricultural access;

- Site Clearance;
- Drainage works;
- Earthworks including areas of soil stabilisation;
- Fencing including noise barriers;
- Surfacing works;
- Two traffic signal controlled toucan crossings;
- Street lighting; and
- Works for and liaison with Statutory Undertakers

Inflation has been excluded from Table 5-1. When inflation is applied, the scheme is estimated to cost approximately £24.3m.

	Cost in 2014 prices	Year of expenditure
<b>Construction</b>	<b>12,973,750.36</b>	
Roadworks	2,000,000.00	2015
Roadworks	6,692,066.59	2016
Structures-Bridges	1,570,000.00	2016
Work for SU's & others	30,000.00	2016
Preliminaries	1,543,809.99	2016
Alterations to Services	400,000.00	2015
Alterations to Services	237,873.78	2016
Landscaping: Old A6 Enhancement Work	500,000.00	2017
<b>Preparation</b>	<b>1,415,000.00</b>	
Site Investigation	15,000.00	Up to 2014
Material Testing	15,000.00	Up to 2014
Publicity	20,000.00	2015
Safety Audits	15,000.00	2015
Design	700,000.00	Up to 2014
	300,000.00	2015
Business Case Appraisal	200,000.00	2015
Ecological mitigation & presubmission	25,000.00	Up to 2014
	60,000.00	2015
Ecological mitigation & design	26,000.00	Up to 2014
	39,000.00	2015
<b>Supervision</b>	<b>1,562,000.00</b>	
Supervision Internal	1,352,000.00	2016
Supervision Internal	10,000.00	2017
Supervision External	100,000.00	2016
Ecological Post Construction Monitoring	100,000.00	2017-2020
<b>Land</b>	<b>4,696,311.00</b>	
	2,200,000.00	Up to 2014
	0.00	2015
	1,200,000.00	2016
	1,296,311.00	2017
Total before risk adjustment	<b>20,647,061.36</b>	
Adjustment for risk	<b>1,693,326.00</b>	
<b>TOTAL</b>	<b>22,340,387.36</b>	

**Table 5-1 Cost Estimate Breakdown**

## 5.4 Base Costs

### 5.4.1 Land and Property Costs

Table 5-1 shows that the estimate for land is £4,696,311. The land and property valuation was last reviewed by LCC in June 2014 and is considered by LCC to be robust. The estimates were undertaken by local authority valuers experienced in Lancashire property and Part 1 Claims. The total valuation takes into account three main elements:

- *The acquisition of interests in land is estimated at £1,522,401. It is noted this may increase to £1,978,763 depending on the outcome of current discussions around possible development potential (see notes below). As risk has been added to the scheme costs including the land elements the lower figure has been used for costing;*
- *Compensation under Part 1 of the Land Compensation Act 1973 (£1,355,330); and*
- *Valuation of properties already owned by the County Council (£1,818,580).*

The valuation for the acquisition of interests in land has not changed since November 2013. Agricultural land was valued at £8,500 per acre which remains a full market value.

Any enhanced value due to possible development potential has not been taken into account in the current valuation. However, there is the potential that one of the owners may look for development value and another may seek a sale under blight provisions. If these factors were to be taken into account then three properties would potentially be affected and the valuation for land acquisition would increase to £1,978,763.

The valuation for the property already owned by the County Council has decreased due to the demolition of Church Farm. The valuation for the property already owned by the County Council could be further decreased if a possible resale value for 39 Whittingham Lane after construction of the bypass is deducted.

In light of the above, the land and property cost estimate will therefore be reviewed post the confirmation of statutory powers, when the situation regarding land and property will be clearer. Any change in estimated land costs or other costs will be reported to the LEP and will be covered by LCC.

A signed Section 151 Officer letter confirming this commitment is included in **Appendix L**.

## 5.5 Quantified Risk Assessment

A Quantified Risk Assessment (QRA) has been undertaken by Lancashire County Council for Broughton Bypass. See attached **Appendix K** Risk Register.

A total of £1,664,576 has been identified as the expected QRA. No critical risks were identified at this stage in the project lifecycle. The risks are rated by product of impact and probability as follows:

- High – four risks, £313,750;
- Medium – 34 risks, £1,130,576; and
- Low – 24 risks, £220,250.

The four high level risk components and their quantified impact on scheme cost have been extracted from LCC's Broughton Bypass Risk Register and included in Table 5-2 below for ease of reference.

Key Risk Components	Risk Rating	Impact on Cost (expected)	Mitigation Measures
CPO decision delayed and falls in the window when work cannot start due to ecological restraints.	15	£58,750	Land and property negotiations. CPO/SRO submitted in accordance with programme to allow sufficient time for decision making process - 4% inflation.
Compulsory Purchase Order (CPO) / Side Roads Order (SRO)	12	£117,500	Seek to agree the acquisition of interests in land under CPO & continuing rights for Statutory Undertakers (SU)s under SRO.
Stats performance delay	12	£68,750	Preplanning and liaison meeting with Main Contractor to minimise delay.
Pollution events	12	£68,750	Onus put on Contractors. Close supervision required.

**Table 5-2 High Risk Items from Quantified Risk Assessment**

At the time of writing (September 2015) the CPO/SRO powers had recently been confirmed so the risk that a delayed decision would impact on the programme has now been removed. The Risk Register will be updated in consultation with the contractor post the outcome of the current procurement exercise.

### 5.6 Optimism Bias

Optimism bias refers to the tendency for scheme promoters to be overly optimistic about scheme costs. DfT WebTAG unit A1.2 sets out the recommended contingency which should be added to the scheme costs. During initial programme entry stage (Stage 1) an Optimism Bias of 44% is the standard uplift applied to Highways schemes. As more information is known about a scheme, the contingency, or bias, is progressively reduced. There are other contingencies to cover for unknown site conditions such as the QRA.

In line with WebTAG, an additional 15% Optimism Bias adjustment was made to the scheme costs used in the Economics Modelling work, and set out in the Economic Case, to take into account the procurement stage the scheme was at in September 2015 and ensure a WebTAG compliant BCR.

It is worth noting, however, that Broughton Bypass has a fully detailed design and many risks have now been quantified in terms of the uncertainties that might arise during construction. Tenders for the Works were received in September 2015 and are currently being assessed with a construction start date planned for January 2016. In preparation for the Public Inquiry which was in April 2015, significant work to refine and minimise costs and risks was undertaken. The risk-adjusted scheme cost estimate is therefore considered robust but will be reviewed post procurement. LCC has opted not to apply any Optimism Bias to the funding profile submitted to DfT and set out in this Financial Case.

The estimated scheme cost of £24.3m therefore excludes Optimism Bias and includes inflation on the works elements.

Recommended optimism bias uplifts for different projects at different stages of the life of a transport project				
Category	Types of projects	Stage 1	Stage 2	Stage 3
Roads	Motorway, trunk roads, local roads, bicycle facilities, pedestrian facilities, park and ride, bus lane schemes, guided buses on wheels	44%	15%	3%
Rail	Metro, light rail, guided buses on tracks, conventional rail, high speed rail	66%	40%	6%
Fixed links	Bridges and tunnels	66%	23%	6%
Building projects	Stations and terminal buildings	51%	-	4%
IT projects	IT system development	200%	-	10%

**Table 5-3 Recommended Optimism Bias Uplifts - TAG Unit A1.2**

Post the outcome of the competitive tender exercise to procure construction, when actual scheme costs are more certain, an Optimism Bias level of 3% would normally be recommended.

As the detailed design has been completed and tenders for the Works have been returned, Optimism Bias has been used to inform the economic assessment and sensitivity tests only. Initial review of the headline tender submissions supports this approach because prices are in line with expectations. However, **LCC confirms that any scheme cost increase will be covered by LCC and this has been underwritten by the Section 151 officer.**

### 5.7 Scheme Costs Adjusted for Risk and Optimism Bias

Category	Estimate (£000's, Q4, 2014)
Construction	£12,973,750 (Prelims is £1,543,809.99)
Land and Property	£4,696,311
Preparation and Administration	£1,415,000
Supervision and Testing	£1,562,000
Maintenance (Capital Costs)	----
Adjustment for Risk	£1,693,326
<b>Total</b>	<b>£22,340,387</b>
<b>Total adjusted with 10% Inflation</b>	<b>£24,263,226</b>
<b>Total adjusted with 15% OB</b>	<b>£27,902,709</b>

**Table 5-4 Scheme Costs Adjusted for Risk and Optimism Bias**

### 5.8 Funding Arrangements

Broughton Bypass is one of four major highways schemes planned to be delivered within the Preston, South Ribble and Lancashire City Deal (known as the Preston City Deal) agreed between the local authorities and Government in autumn 2013.



This City Deal framework commits the HCA as a key landowner to bring forward sites for development and work with the relevant local authorities to ensure the required transport infrastructure is constructed.

**The delivery of City Deal is supported by a City Deal Infrastructure Delivery Fund (CDIDF) totalling £383m.** Broughton Bypass is programmed to be one of the first schemes to be delivered using this fund due to its planning permission, third party funding certainty and the phasing of associated housing development.

The release of City Deal funds does not require receipt of confirmed funding from developers in advance of major road infrastructure provision. Furthermore, LCC has agreed to underwrite<sup>2</sup> the impact of any timing differences in relation to receipt of funding for schemes delivered within the City Deal framework.

Prior to the City Deal, Broughton Bypass had been prioritised for devolved DfT local major schemes funding via the TfL Local Transport Body. Subsequent to the City Deal, Government included all local major transport funding into the single Local Growth Fund (LGF) from 2015/16 which is accessed through the Growth Deals agreed with each Local Enterprise Partnership (LEP).

Broughton Bypass has a £15.5m allocation through the Growth Deal in 2016/17 comprising £8.8m of pre-committed LTB funding and an indicative £6.7m from the competitive element of the LGF.

The scheme cost reported to DfT as part of the Growth Deal process is £24.3m excluding optimism bias. The breakdown of funding and spend profile is shown below in Table 5-5.

Funding Source		Estimate	2014/15	2015/16	2016/17	2017/18
Pre-Committed LTB	Paid via City Deal Infrastructure Delivery Fund	£8.8m	-	£1.0m	£3.0m	£4.8m
Competitive Local Growth Fund		£6.7m	-	£1.0m	£5.4m	£0.3m
LCC / Third Party		£8.8m (36%)	£3.0m	£1.0m	£4.3m	£0.5m
Total		£24.3m	£3.0m	£3.0m	£12.7m	£5.6m

**Table 5-5 Funding and Spend Summary**

As set out in Table 5-5, the funding plan includes drawing down the indicative Local Growth Fund and pre-committed LTB monies. The LCC / Third Party component includes a potential capped contribution of up to 70.5% of the total scheme cost from the HCA, secured as part of a June 2014 Section 106 agreement for the Whittingham Hospital development site.

A total of £5.1m has already been paid upfront to LCC towards Broughton Bypass (part of the LCC/Third Party funding source in Table 5-5). Clarification on the status

<sup>2</sup> As set out in the Infrastructure Delivery Plan approved by LCC’s Cabinet and the Districts Councils in April 2014 and in the City Deal signed with Government and approved at Cabinet on 6 July 2013.

and likely timescale for the remaining potential HCA funding will be sought prior to submission to TfL for Full Approval in October.

The £15.5m available from central government via LTB and LGF monies is subject to the scheme demonstrating high value for money (Benefit Cost Ratio >2) as per DfT guidance and the TfL Assurance Framework. As outlined in the Economic Case, the scheme has been assessed as having a BCR greater than 4 which means it offers Very High VfM, therefore fulfilling the VfM criterion required to release funds.

## 5.9 Maintenance

Broughton Bypass has been estimated to have future year maintenance costs of approximately £3.0m (at 2010 prices) for the 60-year economic appraisal period and these are set out in the Economic Assessment Report. These costs relate to routine maintenance and non-traffic related maintenance costs such as drainage, street lighting, fencing, grass cutting, etc.

It is confirmed that any ongoing operation and maintenance liabilities over the lifecycle of the scheme will fall to LCC. Where appropriate these would be recovered through additional Highways Maintenance Block funding in respect of additional road length.

## 5.10 Alternative Funding Arrangements

The Section 106 Agreement with the HCA for the Whittingham Hospital site agreed £11,400,000 towards Broughton Bypass or up to 70.5% of the scheme cost, whichever is greater. However, as 'Broughton Congestion Relief' highway improvements are included in the published infrastructure list for Preston, funding actually becomes due from Community Infrastructure Levy (CIL) and not planning obligations, as per Regulation 123 of the Community Infrastructure Levy Regulations 2010 (as amended).

The City Deal Infrastructure Fund and Growth Deal include £8.8m of pre-committed Local Transport Body (LTB) funding and a further £6.7m of indicative funding from the competitive element of the Local Growth Fund.

A signed letter from LCC's Section 151 Officer is attached (**Appendix L**) to confirm LCC's financial commitment and ability to fund the scheme.

As such, there is no requirement to identify further funding sources.

## 5.11 Conclusion

The Financial Case for Broughton Bypass is based on significant scheme development. The scheme has planning permission and statutory powers, is fully designed, and is at procurement stage.

The scheme is estimated to cost approximately £24.3m. This cost excludes Optimism Bias and includes inflation on the works elements. Full indicative funding is available to the scheme via the City Deal and third party sources including £5.1m already contributed by the HCA and £8.8m of committed LTB funding pre the Local Growth Fund. LCC can confirm the scheme will receive a minimum 36% local/third party funding contribution and will comply with the LEP criteria for funding approval.

The scheme will be one of the first to be delivered as part of the City Deal and, due to the design stage of the scheme and negotiations with land and property owners, scheme costs are robust and QRA has been applied.

The land and property cost estimate will be reviewed again now statutory powers are in place and the situation regarding land and property is clearer. **Any change in estimated land costs or other costs will be reported to the LEP in October 2015 and will be covered by LCC.** A signed Section 151 Officer letter confirming this commitment is included as **Appendix L**.

Consequently, there is a high degree of cost and funding certainty and a strong financial case for the scheme.

### 6.1 Introduction

The Commercial Case provides evidence on the commercial viability of a proposal and the procurement strategy that will be used to engage the market. It presents evidence on risk allocation and transfer, contract timescales and implementation timescale as well as details of the capability and skills of the team delivering the project and any personnel implications arising from the proposal.

The Commercial Case is discussed under the following headings:

- *Procurement Method*
- *Programme Implications and Risk*
- *Payment Mechanism*
- *Pricing Framework and Contract Management*
- *Risk Allocation and Transfer*
- *Contract Management*
- *Conclusion*

### 6.2 Procurement Method

LCC has chosen what is referred to in procurement as a 'traditional approach', with the design being undertaken in house and the Contractor appointed by tender. The works will be procured in accordance with the requirements of the Public Contracts Regulations 2006. With a works cost of approximately £12 million, the scheme is above the threshold of £4,322,012 where contracts have to be advertised in the Official Journal of the European Union (as at January 2014).

The proposed form of contract used will be the Engineering and Construction Contract (ECC), part of the New Engineering Contract (NEC3) family of contract documents, the standard form of construction contract in the UK and in widespread use across Europe. The procurement strategy was initially approved by the City Deal Infrastructure Delivery Project Board (IDPB) in July 2013 with approval and endorsement noted in the minutes of the IDPB meeting on 30<sup>th</sup> June 2015 (Appendix N IDPB 30 June 2015 Minutes).

There are six main payment options within the ECC:

- *A: Priced contract with activity schedule*
- *B: Priced contract with bill of Quantities*
- *C: Target contract with activity schedule*
- *D: Target contract with Bill of Quantities*
- *E: Cost reimbursable contract*
- *F: Management Contract*

The NEC/ECC is published in the form of a set of core clauses with a range of main and secondary option clauses enabling scheme specific contracts to be produced depending on individual requirements. The choice of option is a balance between risk, apportionment of risk and certainty of cost. The contract options legally define the responsibilities and duties of Employers (who commission work) and Contractors (who carry out work) in the Works Information.

Option A (Priced Contract with Activity Schedule)

This option is only viable if the design is fully designed at the time of tender and or design liability is placed with the contractor when it provides the greatest degree of cost certainty of any of the NEC options. This form of contract is attractive because it provides relative cost certainty. The contract is awarded as a lump sum based on the activity schedule and can be awarded on the lowest price or a quality/price ratio. The contractor is paid a lump sum for each activity.

Option B (Priced Contract with Bill of Quantities)

By utilising a Bill of Quantities (BoQ) the quantification of risk lies with the Employer so the design may be less complete at the time of tender. The contract is awarded based on the tendered total of BoQ prices. There is still an option of awarding on the lowest price or a quality/price ratio. The successful contractor is paid for the actual quantities of work undertaken at the rates in the BoQ, provided changes in quantity don't exceed a defined limit. Changes in quantity which exceed the defined limit are treated as compensation events which are assessed and paid on an actual cost reimbursable basis unless the contractor and Employer both agree to use the BoQ as the basis of assessment. Option B is not suitable for use where the intention is to transfer major elements of design liability to the contractor. The opportunity for placing risk with the contractor is limited and cost certainty is consequently reduced from that achievable with Option A.

Option C (Target Contract with Activity Schedule)

Under this option the contractor is paid the actual cost for the work undertaken with incentivisation via a pain/gain mechanism based on actual cost vs Target Price. The share percentages of the pain/gain mechanism are defined by the Employer. The Activity Schedule is the way in which the Target Price is built up and related to the programme. The risks associated with the accuracy of the Target lies with the contractor but the degree of risk transfer is determined by the share ranges specified. The Employer can again award on a lowest price or quality/price ratio. Target cost reimbursable contracts tend to be used where the full extent of the required work cannot be determined at contract award. It provides an opportunity to share risk in situations where contractors would either not provide fixed prices and or the risk premium would be unacceptably high. They may also provide an opportunity for sharing cost savings where the project has opportunities for innovative design or constructive methods introduced by the contractor. Option C does not provide high cost certainty.

Option D (Target Contract with Bill of Quantities)

In common with Option C, the contractor is paid their actual costs. The BoQ is used to derive the Target and adjust the Target if quantities vary within an agreed range. The Employer therefore takes a quantification risk and the lower level of certainty about costs when compared to Option A is similar to Option C.

Option E (Cost Reimbursable Contract)

Option E is a cost reimbursable contract where the financial risk is taken largely by the Employer and the contractor is paid their actual costs plus the Fee with only a small number of constraints to protect the Employer from inefficient working or

incompetence. It is normally used when the scope of works cannot be defined at the outset, for example with emergency work.

#### Option F (Management Contract)

Option F is suitable for management contracts in which most of the work is done by sub-contractors and the Contractor manages the procurement and the work undertaken by the sub-contractors. The Contractor receives the payment for the cost of the sub-contracts plus their management fee. The Employer carries most of the risk.

The Employer retains the least risk under Options A and B and the Contractor carries the least risk under Options E and F.

Due to a requirement for the lowest level of contractual oversight, the need for financial certainty and the advanced design stage of the scheme, LCC opted for a 'priced contract with activity schedule' which is Option A.

The procurement process will be managed by Lancashire County Council's Head of Highway Design Services and this management will continue into the contract management phase. LCC will continue to manage the design aspects with the contractor responsible for construction tasks.

### 6.3 Programme Implications and Risk

The Broughton Bypass scheme programme is attached as **Appendix M**. This will be update post receipt of tenders for the construction. The successful Contractor is required to provide a Programme of Works to show LCC the details of the various operations to be carried out during the contract.

A Compulsory Purchase Order (CPO) and Side Roads Order (SRO) Public Inquiry was held at Preston Grasshoppers Rugby Football Club between 14<sup>th</sup> and 22<sup>nd</sup> April 2015. Delays on the decision or legal challenges could have impacted on the programme and scheme cost so LCC had been in long term negotiations with property and landowners in order to seek agreements in advance of the Public Inquiry.

In July 2015, the Secretary of State for Transport confirmed that the Broughton Bypass Side Roads Order 2014 and Compulsory Purchase Order 2014 had both been confirmed. Now statutory powers have been obtained, Lancashire will apply for full funding approval once tenders have been received back from contractors with firm prices. This is likely to be in October 2015 once a preferred bidder has been selected and post tender negotiations.

Following confirmation of the CPO powers, Combined Notices (including General Vested Declarations which require two months' notice) have already been served on site and sent to known and unknown landowners. It is therefore envisaged that the land for Broughton Bypass can be accessed in early November which is ahead of Programme and means some work can be done in advance of the contract being signed.

The preferred tender process using the Engineering and Construction Contract – Option A - Priced Contract with Activity Schedule, is proposed to last 110 days commencing with the advertisement for Pre-Qualification (PQQ) in July 2015. The



tender period is scheduled for September and October 2015 with award of contract programmed for announcement in December 2015.

This type of contract is low risk for the Council and provides the greatest certainty of cost.

The Project Team responsible for the day to day supervision and design delivery of Broughton Bypass is an experienced in-house Lancashire County Council Highways Design team, supported by external consultants as and when required. Resources have been allocated and prioritised to the project. The project team reports to a Project Board covering all major projects on a monthly basis and by exception.

#### **6.4 Payment Mechanism**

Payment timing will be adopted to maximise the value from the contract through minimising financing and construction costs. Prompt and fair payment mechanisms will be applied throughout the supply chain. This is covered under the procurement process and will be monitored during the contract to ensure full value is delivered.

#### **6.5 Pricing Framework and Charging Mechanism**

Under the preferred Option A procurement approach which has been adopted the Contractor will provide the Broughton Bypass construction works described in the contract for a sum of money. The contract provides for specified risks to be carried by the Employer which will result in the lump sum being adjusted if the compensation events occur. Due to the use of the Option A Priced Contract with Activity Schedule approach, there is little potential for incentivisation and cost reductions once the project has been procured.

#### **6.6 Risk Allocation and Transfer**

Risks and associated cost items will be specifically assessed and assigned depending on which partner is best placed to manage them. The activity schedule will be written by the Contractor since they are the one who knows what activities will be carried out. Each activity will be priced as a lump sum by the Contractor. In pricing the activity, the Contractor will take responsibility for estimating the quantities and resources and assessing the pricing risks which are retained by the Contractor. The prevailing economic conditions in 2015/2016 will be taken into consideration to ensure correct risk assignment and help maximise value.

#### **6.7 Contract Length**

It is envisaged that the contract will be of approximately 1 year duration with an anticipated contract start date of January 2016. Due to the proposed contract type and length there is no potential for indexation of payments.

#### **6.8 Contract Management**

During the construction phase, the Priced Contract with Activity Schedule procurement option provides Lancashire with ease of contract management whilst the detailed design stage of the scheme ensures a high degree of scope clarity for the contractor, hopefully minimising risk on both sides.

Graeme Leathard, LCC Highways Manager will be responsible for overseeing the tendering and site supervision of the Contractor supported by Jane Turner, LCC Legal for any contractual matters.

## **6.9 Conclusion**

The Commercial Case for Broughton Bypass is robust with a fully designed scheme, an approved procurement approach, confirmation of statutory powers and tenders for a Priced Contract with Activity Schedule due back on 11 September 2015 and a selection process programmed for September and October 2015.

The scheme is on programme for award of the construction contract in December 2015 with a January 2016 start on site and resources are in place to oversee the construction contract. Risk is being minimised through the Priced Contract which provides LCC with a high degree of cost certainty and risk transfer.

There are no additional personnel requirements for Lancashire as the skills required to deliver the scheme are already engaged and committed to Broughton. The scheme is due to open in Spring 2017.

**7.1 Introduction**

The Management Case assesses whether a proposal is deliverable. It tests the project planning, governance structure, risk management, communications and stakeholder management, benefits realisation and assurance (e.g. a Gateway Review).

There should be a clear and agreed understanding of what needs to be done, why, when and how, with measures in place to identify and manage any risks. The Management Case sets out a plan to ensure that the benefits set out in the Economic Case are realised and will include measures to assess and evaluate this.

The Management Case is discussed under the following headings:

- Governance
- Assurance
- Delivery Programme
- Risk Management
- Communications and Stakeholder Management
- Monitoring and Evaluation
- Conclusion

**7.2 Governance**

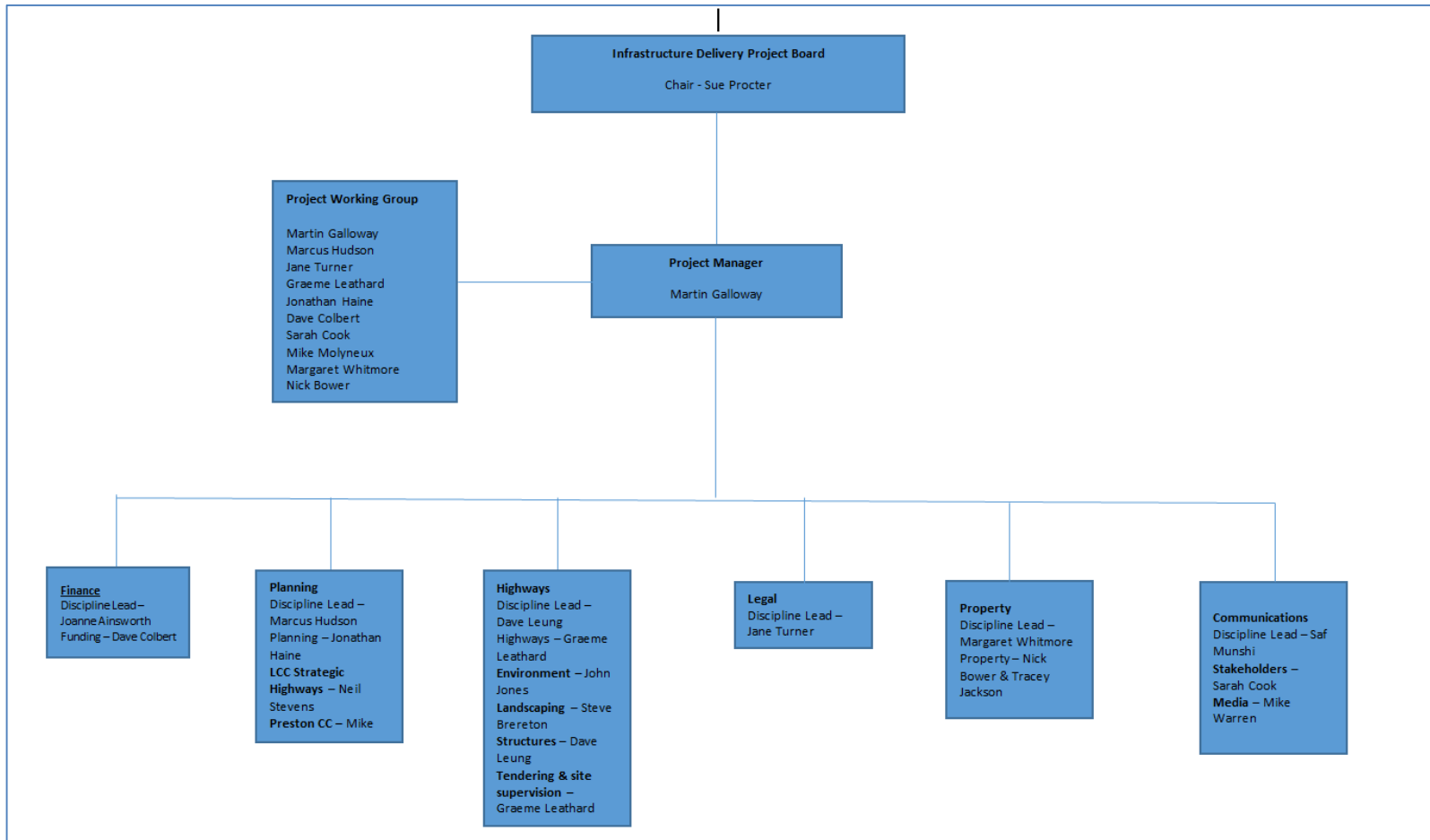
Figures 7-A and 7-B overleaf show the governance structure for the project management and delivery of the scheme. Key elements of the governance structure include:

- *The project is a core component of the infrastructure delivery plan of the Preston, South Ribble and Lancashire City Deal – the Project Manager therefore reports to the City Deal Infrastructure Delivery Project Board;*
- *A number of discipline leads have been identified for the project including for planning, finance, legal, highways design and supervision, property and communications. All discipline leads report to the Project Manager.*
- *The Lancashire Local Enterprise Partnership (LEP) is responsible for the overall governance of the City Deal and the Board comprises the LEP Chair, Leaders of Lancashire County Council (LCC), Preston City Council (PCC) and South Ribble Borough Council (SRBC) plus the Vice Chair of the LEP and the LEP champion for Strategic Development;*
- *Transport for Lancashire (TfL) is a sub-committee of the LEP responsible for the transport elements of the infrastructure delivery plan. TfL develops, approves and funds major transport schemes;*
- *The City Deal Programme Board is comprised of the Chief Executives of Lancashire County Council, Preston City Council and South Ribble Borough Council and is responsible for operational delivery;*
- *The Project Board consists of the appropriate members of the local authorities for the scheme (LCC and PCC). As one of the City Deal Project Teams the governance diagram in 7-B shows the relationship of the Broughton Bypass team to the other groups responsible for delivery of the City Deal investment;*

- *Not shown but to note, the Senior Responsible Owner of Lancashire County Council is responsible for the appointment of the Project Manager and Senior User and Supplier (contracts); and*
- *The LCC Project Manager is responsible for commissioning the main works contracts and other elements of the scheme including land assembly, permissions and approvals.*

Highways England (HE) is not currently included within the Governance structure but may be added post procurement to ensure appropriate management of the tie in of the bypass to the M55 at Junction 1 and the integration of the scheme with the recent junction capacity improvements at that location. LCC and HE have already had discussions about the bypass scheme and HE had sight of the Local Model Validation Report (LMVR) for the scheme.

Figure 7-B also shows the link to the Homes and Communities Agency (HCA) National Board and HCA Liaison which is of importance to Broughton due to their ownership of the Whittingham development site.



**Figure 7-A Broughton Bypass Project Governance Structure**

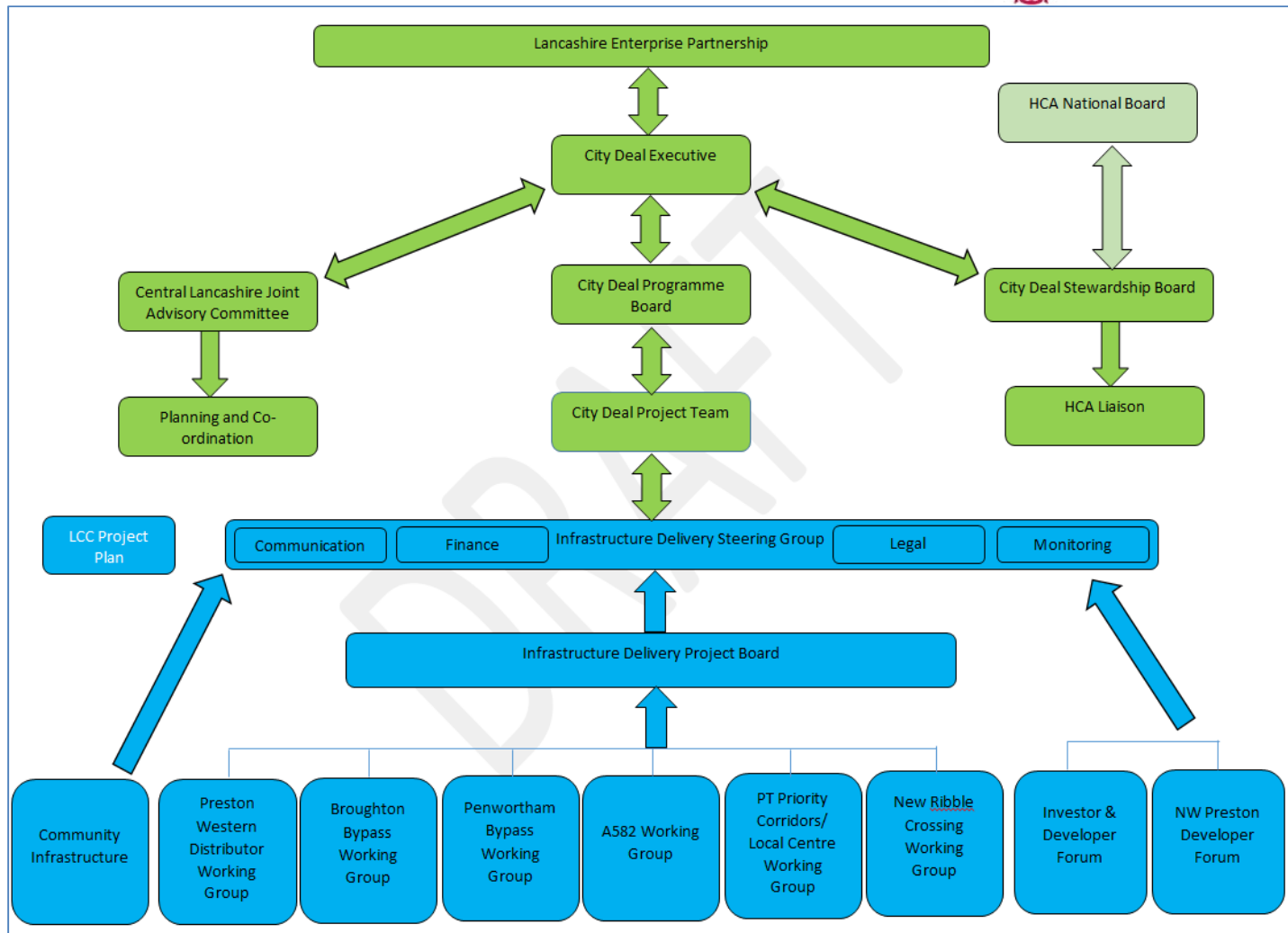


Figure 7-B City Deal Infrastructure Delivery - Governance



### 7.2.1 Evidence of Successful Project Delivery

LCC has a strong track record of project delivery. A recent major transport project demonstrating successful delivery so far is the £130m Heysham to M6 Link Road, one of the largest local authority highway schemes in the country, which is on track for completion in summer 2016.

The scheme will complete the long awaited connection from the Heysham and Morecambe peninsula to Junction 34 of the M6 and will be a 4.8km two lane dual carriageway with a footpath and cycle way along the entire route. This is a more complex scheme in terms of scope but the benefits sought from the Heysham to M6 Link road are similar to those sought on Broughton, including improved access to development sites, improved journey times and reduced congestion as well as better local air quality in residential areas subject to high levels of pollution. Lessons learned from the delivery of Heysham to M6 are shared across the highways service to ensure widespread learning for other projects such as Broughton.

Another successful project includes the £3.4m Fishergate Central Gateway project, supported by £1.39m of ERDF funds. This project has transformed central Preston with the creation of a shared space for pedestrians and cars and was completed on time and to budget in October 2014.

In addition, Lancashire has led on the successful delivery of major economic development initiatives for the County including the Preston, South Ribble and Lancashire City Deal; the Lancashire Growth Deal; and the progressing of the Lancashire Enterprise Zones. Through the City Deal and the Lancashire Growth Deal, LCC is delivering a transport investment programme worth a further £250m during the period up to 2020/21. This has involved collaboration with the HE and other stakeholders. The Council is resourced to deliver this extensive programme with strong in-house design and project management expertise supplemented by our Highways Framework Consultant as required.

LCC understands and has practical experience of successfully delivering schemes such as Broughton Bypass and has set a realistic and deliverable project programme which has City Deal wide support.

### 7.3 Assurance

As the Accountable Body, LCC has put in place arrangements for independent local audits carried out in line with DfT requirements as set out in the TfL Assurance Framework approved by DfT.

TfL has a dedicated web page hosted by the Lancashire Enterprise Partnership. This will be used to publish agendas, minutes, the business cases, evaluation and appraisal reports and supporting technical material, and regular programme updates on delivery and spend against budget.

As per the LEP Assurance Framework, LCC will submit a quarterly monitoring report (QMR) to TfL, setting out progress on scheme preparation and delivery. This will include a regularly updated quantified risk assessment.

The next key approval dates for the Broughton Bypass scheme are:

October 2015	TfL Board – Full Approval sought for procurement and release of indicative funds based on VfM and Full Business Case.
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December 2015 Award of Construction Contract

### 7.3.1 Scheme Assessment and Approval

The officer with overall responsibility for business case scrutiny and for making recommendations to Transport for Lancashire (TfL) is Steve Browne, LCC Executive Director for Environment.

In order to secure the required expertise for business case assurance, TfL has established a consultant panel with a minimum of two independent specialist consultants appointed to a Business Case Scrutiny framework for a set period of three years. This ensures separation between scheme promoters and their own framework consultants and the appraisal team and decision makers.

As Accountable Body, LCC ensures that officers from the three local transport authorities with appropriate technical experience of this type of work oversee the selection process.

The LEP Board Director for Strategic Transport will have an advisory role in supporting scheme assessment and approval arrangements. Consultants appointed to the Business Case Scrutiny framework will provide TfL with a formal report on each submitted local major transport scheme business case specifying the outcome of their assessment against a standard set of key criteria.

### 7.3.2 Approval Process

TfL has adopted a three stage approval process which requires business case submissions to meet DfT Business Case guidance including:

**Programme Entry:** Programme Entry indicates the LEP's intention to provide funding to a scheme or package following acceptance of a Strategic Outline Business Case and its inclusion in the Strategic Economic Plan. Programme Entry is not an absolute commitment, but intended to provide sufficient assurance for the promoting authority to embark on Outline Business Case development.

**Conditional Approval:** Conditional Approval indicates the LEPs acceptance of an Outline Business Case demonstrating high value for money. It is intended to provide the expectation of funding necessary for the promoting authority to apply for any statutory powers that may be required such as Transport and Works Act powers, highways orders, planning consents, compulsory purchase orders etc.

The LEP will only grant Conditional Approval on the basis that there will be no material changes to the scheme's scope, cost, design, expected benefits and value for money. The granting of Conditional Approval may be subject to a small and limited number of conditions. This is the stage that Broughton Bypass is currently applying for through this Outline Business Case. However, due to the stage of scheme development, Broughton Bypass has already applied for statutory powers and has recently held a Public Inquiry (outcome outstanding) into the compulsory purchase order and side road orders.

**Full Approval:** occurs once procurement has taken place and a preferred bidder and final price obtained and once granted, enables the Broughton Bypass scheme to commence construction and draw down grant funds.

Full Approval indicates the LEPs acceptance of a Full Transport Business Case and approval to proceed to implementation. It occurs when all necessary statutory powers are in place and any necessary conditions specified at Conditional Approval have been satisfied. Scheme promoters can only apply for Full Approval once procurement has taken place and a preferred bidder with firm and final prices selected. Once granted, Full Approval enables the scheme promoter to commence construction and draw down grant funds.

For individual schemes requiring a Local Growth Fund contribution of less than £5m or packages of small-scale measures requiring a Local Growth Fund contribution of up to £10m where no individual scheme has a capital cost greater than £5m, acceptance of a Strategic Outline Business Case indicates the Lancashire Enterprise Partnership's approval to proceed to implementation. This enables the scheme promoter to commence works and draw down grant funds.

To ensure the Business Case for Broughton Bypass meets DfT guidance, the modelling and appraisal of scheme benefits has complied with WebTAG as of March 2015.

### **7.3.3 Funding Guarantees**

It is noted that TfL requires scheme promoters to provide an absolute minimum 10% contribution towards total scheme construction cost and 100% of any increase in cost once TfL has granted a scheme Provisional Approval. As set out in the Financial Case, Broughton Bypass has already had third party funding of £5.1m which will form part of Lancashire's local contribution to support the committed funds from the Local Transport Body prior to the Local Growth Fund.

Lancashire's Section 151 officer has under-written the authority's ability to fund the local contribution to Broughton Bypass and any subsequent cost increases post the granting of remaining funding approval. In addition, the scheme's inclusion in the City Deal Infrastructure Development Fund means that the City Deal will cover any delay in funding from developers.

### **7.3.4 External Views on Business Cases**

TfL will publish the Broughton Bypass major scheme business case on its website to ensure transparency. Lancashire CC will do likewise and we will publicise through our normal communications channels. The Full Business Case and its supporting documentation including the Local Model Validation Report, Model Forecasting Report and Economic Assessment Report will be made available for inspection and independent assurance by TfL's Independent Assurance team appointed to review Broughton Bypass.

### **7.3.5 Value for Money**

The LEP will only approve schemes demonstrating high value for money, with a benefit to cost ratio (BCR) of greater than 2. As part of the independent scrutiny of a scheme's transport business case, TfL will require the consultant responsible to confirm that the Value for Money assessment aligns with DfT's Advice Note for Local Transport Decision Makers published in December 2013. George Graham, Deputy County Treasurer for the Accountable Body, will sign off all Value for Money assessments as true and accurate. The Deputy County Treasurer is not involved with scheme development and promotion at Lancashire County Council, thus

avoiding any potential conflict of interest with regard to schemes promoted by the County Council.

A scheme must satisfy the Lancashire Enterprise Partnership's value for money requirements at both Conditional and Full Approval stages. Where a scheme fails to deliver a minimum benefit to cost ratio of greater than 2, the Lancashire Enterprise Partnership will seek independent professional advice on the magnitude of the stated additional benefits prior to determining whether these benefits are sufficient to offset this requirement.

A Value for Money (VfM) statement for Broughton Bypass has been produced (which summarises the Economic Case for the scheme and the BCR as it was at OBC stage) and this was issued to LCC in January. An updated VfM statement will be issued to LCC and TfL post the confirmation of procurement and scheme cost and it will reflect the contents of the Full Business Case.

The BCR of Broughton Bypass has been assessed as being 5.8 including 15% Optimism Bias. This represents Very High VfM. It is confirmed that the assessment was undertaken in line with DfT WebTAG guidance.

### **7.3.6 Release of Funding, Cost Control and Approval Conditions**

Assuming Broughton Bypass is approved for funding, the LEP will release funding quarterly in arrears. The LEP requires the submission of a quarterly monitoring report (QMR) setting out progress and updates on scheme delivery and the quantified risk assessment.

Claims will be accompanied by a signed statement from Lancashire to confirm that costs have been incurred and that delivery is progressing in accordance with the formal contract established between TfL and LCC as scheme promoter. Funds will only be spent on eligible capital costs.

As Lancashire is also the Accountable Body, a mechanism will be established through which TfL gives approval to LCC to draw down the funding. This will ensure that the County Council's status as Accountable Body gives it no more favourable a position than the other two local transport authorities within TfL's geographical area.

Lancashire will ensure that a process is established to maintain robust records and audit trails. This will include documentation to demonstrate a fair and effective procurement for the construction phase, and to safeguard funds against fraud, bribery or error.

### **7.3.7 Monthly Update Report to Project Board**

Monthly update reports are being provided by the Broughton Bypass Project Manager to the Central Lancashire Transport Masterplan Project Board and will continue through the delivery of the scheme. The scheme is at the detailed design stage so the reports currently cover scheme design, CPO Process, Funding, Land and Planning. When funding is secured and contracts are let the reports will also cover adherence to programme and budget, issues and decisions made within the tolerances granted and exceptions.

Copies of the one page Monthly Update Reports to the Project Board are available from Martin Galloway, LCC, on request.

## 7.4 Delivery Programme

The current scheme programme is shown at **Appendix M**. The programme shows how the infrastructure works have been coordinated with the environmental constraints (shown in Red and Green). Specifically, restriction on undertaking works at specific times of the year when bats and newts are present and also the periods when trees can be felled (outside bird nesting seasons). The programme also shows the Compulsory Purchase Order (CPO) / Side Road Order (SRO) / land acquisition process. As the scheme progresses through the approval and current procurement processes it will be developed further in terms of the works breakdown and deliverables over the construction period.

The public inquiry into the CPO and SROs required for the scheme was completed in April 2015 and the authority is now in receipt of full statutory powers as of July 2015. All properties required for the bypass are in County Council ownership – which reduces a key project delivery risk.

Key milestones for the project are also set out in the City Deal Infrastructure delivery plan. The City Deal Infrastructure Delivery Plan sets out the major activity for the next 12 months.

### 7.4.1 Milestones

The key project milestones are;

2013/14 (Year Zero)	Renew Planning Application (approved November 2013)
2014/15 (Year 1)	CPO/SRO procedures underway (The orders were advertised between 23 May to 11 July 2014 and Public Inquiry held April 2015)
2015/16 (Year 2)	Outline Business Case and VfM Statement (March 2015) Award of Statutory Powers July 2015 Approval of Full Business Case October 2015 Award of Contract December 2015 Start of Works January 2016
2016/17 (Year 3)	Road Open Spring 2017

## 7.5 Risk Management

This section explains the approach taken towards managing risks.

### 7.5.1 Risk Management Strategy

Risks associated with the delivery of the LEP's investment programme are managed according to the overall monitoring responsibilities set out in the LEP's Accountability Framework. This Framework requires risk registers to be produced and maintained for individual schemes once approved.

The Project Board has overall responsibility for governance and risk associated with the delivery of the scheme. The Project Executive is responsible for managing and overseeing the risk management strategy and where appropriate agreeing and undertaking actions to mitigate key risks. The Project Manager is responsible for maintaining and updating a Quantified Risk Register and planning for mitigating any risks which do not require escalation. The project and City Deal programme

governance structures outlined earlier in this chapter show the arrangements for decision making and approvals and the responsibilities regarding risk on Broughton Bypass are well defined.

The City Deal Infrastructure Delivery Plan (2014/15) contains a risk register for the whole programme identifying: cost risks; resource risks; timing risks, planning risks, commercial risks and; marketing and communications risks. Mitigation measures are identified for each.

### 7.5.2 Risk Register

Below the Infrastructure Delivery Plan Risk Register sits a Broughton Bypass project risk register (**Appendix K**) which is owned by LCC and updated regularly, with the July 2014 Project Board report noting that additional risks related to the delivery of a business case demonstrating VfM had been added. The Risk Register highlights the key risks to scheme cost and programme for Broughton Bypass.

At the same Project Board, the contract strategy for Broughton Bypass was also presented, which recommended the ECC type A Fixed Price contract secured through competitive tender would be most appropriate. The report noted that the scheme is designed in detail and that the approach leads to final cost certainty, transferring the financial risk to the private sector contractor. It also reduces contract administration and any related risk to the employer.

In May 2014, it was reported that the risk register had been revised and costs attributed leading to a maximum risk estimate of £1.9m. However, a lower, average risk amount was used within the cost estimate in line with normal practice. The current bypass estimate stands at c£24.3m including inflation. Negotiations are ongoing regarding school / church issues at the south end and additional risks will be reviewed now the statutory powers are in place and following procurement, including the risk allocated to the potential for increased land and property valuations.

## 7.6 Communications and Stakeholder Management

### 7.6.1 Communications Strategy

#### (a) City Deal Communications and Marketing Strategy

The communications strategy for the project is framed within the wider communications strategy for the City Deal. The City Deal Communications and Marketing Strategy have been developed to:

- *Ensure a consistent approach to all external communications activities relating to the City Deal;*
- *Effectively engage with appropriate stakeholder groups; and*
- *Raise the profile of the City Deal area, and its impact on the Lancashire economy, on a local, regional and national level*

The proposed overarching approach and activities have been identified by communications staff from Lancashire County Council, Preston City Council, South Ribble Borough Council and the HCA. They are intended to establish the foundations for the successful communication of the implementation phase, and have been directly influenced by the schedule of work outlined in the Infrastructure Delivery Plan (including Broughton Bypass).



**(b) Approach**

A partnership approach to communications activity during the lifetime of the City Deal requires a close working relationship on communications between the three councils with input from the HCA, LEP, government departments and other partners where appropriate, reflecting the arrangements for delivering the programme overall.

The activities within the plan will be led by the three councils with the support of the City Deal Project Team. These activities will be reviewed annually throughout the City Deal lifetime.

In keeping with best practice communications and value for money principles, the overall approach will have a clear focus on achieving measurable results. Detailed proactive planning will ensure objectives and targets are set and regularly measured against. Updates and reports against these objectives will be provided back to the City Deal Project Team, Programme Board, Executive and Stewardship Board.

A specific Broughton Bypass Communications Strategy has been developed for the current project stage by LCC Communications Team and this will be made available to the Independent Assurance Team and the LEP in advance of the funding decision. At the time of writing the Strategy was in the process of being updated.

**(c) Audiences**

Communications will need to work on a number of levels, with key audience groups consisting of:

- *Business and business groups ~ both existing and future;*
- *Residents and wider public;*
- *Councillors;*
- *Campaign groups;*
- *Statutory groups;*
- *Government ~ at local and central level;*
- *Developers, house-builders and land owners;*
- *Investors;*
- *Partners, e.g. ~ Lancashire Enterprise Partnership, HCA, Highways Agency, other Councils, and;*
- *Media*

Activity will broadly focus on the following key areas with an ongoing dialogue with all groups to remind them of the City Deal benefits. Messages include the fact the City Deal will deliver:

- *More than 20,000 net new private sector jobs, including 5,000 in the Lancashire Enterprise Zone;*
- *Nearly £1 billion growth in Gross Value Added (GVA);*
- *17,420 new homes;*
- *£2.3 billion in leveraged commercial investment;*
- *Fast track growth in the county and lead to new development opportunities;*  
*and*
- *Strong partnership working in Lancashire between the public and private sector, with joint aims and ambitions for the future.*

## 7.6.2 Summary of Consultation to Date

**Appendix P** - Broughton Bypass Communications Strategy and Action Plan (September 15) is a live document updated as the project progresses. It outlines the proposed strategy to support the project specific communication and engagement process required for completion of the scheme from design to construction and ultimately completion of the Bypass. The Action Plan consequently outline's previous consultation activities as well as proposed timings and triggers for future consultation.

Recent consultation has been undertaken related to renewing the planning permission for the scheme and the publication of the CPO/SRO including statutory stakeholder consultation (English Heritage, Environment Agency, Highways Agency, Natural England), landowners and occupiers directly affected by the scheme, the general public and wider stakeholder groups (Ramblers Association, Sport England and United Utilities).

All information on the project has been made available electronically via Lancashire County Councils website:

[http://www3.lancashire.gov.uk/corporate/atoz/a\\_to\\_z/service.asp?u\\_id=3875&tab=1](http://www3.lancashire.gov.uk/corporate/atoz/a_to_z/service.asp?u_id=3875&tab=1)

Embedded links are provided to the planning application, CPO/SRO documents and related plans and schedules.

Public notices have been posted on site and in the press and letters sent to affected individuals after 23<sup>rd</sup> May 2014 (when the orders were 'sealed').

## 7.6.3 Schedule of Proposed Consultation

As set out in **Appendix P**, plans for additional consultation will be developed following the completion of the procurement process for the construction of the new road. No dates for consultation beyond the A6 consultation in April 2015 have been firmly established yet. There is, however, an expectation that activities will occur throughout October to December 2015 with a requirement for stakeholder engagement and communications specified in the current tender documentation.

In particular, a scored part of the tender evaluation relates to the need to engage with community groups and residents about the effect the scheme will have on the community both in the long term and during the construction phase. Noise and vibrations are likely to be a concern especially for the Church and School near the D'Urton Lane Link.

Contractors have been requested to explain how they will engage with these groups and individuals, some of whom will be disaffected. They must set out how they will ensure the construction process will minimise the impact on day to day lives.

It is anticipated that there will be communications and consultation activity with the local community and statutory undertakers in advance of the start of works and whenever there may be significant impacts for example noise or heavy plant.

An outline plan for the post procurement consultation is therefore as follows:

**(i) Stakeholder Engagement**

- Letters to directly affected residents and businesses following the outcome of the procurement with notice of start dates on site;
- Briefing material
- Stakeholder Information Event /Meet the Contractor

**(ii) Media Relations**

- Press release after the challenge period regarding the procurement outcome
- TfL Value for Money Statement
- Appointment of Contractor
- Visualisation of the future road
- Pre-Construction start of works
- Photo of ground breaking ceremony (Nov 15 / Jan 16)

**(iii) E-Communications**

- Web updates
- Social Media messages

**(iv) Contractor / City Deal Communications**

- Development of a Communications Protocol for working with contractor and City Deal Partners

**7.7 Monitoring and Evaluation**

TfL will monitor and evaluate Broughton Bypass in terms of scheme delivery and its intended outcomes and impacts, in accordance with the appropriate DfT guidance. The work will be undertaken by consultants Jacobs and a Monitoring and Evaluation (M&E) Methodology Report attached as **Appendix O** has been produced to inform the LEP’s requirements. TfL will publish the results on its website.

**7.7.1 Overview**

The LEP (and ultimately DfT) must be able to demonstrate that any funding provided to local infrastructure represents value for money to the taxpayer. It must also ensure lessons learned are used to inform future decision making.

All schemes approved for funding are required to undertake Standard Monitoring as per DfT guidance. Table 7-1 sets out the items required to be monitored at various stages during scheme delivery and post opening. **Appendix O** the Monitoring & Evaluation Report describes each item in detail and proposes the key metrics to be evaluated.

Item	Stage	Data Collection Timing
Scheme Build	Input	During delivery
Delivered Scheme	Output	During delivery / post opening
Costs	Input	During delivery / post opening
Scheme Objectives	Output / Outcome / Impact	Pre or during delivery / post opening (up to 5 years)
Travel Demand	Outcome	Pre or during delivery / post opening (up to 5 years)
Travel Times and Reliability	Outcome	Pre or during delivery / post opening (up to 5 years)
Impact on the Economy	Impact	Pre or during delivery / post opening (up to 5 years)
Carbon	Impact	Pre or during delivery / post opening (up to 5 years)
<b>Stage</b> <b>Inputs:</b> What is being invested in terms of resources, equipment, skills and activities undertaken <b>Outputs:</b> What has been delivered and how it is being used, such as roads built, bus services delivered. <b>Outcomes:</b> Intermediate effects, such as changes in traffic flows, modal shifts. <b>Impacts:</b> Longer-term effects on wider social and economic outcomes, such as supporting economic growth).		
	Reported within 'One year after Report' (released 1 – 2 years post scheme implementation)	
	Reported within both the 'One year after Report' and 'Final Report' (~5 years after scheme implementation).	

**Table 7-1 Standard Monitoring Requirements**

### 7.7.2 Logic Mapping

To support the monitoring and evaluation process it is important to set out the assumptions which underpin how the scheme will deliver the intended outcomes (changes in traffic) and impacts (such as supporting economic growth). DfT guidance recommends logic mapping is undertaken to show a scheme's causal pathways and how it is expected to achieve its anticipated benefits. A Logic Map is a visual way of presenting the key steps required between inputs and outcomes.

A Logic Map for Broughton Bypass is shown in Figure 7-C overleaf.

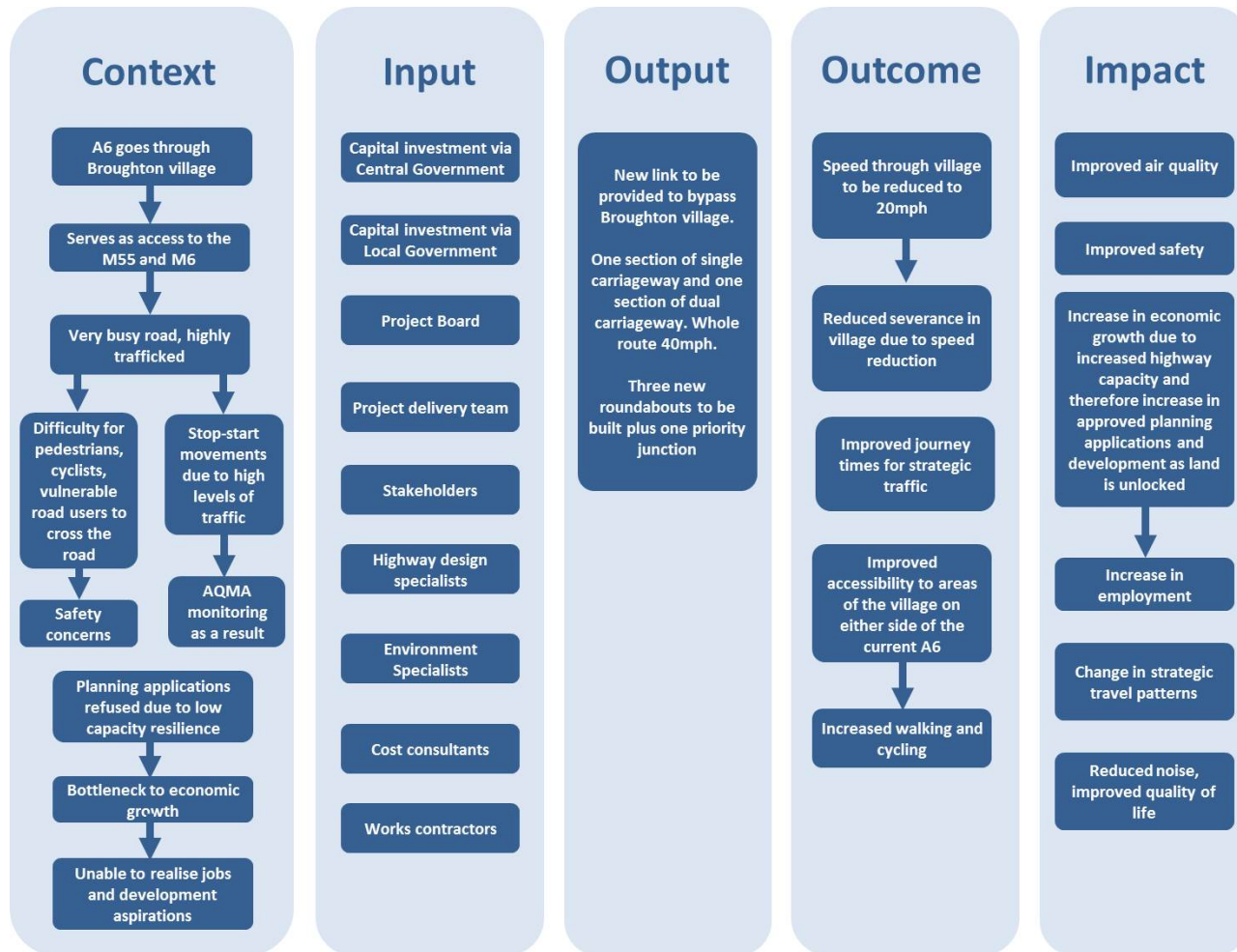


Figure 7-C Logic Map

**7.7.3 Reporting**

An Evaluation Manager to be nominated by LCC will be responsible for the overall coordination and management of the M&E process. They will be independent of scheme delivery but will be familiar with the scheme and data collection methodologies. Evaluation results will be published in the ‘One Year After’ Report and the Final Report.

Monitoring and Evaluation progress will also be reported within the Quarterly Reports due to be issued to the City Deal during construction and receipt of funding.

**7.7.4 Summary of Standard Monitoring**

Table 7-2 below provides an overview of the Standard Monitoring to be undertaken for Broughton Bypass.

Standard / Enhanced / Fuller	Item	Stage (Inputs / Outputs / Outcomes / Impacts)	Sub-Item
Standard	Scheme Build	Inputs	Programme
			Stakeholder management
			Risk management
			Scheme completeness
	Costs	Inputs	Outturn construction costs
			Risks
			Cost savings
			Cost over-runs
			Outturn maintenance costs
			Unanticipated costs
	Delivered Scheme	Outputs	Changes to scheme
			Intended beneficiaries
			Changes to mitigation
	Travel Demand	Outcomes	Traffic volumes (screen lines)
			Pedestrians and cyclist counts
	Scheme Objectives	Outputs, Outcomes & Impacts	Employment levels
			Accessibility
			Congestion
			Noise
			Air quality
	Travel Times and Reliability	Outcomes	Accidents
			Journey times surveys
	Economy	Impacts	Variability of journey times
			Travel times
			Accessibility
	Carbon	Impacts	Employment levels
			Traffic volumes
			Traffic speeds

**Table 7-2 Standard Monitoring – Summary**

The data collection requirements for each of the evaluation metrics outlined above are set out in the M&E Methodology report. Where possible, the data collection requirements will utilise survey data which is already collected by LCC for other metrics, for example traffic and pedestrian counts and journey time surveys.

The management of risk in delivering to the M&E requirements has also been taken into account and mitigation measures set out. For example, there is a risk that the



outcome may be evaluated too early. The mitigation is that it will be scheduled to occur 1 year and 4-5 years after scheme completion as recommended by DfT.

### **7.7.5 City Deal Monitoring and Evaluation**

All the City Deal partners and stakeholders agree that there is a need to monitor progress on the City Deal, in order to identify and deal with problems before they impact on the delivery of the Deal's objectives. The City Deal Stewardship Board is responsible for overseeing the monitoring throughout the lifetime of the City Deal. A detailed monitoring and output list will be presented annually to the Stewardship Board who will submit a 'top-line' monitoring schedule to Government.

Outputs will be reported on an annual basis, or more frequently as required. The outputs capture direct City Deal impacts including housing and employment space planning, key stages of the Deal's Infrastructure delivery, whilst monitoring larger scale performance measures across the City Deal area.

Progress reports on the Infrastructure Delivery Plan including site activity updates, infrastructure delivery, financial position and communications activity will be presented to the City Deal Executive and Stewardship Board on a quarterly basis. A City Deal Investor and Developer Forum will meet every three months to make sure that the private sector remains fully engaged in the City Deal throughout the lifetime of the City Deal.

A comprehensive list of monitoring outputs has been developed around housing numbers, commercial floor space and public and private sector investment levels.

### **7.8 Conclusion**

A strong project specific governance structure exists to oversee scheme delivery and ensure it meets its objectives. The communications strategy for the project is framed within the wider communications strategy for the City Deal and the scheme has its own page on the LCC website. Significant stakeholder and public consultation has already been undertaken related to the renewal of the planning permission in 2014 and the publication of the CPO/SRO including statutory stakeholder consultation.

During construction, the successful contractor will be expected to engage with stakeholders and the community affected and their plans for doing so will be specified in their tender documentation.

Lancashire has a strong track record of delivery and has set realistic and deliverable targets based on in-house design and contract experience. Risk registers are in place at Project and Programme level and these are reviewed and updated on a regular basis. A significant level of information for the scheme is available publicly on the LCC website.

### 8.1 Summary

Broughton Bypass has a strong strategic and economic fit with the aspirations of the City Deal and the commercial, management and financial cases demonstrate the scheme is ready for immediate delivery.

The village of Broughton lies on a principal transport route, the A6 connecting Preston with its northern villages and small towns and on to Lancaster. Traffic from the north travelling to and from Preston and M55 junction 1 has little alternative other than to travel through Broughton. Traffic along this constrained and historic section of the A6 has increased to over 22,000 vehicles per day. When the M6 motorway between Junctions 32 and 33 is temporarily blocked or under repair the parallel section of the A6 through Broughton village is the only alternative route for the diverted motorway traffic. This section of the A6 is also a designated route for heavy and high abnormal loads. The levels of traffic are acting as a constraint to nearby economic development plans and much needed local air quality, community and safety improvements.

The £24.3m bypass scheme is consequently a strategic priority within the Central Lancashire Highways and Transportation Masterplan, the Preston City Local Plan, the City Deal, the Lancashire LEP Growth Deal as well as being in alignment with the principles of the National Planning Policy Framework. Implementation of the bypass is vital to facilitate sustainable development and ease local congestion and air quality problems associated with Broughton's proximity to the motorway network.

The scheme will be combined with traffic management measures along the A6 to enable public realm improvements and improved facilities for cyclists, pedestrians and public transport users in and around Broughton. The scheme is included in the City Deal Infrastructure Delivery Programme, a programme which aims to enable the delivery of critical infrastructure and allow the full development of strategically significant commercial development and housing schemes.

Analysis of the monetised impacts of Broughton Bypass concluded that the scheme offers Very High Value for Money. In particular, Broughton Bypass will deliver significant journey time saving benefits, amounting to £129.5m.

The scheme can potentially generate additional GVA benefits of £153m over the 60 year appraisal period through unlocked development, employment and productivity impacts which have not been included in the calculation of the BCR. This is a net GVA figure and demonstrates the scheme would strongly support local economic activity.

The scheme will result in beneficial air quality impacts within the Broughton AQMA which was declared as a result of high levels of Nitrogen Dioxide. The AQMA designation may no longer be required post implementation of both the bypass and the A6 traffic management measures.

Financially, there is a strong certainty of funding. As part of the City Deal Programme, Broughton Bypass is programmed to be in the first tranche of schemes to be delivered with a programmed start on site of January 2016.

Broughton Bypass has already received £5.1m up front funding from the HCA, has £8.8m committed LTB funding and been indicatively allocated £6.7m from the competitive component of the Local Growth Fund. The remainder will be covered through a mixture of LCC and developer contributions with the LCC Section 151 Officer guaranteeing a total local/third party minimum contribution of 36%.

The LEP's governance arrangements combined with LCC's internal project governance will provide a robust legal structure to oversee the delivery of this City Deal priority scheme.

The proposed form of contract used will be the Engineering and Construction Contract (ECC), part of the New Engineering Contract (NEC3) family of contract documents, the standard form of construction contract in the UK. Use of Option A (Priced Contract with Activity Schedule) will provide the highest degree of cost certainty and risk transfer.

Procurement activity commenced in July 2015 with tenders due back in September. The contract will be awarded in December 2015, subject to Full Approval being granted by the LEP.

The scheme is fully designed, all statutory powers are in place and the scheme has planning permission for its construction.

**8.2 Conclusions**

In conclusion, Broughton Bypass, a strategic priority for the City Deal, is proposed by LCC to relieve traffic from Broughton and significantly enhance labour connectivity to and from Preston. It is a highly deliverable scheme which will support economic development of the area and specifically a large mixed use development in Whittingham.

Table 8-1 shows a Red Amber Green assessment of the Business Case for Broughton with a summary of how the scheme performs against the five aspects, namely the strategic, economic, commercial, financial and management aspects. All of the cases are assessed as Green and the scheme is highly deliverable.

CASE	SUMMARY	RAG
STRATEGIC	Strong policy fit with key national, sub-regional and local policy documents; wide political and stakeholder support within LCC and with the City Deal partners. Scheme identified as part of the critical infrastructure needed to support delivery of developments. A robust case for change has been identified and a compelling case for the scheme to relieve congestion in Broughton and deliver wider economic and housing growth.	
ECONOMIC	Scheme offers Very High VfM and additional GVA benefits of £153m to the local economy, primarily from unlocked residential development and the creation of employment opportunities. There are positive journey time benefits due to reduced congestion.	

FINANCIAL	Robust scheme costs based on detailed design. Scheme has planning permission and statutory powers and is at procurement stage. Funding is in place and S151 Officer approval confirms scheme is affordable and LCC will cover any overspend.	
COMMERCIAL	Commercial case is very strong with an approved procurement route established. Tenders for the works are currently at final review stage and on programme for award of the construction contract in December. Risk is being minimised through a Priced Contract with Activity Schedule.	
MANAGEMENT	Strong and active governance structure in place with robust M&E Methodology to monitor delivery and resulting outcomes and impacts. Communications and Stakeholder Strategy is regularly updated with communications planned throughout the announcement of procurement and construction phases.	

**Table 8-1 RAG Assessment of Broughton Bypass Business Case**

As the Inspector stated following the April 2015 Public Inquiry:

*“There is a compelling case for the scheme to be implemented in order to overcome congestion and improve journey reliability and conditions for travel by all modes of transport, to enable the quality of the environment to be improved in the village centre and along the A6 and to deliver future housing and economic growth in the area. The public benefit will outweigh the private loss”.*

**Inspector’s Report to Secretary of State for Transport, June 2015**

Locally, the reduction in traffic through the centre of the historic village of Broughton is predicted to lead to improvements in air quality, safety and community amenity with the creation of a better environment for residents, pedestrians, cyclists and bus users and quicker journey times for through traffic and local commuters using the bypass.

There is a forecast increase in GVA to the local economy of £153 million over the 60 year period which can be directly related to the impacts of the Broughton Bypass.

Offering very high Value for Money, the scheme delivers against Lancashire’s economic and strategic objectives and exceeds the LEP value for money criteria for funding approval.

**Appendix A Scheme Drawings – Broughton Bypass & A6**

**Appendix B Statement of Case**

**Appendix C Model Forecasting Report - Broughton**



**Appendix D Local Model Validation Report**

**Appendix E Policy Review**

**Appendix F Economic Assessment Report**

**Appendix G Appraisal Summary Table**

**Appendix H    Distributional Impacts Appraisal**

**Appendix I    Transport Economic Efficiency**

**Appendix J Environmental & Social Benefits**

<b>Section</b>	<b>Title</b>
J1	Air Quality WebTAG Worksheets
J2	Noise WebTAG Worksheet
J3	Greenhouse Gases WebTAG Worksheet
J4	Landscape WebTAG Worksheet
J5	Townscape WebTAG Worksheet
J6	Historic Environment WebTAG Worksheet
J7	Biodiversity WebTAG Worksheet
J8	Water Environment WebTAG Worksheet
J9	Physical Activity WebTAG Worksheet
J10	Journey Quality WebTAG Worksheet
J11	Severance WebTAG Worksheet
J12	DI Output Matrix



**Appendix K Risk Register**

**Appendix L Signed Letter from Section 151 Officer****Broughton By Pass**

Chair of Transport for Lancashire; Chair of Growth Deal Management Board;  
Councillor Mein.

I can confirm that the local contribution of £8.8m for this project will be met through the City Deal Infrastructure fund along with any subsequent cost increase above the level of grant already agreed. LCC, as the accountable body, take the risk on City Deal deficits over its life. In doing this we allow for variables such as construction inflation and an allowance for the risk in the deviation of cost estimates.

Lancashire County Council has a well established procurement strategy which will be applied to the Broughton By Pass Project. Our procurement strategy aims to protect the Authority from unnecessary risk and challenge, while looking to secure the best possible value for money for the Council using Most Economically Advantageous Tender evaluation criteria (MEAT).

Our procurement procedures are transparent, accountable and auditable. To help improve efficiency, we also have framework agreements in key areas, a database of contracted suppliers in the form of a contracts register and a fully electronic procurement system.

Yours Sincerely



Damon Lawrenson  
Section 151 Officer  
Lancashire County Council.

**Appendix M Scheme Programme**

**Appendix N Infrastructure Delivery Project Board Minutes –  
Procurement Approach Approval**

**Appendix O Monitoring & Evaluation Methodology Report**

**Appendix P    Communications & Stakeholder Plan**