CAPITA

Public

South East Blackburn Growth Corridor

Appraisal Specification Report
24 April 2019

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Executive Summary

This report outlines the proposed approach to the South East Blackburn Growth Corridor scheme modelling and appraisal process. It examines the scheme's strategic fit before detailing the approach to the modelling process and the multi-criterial appraisal.

The project involves highway improvements to the A6077 Haslingden Road, and more widely across south east Blackburn. The £6.8m package is the largest element of the Growth Deal and the Council proposes to:

- Widen the A6077 Haslingden Road to four lanes between its junctions with Shadsworth Road to the north west and Lions Drive to the south east;
- Upgrade Roundabout junctions at major access points along Haslingden Road;
- Provide junction improvements and an improved access arrangement to the Royal Blackburn Hospital Site, with a new vehicular access and roundabout junction at the A6077 Haslingden Road junction with Old Bank Lane; and
- Deliver the Blackamoor Link Road, including a stretch of new Highway to the south of the Fishmoor Reservoir, as well as two new junctions at Roman Road and Blackamoor Road to connect the link road with existing highway.

It is hoped that the improvements will act as the catalyst for new housing and commercial development, contributing to the delivery of the Council's adopted Local Plan targets for new housing, businesses and jobs.

1. Introduction

1.1 Background

Capita Property and Infrastructure Ltd (Capita) has been commissioned by Blackburn with Darwen Borough Council (BwDBC) to undertake a detailed evaluation of the proposed improvements along Haslingden Road. This report discusses the overall methodology to be followed to appraise the South East Blackburn Growth Corridor scheme.

In line with the requirements of Transport for Lancashire in their assurance role the proposed methodology is based on the Department for Transport (DfT)'s Transport Analysis Guidance (TAG). It describes the rationale for capacity improvement works along the Haslingden Road corridor taking account of the development aspirations for the area.

1.2 Purpose of the Report

Section 2.12.2 of TAG describes the transport appraisal process. It states that an Appraisal Specification Report (ASR) should be submitted to set out how the appraisal will be undertaken. The guidance goes on to list the required core elements of such a report:

- The proposed approach to modelling and forecasting;
- The proposed methodology for assessing each of the sub-impacts presented within the Appraisal Summary Table (AST);
- The proposed level of design or specification which will inform the cost estimation, and how better cost information will be obtained; and
- Evidence demonstrating that views on the appraisal methodology have been sought from the statutory environmental bodies and others.

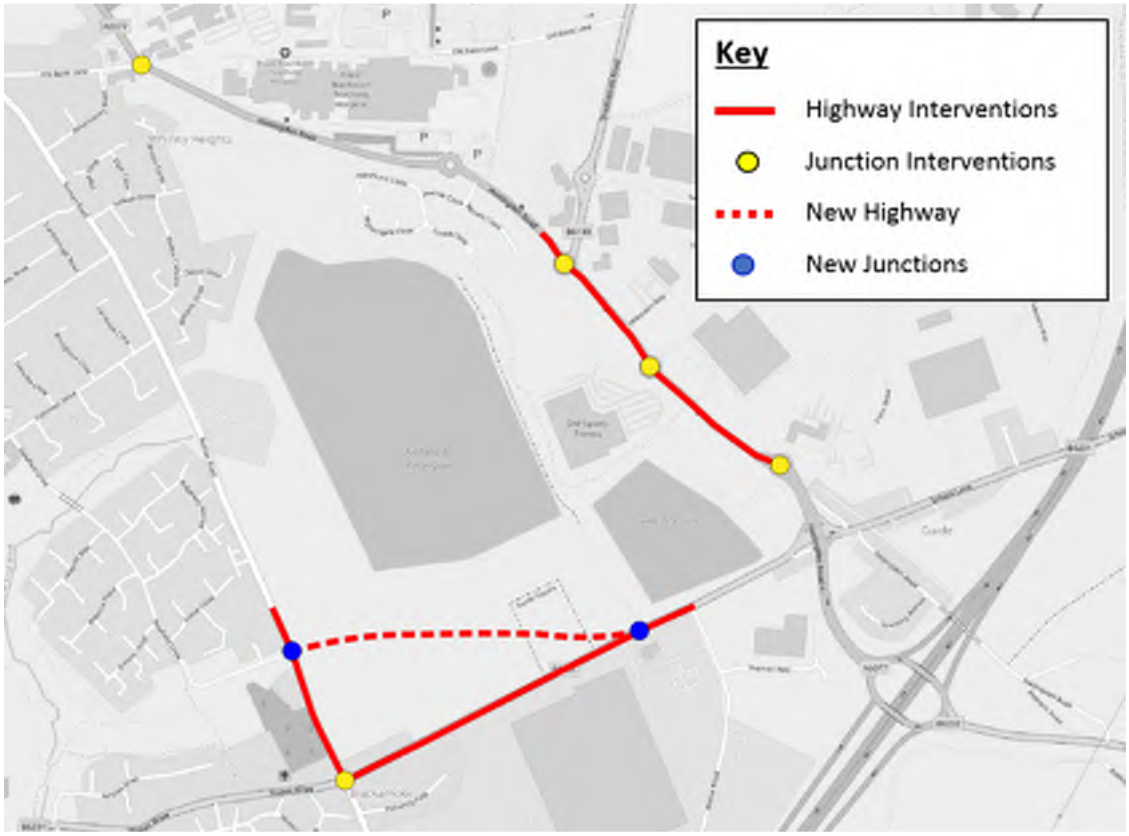
1.3 Scheme Summary

The A6077 Haslingden Road forms an important part of the highway network within BwDBC, providing an arterial route linking Blackburn Town Centre with the M65 motorway at Junction 5. The A6077 provides the main gateway to the Royal Blackburn Hospital and the centralised Accident and Emergency department for the East Lancashire NHS Trust.

The location of the South East Blackburn Growth Corridor Scheme is shown in Figure 1.1. It is promoted by Blackburn with Darwen Borough Council and is one of the priority schemes within Blackburn with Darwen Council's Local Plan (issued in December 2015) and includes several distinctive infrastructure interventions as follows:

- Widen the A6077 Haslingden Road to four lanes between its junctions with Shadsworth Road to the north west and Lions Drive to the south east;
- Upgrade Roundabout junctions at major access points along Haslingden Road;
- Provide an improved access arrangement to the Royal Blackburn Teaching Hospital Site, with a new vehicular access and roundabout junction at the A6077 Haslingden Road junction with Old Bank Lane; and
- Deliver the Blackamoor Link Road, including a stretch of new Highway to the south of the Fishmoor Reservoir, as well as two new junctions at Roman Road and Blackamoor Road to connect the link road with existing highway.

Figure 1.1 - Scheme Location



1.4 Scheme Objectives

The East Lancashire Highways and Transport Masterplan states that it must deliver good, reliable connections for people, goods and services whilst offering choice, facilitating travel on foot, by cycle, bus and rail as well as by car and goods vehicle. One of the main areas the masterplan concentrates on is the Haslingden Road in Blackburn and M65 Junction 5.

The following objectives have been devised for the South East Blackburn Growth Corridor Scheme which should sufficiently address the identified issues:

- Enable Blackburn with Darwen Borough Councils growth ambitions to be realised without adversely impacting on the existing level of service (congestion) provided by the Haslingden Road corridor and adjoining local highway network;
- Improve air quality at the Blackamoor Road / Roman Road junction to bring nitrogen dioxide levels within the (annual mean) objective as specified in the Air Quality (England) Regulations 2000 (as amended) to enable the revocation of the Blackamoor AQMA;
- Enable further development of employment opportunities by facilitating the delivery of over 47,894sqm of new commercial floorspace creating approximately 3,862 jobs;
- Supporting future housing growth by enabling the delivery of approximately 643 additional houses within the borough; and
- Improve the facilities for walking and cycling along Haslingden Road, providing a safer environment to encourage participation in active travel.

1.5 Project Programme

The key milestones for this project are as follows:

- Public Consultation: January 2019;
- Start of the procurement process: July 2019;
- Business Case submission: November 2019;
- Lancashire Enterprise Partnership approval: January 2020;
- Start of works: February 2020;
- Completion of works: March 2021.

2. Challenges and Issues

2.1 Strategic Fit

One of the key strategic objectives of the Blackburn with Darwen Core Strategy is to increase the levels of demand for existing housing stock and for new development in inner urban areas. The proposed scheme is critical to unlocking economic and housing growth opportunities within South East Blackburn. This closely aligns with all current national and local government objectives and was a key factor in identifying the schemes included in Lancashire's Strategic Economic plan.

2.2 Key Issues

The A6077 Haslingden Road experiences severe congestion, especially during the peak hours as it has not seen any significant upgrading (other than between the M65 Junction 5 and Lions Drive roundabout) despite the significant growth in new development along its length since the completion of the M65 in 1997. An extensive analysis of the traffic conditions along the A6077 Haslingden Road was reported in the Option Assessment document prepared by Capita in September 2016.

2.2.1 Link Capacity

The 2016 assessment indicates that the link sections of the A6077 Haslingden Road corridor between Lions Drive 'Beehive' roundabout and Royal Blackburn Hospital are close to capacity with less than 15% reserve. It concludes that capacity improvements to these route sections will need to be considered if they are to accommodate anticipated levels of traffic growth.

2.2.2 Junction Capacity

The modelling of existing junction layouts using recent traffic count data has indicated that the following junctions are currently operating at, or above their theoretical capacities:

- A6077 Haslingden Road / Lions Drive;
- Roman Road / Blackamoor Road; and
- A6077 Haslingden Road / Old Bank Lane.

The assessment notes that the junctions already suffer from congestion during the peak periods with high levels of delay and queues longer than those indicated by the modelling results. These issues are likely to be amplified by blocking back from those junctions which are over capacity or a result of congestion building up from earlier time periods.

2.3 Options Considered

2.3.1 Baseline Conditions and The Impact of Not Progressing

A Baseline Conditions Report will be produced with the main business case to establish baseline traffic and travel conditions across a defined study area, as well as provide context for the proposed highway intervention from identified issues on the local highway network.

An initial review suggests that if the current highway capacity is maintained as overall travel demand increases with natural background growth there will likely be an increase in road congestion and delay. Alternatively, some of the new developments may not take place as investors look elsewhere. Local businesses which are already affected by increased journey times might be persuaded to relocate and patients visiting the Royal Blackburn Hospital could face significant queues trying to access it. Local air quality will continue to worsen whilst residents on nearby roads will be adversely affected due to traffic taking inappropriate alternative routes.

2.3.2 Corridor Capacity Improvements

A number of historical highway intervention option and traffic conditions reviews have been undertaken across the South East Blackburn Growth Corridor area over recent years, which identified congestion and capacity issues across the local highway network.

A summary note providing a review of options will be provided with the main business case to summarise the identified options. The DfT Early Assessment Sifting Tool (EAST) will also be completed to provide a summary of options in a clear and consistent format to ensure options can be readily compared.

A summary of the broad intervention options proposed across south east Blackburn is detailed in Table 2.1.

Table 2.1 - A6077 Haslingden Road Capacity Assessment Recommendations

Location	Preferred Option	Next Best	Low Cost
A6077 Haslingden Road	Single carriageway with 2 lanes in each direction	Tidal flow lanes	Junction improvements only
Old Bank Lane/ RBH Access	Midi roundabout	Fully signalised junction	Priority junction
Blackamoor Road Link Road	Link Road Scheme with all vehicle ban on Blackamoor Road (Blackamoor Road / Roman Road changes to a 3-arm signalised junction);	Link Road Scheme with an HGV ban on the existing Blackamoor Road	Upgrade to the Blackamoor Road / Roman Road junction only

2.4 Partner Organisations

The partner organisations involved in and committed to supporting the South East Blackburn Growth Corridor are as follows:

- Lancashire Local Enterprise Partnership;
- Blackburn with Darwen Borough Council;
- Royal Blackburn Hospital;
- Existing businesses and residents; and
- Various prospective housing and employment site developers.

2.5 Expected Scheme Outcomes

The scheme is expected to support the development of nearly 1,200 housing units and over 130,000sqft of employment land in South East Blackburn as well as prevent deterioration of air quality at the local AQMA site at Blackamoor Road.

The improved highway network will be able to cope with the expected increase in traffic and trip generation following the development of all Local Plan housing and employment site allocations across Blackburn.

The connectivity between the M65 and Blackburn town centre will be significantly enhanced.

Finally, the emissions registered at the Blackamoor AQMA are expected to reduce. Businesses located along Davyfield Road act as a destination for a large number of heavy vehicles. Their drivers often find it difficult to navigate effectively through the intersection of Blackamoor Road and Roman Road. A new link road connecting Roman Road and Blackamoor Road is proposed as a part of the scheme, designed to DMRB standards.[1]

2.6 Deliverability and Risks

Risks to the project have been fully explored through risk workshops with key stakeholders. Full risk registers are provided as Appendix A (Haslingden Road) and Appendix B (Blackamoor Road) to this report with a summary of the key risks identified in Table 2.2 and

Table 2.3.

[1] DMRB Vol. 6, Section 2, Part 6 “Geometric Design of Major/ Minor Priority Junctions

Table 2.2 - Main Project Risks and Mitigating Actions – Haslingden Road

No	Risk	Likeli-hood (H/M/L)	Severity (H/M/L)	Mitigation Measure
1	Statutory undertakers, potential diversion works as part of the scheme i.e. United Utilities, Virgin Media etc. Potential upgrade to existing drainage due to increased carriageway surface area.	M	H	Gateway review following receipt of the C3's to assess amounts of abnormals and whether progression with this section of the scheme is continuing.
2	All property and land acquisitions	H	H	Initial discussions have been positive. TJ to twin track CPO with negotiations around acquisitions of the properties/land.
3	Electricity substation located within verge area in front of Royal Blackburn Hospital will require re-locating.	M	H	Gateway review following receipt of the C3's to assess amounts of abnormals and whether progression with this section of the scheme is continuing.
4	Stakeholder aspirations/scope creep - Scope changes may be requested/ required internally or by external stakeholders	M	H	Ensure communication strategy well defined and agreed with stakeholders Ensure that the scope is clearly defined and communicated with the stakeholders and obtain their buy-in early on Ensure that there is regular and on-going liaison with stakeholders. Ensure stakeholder communication plan is in place and followed through
5	Privately owned High Voltage Cables within the verges currently owned by Royal Blackburn Hospital which provide power to the hospital. The electricity supply to the oxygen tanks currently run through Old Bank Lane.	M	H	Coordination meetings have been set up. The hospital to provide us with details of where their liability starts and ends in relation to the service. This section may have to be stalled/not widened. The rest of the scheme will need to continue.
6	Electricity substation located within the car park area to the existing EG site. The actual substation will be adjacent to the back of the proposed footway.	M	M	Gateway review following receipt of the C3's to assess amounts of abnormals and whether progression with this section of the scheme is continuing.

Table 2.3 - Main Project Risks and Mitigating Actions – Blackamoor Road

No	Risk	Likeli-hood (H/M/L)	Severity (H/M/L)	Mitigation Measure
1	Ground Conditions, contamination or ground gasses.	H	M	Undertake geotechnical site investigations and quantify any remediation measures that need to be put in place. Make programme and cost allowances for any remediation and monitoring.
2	Side Road Orders not processed	H	M	Inform legal SRO's are of high priority for processing.
3	Phasing and timing of site works, and statutory undertakers works.	M	M	Place C4 orders. Liaise with Simon Littler as to planned works for statutory undertakers and programme accordingly. Permits submitted from Capita.
4	Adequacy of public consultation to include local businesses, leading to public opposition to the project.	M	L	Consultation and engagement have already taken place for the original Furthergate scheme. Ongoing consultation is to be provided to ensure all stakeholders are aware of developments and progress. Additional event programmed 17/04.

3. Transport Modelling and Forecasting

3.1 Likely Scale of Impact

The scale of impact and user benefits resulting from the scheme is likely to be focused around the A6077 Haslingden Road, B6231 Blackamoor Road and Roman Road, improving travel and traffic flow conditions along these routes. The scale of the likely impact area is indicated in Figure 3.1 below, which highlights key routes (highlighted in red) where a significant traffic flow impact as a result of the scheme is likely to be felt.

Figure 3.1 - Scale of Impact

3.2 Existing Knowledge and Data

A baseline conditions report will be written in support of the business case, summarising of the existing highway, traffic and transport conditions across south east Blackburn as well as provide a review of existing available data and knowledge of the local highway network.

Initially, Capita is aware of a number of historical transport assessments and transport studies undertaken across the local highway network and identified study area:

3.2.1 *Euro Garages – Waterside Transport Assessment*

This assessment was undertaken by Curtins in January 2018 and includes modelling of the junctions along the A6077 Haslingden Road. The document was reviewed by Capita who added the following commentary:

- [Euro Garages] Site Access Road/ A6077 Haslingden Road roundabout;
- [Euro Garages] Secondary Site Access/ A6077 Haslingden Road/Shadsworth Road roundabout;
- A6077 Haslingden Road/ Royal Blackburn Hospital roundabout;
- Shadsworth Road/ Old Bank Lane roundabout;
- A6077 Haslingden Road/ Lions Drive roundabout;
- A6077 Haslingden Road/School Lane/ Blackamoor Road signalised junction; and
- A6077 Haslingden Road/ B6232/ M65 signalised roundabout.

The models were developed using ARCADY (for roundabouts) and LinSig (for signalised junctions), which are the accepted industry standard.

The assessment has been reviewed by Capita who concluded that the base year models require further calibration to account for the overly optimistic results contradicting the general knowledge of significant congestions occurring along Haslingden Road.

3.2.2 *M65 Junction 5 VISSIM model*

A VISSIM model was recently developed by Capita to test the operation of the M65 Junction 5 and the immediate surrounding highway network following a number of recent highway interventions at the M65 Junction 5. The modelled network covers the M65 Junction 5, the A6077 Haslingden Road Junction/ B6321 Blackamoor Road intersection (Guide junction) and the A6077 Haslingden Road/ Lion's Drive junction (Beehive junction). Following discussions with BwDBC, a 2017 baseline model was validated for an 07:30 – 08:30 AM peak hour and a 16:30 – 17:30 PM peak period.

The base model developed for the current scheme will feature the recent improvements to the M65 Junction 5 westbound on-slip (conversion of the hard shoulder to a running lane). It will be calibrated and validated using the available traffic data.

3.3 Traffic Data Collection and Analysis

3.3.1 *Classified Count Data*

Manual Classified Count (MCC) data has been obtained for a number of significant junctions along the A6077 Haslingden Road Corridor. These were undertaken in May 2017 for AM (07:00 – 10:00) and PM (16:00 – 19:00) time periods in support of a local planning application.

Additionally, along the A6077 Haslingden Road, in June 2015 an MCC was undertaken at its junction with Old Bank Lane, covering an AM time period between 07:00 – 09:00 and a PM time period between 16:00 – 18:00.

Further MCC count data has been obtained for the Roman Road/ Blackamoor Road junction, as well as the Walker Road junction with Blackamoor Road. These were undertaken in March 2019 and were undertaken in support of a local planning application along Blackamoor Road. These were also undertaken over an AM time period between 07:00 – 09:00 and a PM time period between 16:00 – 18:00, and recorded two vehicle classes, light vehicles and heavy vehicles.

Traffic survey MCC data is summarised in Table 3.1 below and presented geographically in Figure 3.2. These counts represent the most recent available classified count at each location.

Table 3.1 - South East Blackburn Traffic Count Details

No	Traffic Count Location	Date
1	The M65 Junction 5 Roundabout (including both M65 mainline off slips);	May 2017
2	The Haslingden Road / Blackamoor Road / School Lane (B6321) Junction (Guide);	May 2017
3	The Haslingden Road / Lions Drive Roundabout (Beehive Junction);	May 2017
4	The Haslingden Road / DW Sports Soccerdome Access Junction;	May 2017
5	The Haslingden Road / Shadsworth Road Junction; and	May 2017
6	The Haslingden Road / Royal Blackburn Hospital Access Junction.	May 2017
7	The Haslingden Road / Old Bank Lane Junction	June 2015
8	The Blackamoor Road / Roman Road Junction	March 2019
9	The Blackamoor Road / Walker Road Junction	March 2019

Figure 3.2 - South East Blackburn Traffic Count Locations

3.4 Additional Data Requirements

Traffic journey time and speed data across a number of key links across the study area has been obtained from TomTom for the month of April 2019. These Routes are detailed below:

- **The A6077 Haslingden Road:** Between its junction with Grimshaw Park to the north and the M65 Junction 5 to the south;
- **The B6231 Blackamoor Road:** Between its junction with Haslingden Road to the east and its junction with Roman Road to the west; and
- **Roman Road:** Between its junction with Grimshaw Park to the north and its junction with Blackamoor Road to the south

Data has been obtained for both directions along specified routes, providing journey time and speed data for all passenger vehicles traveling along the defined route with an active TomTom device. Data is averaged across a three-day (Tuesday - Thursday) period, providing weekday average speeds for various intra-day time intervals, including modelled peak periods.

Baseline traffic signal specifications have been obtained from the Blackburn with Darwen Local Authority for all significant signalised junctions across the study area.

A review of bus routes along the Haslingden Road corridor and across the wider south east Blackburn study area concluded that there are not sufficient levels of bus provision to warrant explicit modelling of timetabled bus services through the network. Collection of public transport data is not, therefore, required.

3.5 Constraints

The traffic counts were collected on separate dates and years as shown in Table 3.1 which will necessitate factoring to bring them to the common baseline.

3.6 Proportionality of Modelling Approach

Section 3.2 of TAG *Guidance for the Project Manager* discusses the concept of proportionality in model design. Below is a summary of the salient points in that section that need to be considered.

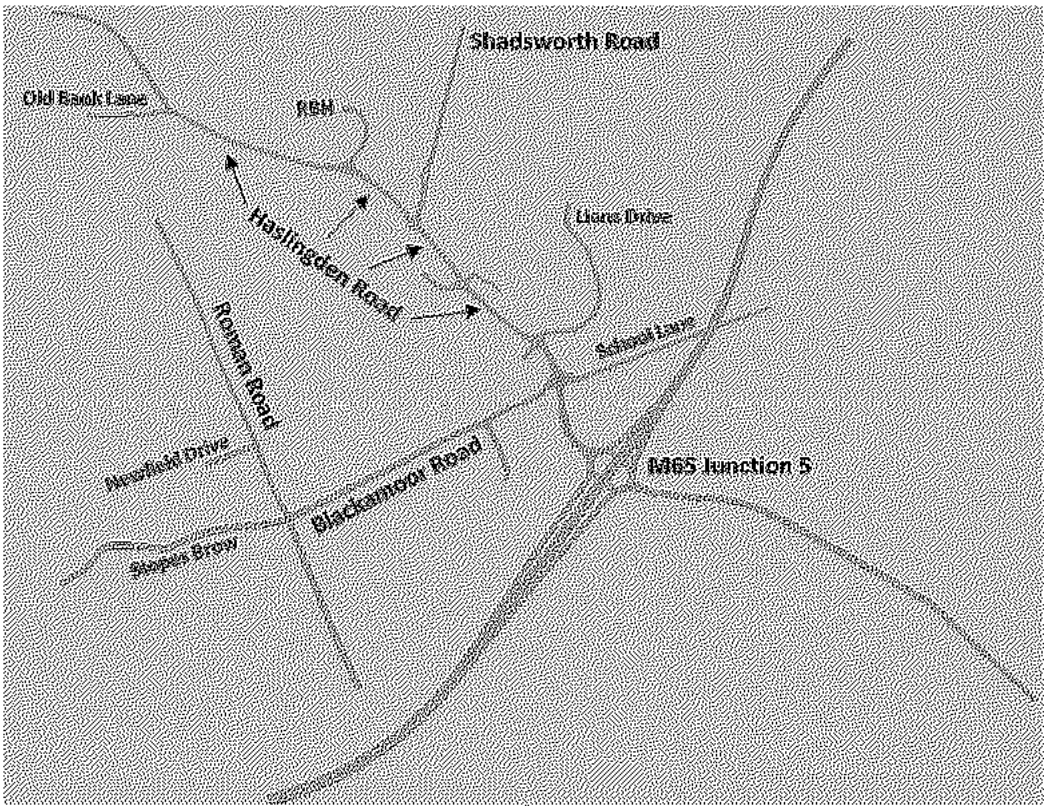
TAG suggests that the most appropriate modelling approach will depend on the type of the proposed scheme, the circumstances, its objectives and the stage of the appraisal and decision-making process. In the early stages when the best transport options to solve the identified problems are examined, more light-touch methods may be appropriate. That said, one must ensure that the indications from such models do not give rise to unrealistic expectations of benefits that are unlikely to result from a full modelling approach.

For highway schemes, it recommends that 'the potential impact of induced traffic should be recognised, and it is highly recommended to scope the need for a demand model at an early stage'. TAG discusses the trade-offs between model complexity and constraints on resource, data requirements and expertise. In general, the model design will depend on a number of conditions, such as the nature of the problem and its likely solution, the size of the study area, the number of options to be tested, data availability and the need to update models and conduct new surveys, timescale for model development; and finally, the required accuracy of the recommendations.

TAG states also that the scheme scope may not necessitate a "full" modelling specification in some circumstances. For example, 'a bus priority scheme aimed primarily at providing a better level of service for existing bus passengers with no effect on other modes may require only a public transport supply (assignment) model to provide the necessary inputs to a relatively simple appraisal...'

In view of the availability of a M65 Junction 5 VISSIM model as well as the TAG guidance, an extension of the VISSIM model is proposed for modelling of the South East Blackburn Growth Corridor area. We consider this to be an appropriate and proportionate approach to scheme appraisal. An in indicative map of the extent of the proposed Baseline modelled network is provided in Figure 3.3 below.

Figure 3.3 - Extent of VISSIM Road Network



The South East Blackburn Growth Corridor scheme aims to improve traffic conditions on the A6077 between Blackburn town centre and the M65 motorway, as well as improving local access to the Royal Blackburn Hospital, employment and residential areas. As a result, it is expected that the scheme will generate journey time savings for motorists and that the resulting user benefits will be a key element which will underpin the business case.

The potential impacts of the South East Blackburn Growth Corridor will be analysed using a VISSIM model and individual junction models for each location where the proposed scheme is considered likely to have an impact on journey times (based on latest TAG values of time). It is assumed that there will be no change to vehicle operating costs and that the benefits of the scheme to public transport users will be neutral.

In order to appraise scheme performance and estimate economic user benefits, a number of assumptions have been adopted. TAG assessment forms the basis of the approach with specific assumptions reflective of the expected scale of the proposed scheme, the availability of local modelling data and the anticipated scheme impacts. Key modelling assumptions are detailed in the following sections.

A list of the key baseline modelling assumptions are summarised in Table 3.2 below.

Table 3.2 – Baseline Modelling Assumptions Summary

Specification	Criteria/ Assumption
Base Year	*2019*
AM Peak Hour	*07:30 – 08:30*
PM Peak Hour	*16:30 – 17:30*
Model Calibration	*MCC Data*
Model Validation	*TomTom Travel Time Data*

A Local Model Validation Report will be produced to detail the model calibration and validation process undertaken to during baseline VISSIM modelling.

3.7 Future Forecast Years

Traffic forecasts have been developed for two future years:

- Scheme Opening Year – 2021; and
- Horizon Year – 2036.

These forecast years represent the proposed scheme opening year and scheme design year 15 years after the scheme opening.

3.8 Future Forecast Traffic Growth

Potential future housing and employment development sites across south east Blackburn within a reasonable proximity to the expected scheme impact area have been reviewed. This considered the relative location, scale and likelihood of a given development site being realised under future forecast traffic flow conditions.

Information on potential future developments has been obtained from a review of local planning applications, BwDBC Local plan site allocations, as well as growth and development information provided directly by the local authority. An Uncertainty Log will be produced in support of the traffic forecasting and modelling methodology.

3.8.1 *Background Traffic Growth*

Background levels of traffic across the local highway network will be forecast by the Department for Transport (DfT) through the National Trip End Model (NTEM) factors obtained from the Trip End Model Presentation Program (TEMPro). A TEMPro growth factor for the BwD authority area will be applied to each modelled input, reflective of the scale and scope of the modelling methodology.

Factors will be derived using the latest TEMPro 7.2 dataset between the base year and future forecast years. Fuel and income adjustment factors will be applied to TEMPro growth factors between the base year and the forecast year, using the WebTAG Databook (May 2019).

Forecast background growth in HGV and freight traffic will be derived from the latest National Transport Model (NTM) Road Traffic Forecast (September 2018).

3.8.2 *Committed Developments*

A number of committed developments have been identified across the immediate scheme impact area. A list of developments considered committed can be found in Table 3.3 overleaf. As of May 2019, these developments are either currently under construction, in a pre-construction phase or have been recently granted planning permission, with an expected completion prior to or during the scheme opening year (2021).

Table 3.3 - Identified Committed Developments

Site ID	LP Ref.	Planning App	Site Name	Site Type	Number of Homes	Employment Area
A	13/9	10/19/0555	Premier Way (Walker) Business Park	Employment	-	2.6 ha
B	-	10/18/0800	Roman Road (Nr Davyfield Site)	Employment	-	2400 (m²)
C	-	10/18/0075	School Lane	Housing	45	-
D	13/7	10/16/1303	Shadsworth Plot C	Employment	-	1.9 ha
E	-	10/09/0414	Haslingden Road (Brandy House) Site	Housing	103	-
F	-	10/17/1083	Old Bank Lane (New RBH) Car Park	Other (Redistribution Only)	-	-
G	13/8	10/18/0871	EG Waterside (Parcel A)	Employment	-	4.7 ha
H	-	10/16/0838	Beechwood Garden Centre Site	Housing	13	-
I	-	10/07/0766	Crossfield Street	Housing	27	-

Significant committed developments will be explicitly modelled and considered in future year forecast scenarios. Trip generation and distribution information for these developments will be

obtained from Transport Assessments (where available) or determined using the TRICS database and an appropriate gravity model derived from 2011 census data.

The total car traffic growth across the network will be constrained to levels of growth forecast by the NTEM, in-line with TAG guidelines.

3.8.3 Potential Future Development Traffic

A number of potential future developments have been identified across the immediate scheme impact area. A list of developments considered committed can be found in Table 3.4 overleaf. The relative likelihood of individual development sites coming forward under various future forecast traffic flow scenarios will be reviewed, with a level of uncertainty captured in the uncertainty log.

Table 3.4 - Potential Future Development Sites

Site ID	LP Ref.	Site Name	Site Type	Number of Homes	Employment Area
1	16/8	Blackamoor Road Development Site	Employment	-	3.7 ha
2	16/8	Blackamoor Road Development Site	Housing	70	-
3	28/6	Fishmoor Drive (Parcel 1) - Former THL Land	Housing	201	-
4	28/6	Fishmoor Drive (Parcel 2) - Former T2000	Housing	65	-
5	28/6 + 16/8	Fishmoor Drive (Parcel 3) Newfield School	Housing	101	-
6	16/7	Haslingden Road (Fishmoor Reservoir) Site	Housing	140	-
7	16/11	Johnson Road	Housing	70	-
8	13/6	Medipark Site	Employment	-	3.8 ha
9	-	TIBS / Fmr Blakewater College (Employment)	Employment	-	4.0 ha
11	13/8	Waterside Employment Site (Parcel B)	Employment	-	1.6 ha
12	28/6	Manxman Road, Highercroft	Housing	45	-
13	28/6	Fishmoor Drive (Parcel 4) - South Site	Housing	200	-
14	28/6	Fishmoor Drive (Parcel 5) - Longshaw HOP	Housing	30	-

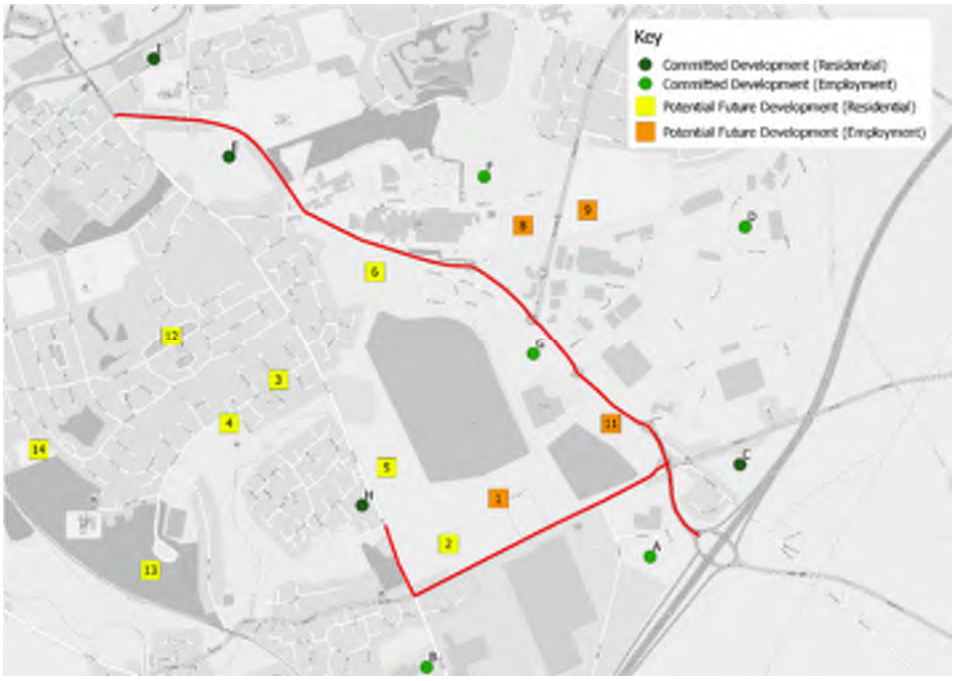
Forecast models will include explicitly modelled development sites deemed likely to proceed under a given forecast scenario. Trip generation for each development site will be determined using trip rates sourced from the TRICS database. The distribution of development trips will follow information obtained from transport assessments (where available) or determined using

the TRICS database, supplemented by an appropriate gravity model derived from 2011 census data. The total car traffic growth across the network under all future year forecast scenarios will be constrained to levels of growth forecast by the NTEM, in-line with TAG guidelines.

Potential future developments identified in Table 3.4 are subject to varying degrees of certainty in terms of their likelihood to be brought forward for development. Additionally, some are relatively small in scale and located away from the likely impact area of the proposed scheme. All potential developments and their associated likelihood will be captured in the uncertainty log.

The relative locations of both committed and potential future development sites is highlighted in Figure 3.4 overleaf.

Figure 3.4 - Location of Committed and Potential Future Development Sites



3.9 Network Capacity Issues and Future Development Dependency

The DfT document titled “Capturing housing impacts in transport appraisal”[2] states that dependent development refers to the new development dependent on the provision of a transport scheme. The dependency test demonstrates the extent to which a development is dependent upon a complementary transport investment. As stated in TAG A2.2 dependency is

[2] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/736130/capturing-housing-impacts-in-transport-appraisal.pdf

likely to occur where a development will breach 'a reasonable level of service' on the transport network.

TAG Unit A2.2 states that "it is assumed that in the baseline scenario the network provides a reasonable level of service. Clearly if that is not the case then the new development is likely to be wholly dependent on some form of transport scheme. However, it must be demonstrated that the baseline scenario does not provide a reasonable level of service before this conclusion can be reached." Although this advice is given in the context of dependent development, we understand that it refers to any additional trips in the congested network.

Also, in TAG Unit A2.2, it is explained that "the simplest approach to determining whether the network provides a reasonable level of service is to compare forecast transport demand at key locations with available capacity". Several junctions along the A6077 Haslingden Road were assessed recently by Curtins on behalf of Euro Garages[3] (EG Waterside Parcel A in Table 3.3). The results show that in many locations the network is already operating above (or close to) the 'practical capacity' ratio of 0.85. In light of the above, trip totals in the model are likely to remain at the same levels in the Baseline and Core Scenario for the future years.

Further to this, an initial review of highway conditions has been conducted along link sections of the A6077 Haslingden Road to identify the potential cause capacity constraints along the route. MCC data for junctions along Haslingden Road (see Table 3.1) has been reviewed against link capacity standards for link sections identified in DMRB TA 79/99 Vol 5 Sec 1, *Traffic Capacity of Urban Roads*. The relative capacities shown in Table 3.5 indicate a number of link sections along the A6077 Haslingden Road to be at or approaching their theoretical capacity under baseline traffic conditions.

Table 3.5 - A6077 Haslingden Road Link Stress

Link Section	Link Standard (TA 79/99)	Theoretical Capacity (veh/hr)	Busiest One-Way Hourly Flow (veh/hr)	Relative Capacity (%)
Guide Junction – Beehive Junction	UAP1 - Carriageway width considered 14.6m single carriageway	3050	1729	57%
Beehive Roundabout – Soccerdome Roundabout	UPA3 - Carriageway width considered 7.3m	1300	1316	101%
Soccerdome Roundabout – Shadsworth Road Junction	UPA3 - Carriageway width considered 7.3m	1300	1199	92%

[3] 064666 Euro Garages – Waterside. Transport Assessment. Curtins, 2017

Shadsworth Road Junction – RBH Access Junction	UPA3 - Carriageway width considered 7.3m	1300	1266	97%
RBH Access Junction – Old Bank Lane Jucntion	UPA3 - Carriageway width considered 7.3m	1300	852	66%

More widely across south east Blackburn, a broad picture of traffic delay across the local highway network can be identified from Figure 3.5 and Figure 3.6 overleaf, which provide an overview of typical traffic flow conditions across the network. Traffic flow speeds during both AM and PM peak travel periods are shown to be significantly reduced, indicating the highway network is at or approaching capacity.

Figure 3.5 – Typical Traffic Flow Conditions (AM)

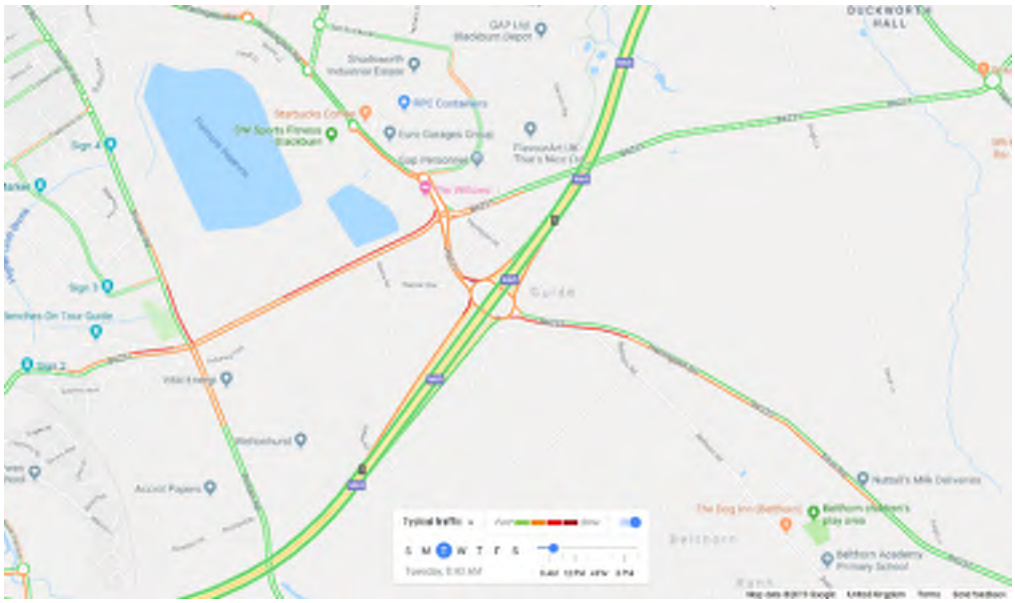
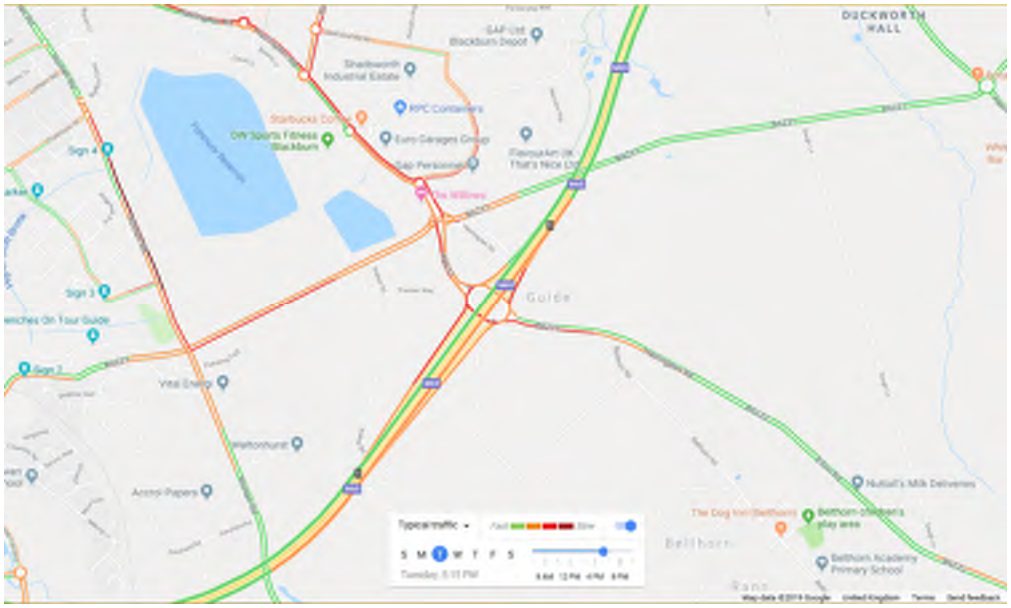


Figure 3.6 - Typical Traffic Flow Conditions (PM)



As a result of the identified baseline conditions and known congestion and highway capacity issues across the local highway network, it is likely that a large proportion of the identified potential future development across south east Blackburn will be considered partially or wholly dependent a highway intervention on the local network to improve conditions for future traffic (See Chapter 4).

3.10 Scenario Specification

3.10.1 Infrastructure Supply Forecasting

A number of highway interventions are proposed at a number of locations across south east Blackburn as part of the overall scheme. These interventions represent a single with-scheme option across the South East Blackburn Growth Corridor area. Infrastructure supply forecast scenarios will be defined as follows:

- **Do-Minimum (DM):** The existing highway network and infrastructure, with slight amendments to accommodate changes from committed development and background growth; and
- **Do-Something (DS):** The proposed with-scheme intervention at various locations across the study area.

Specific interventions included in each of these scenarios is defined in Table 3.6 below.

Table 3.6 - Transport schemes included in Future Year Transport Models

Ref	Scheme Name	Location	2021		2036	
			DM	DS	DM	DS
1	Enhanced Roundabouts	Shadsworth Road to Lions Drive	N	Y	N	Y
2	S4 Carriageway		N	Y	N	Y
3	Provision of a new Roundabout Junction	A6077 Haslingden Road / Old Bank Lane	N	Y	N	Y
4	New Fishmoor Link Road and associated junction interventions	Fishmoor Link Road	N	Y	N	Y

3.10.2 Traffic Demand Forecasting and Dependent Development Scenarios

Given traffic demand from potential future development sites identified across south east Blackburn is only likely to be realised following completion of the current proposed scheme, traffic forecast scenarios will follow guidance set out in TAG Unit A2.2 *Appraisal of Induced Investment Impacts*.

The following forecasting scenarios will be modelled in line with guidelines in TAG Unit A2.2:

- **'P' Scenario**: *Without* Transport Scheme (DM), *without* Dependent Development
  - The 'Core' Scenario
  - Base year demand + Background growth and 'deadweight' (committed and non-dependent development)
- **'Q' Scenario**: *Without* Transport Scheme (DM), *with* Dependent Development
  - An Alternative Growth Scenario
  - Base year demand + Background growth and 'deadweight' + Dependent development
- **'S' Scenario**: *With* Transport Scheme (DS), *without* Dependent Development
  - The 'Core' Scenario
  - Base year demand + Background growth and 'deadweight' (committed and non-dependent development)
- **'R' Scenario**: *With* Transport Scheme (DS), *with* Dependent Development
  - An Alternative Growth Scenario
  - Base year demand + Background growth and 'deadweight' + Dependent development

Each of the above scenarios will be undertaken for both future year forecasts and modelled time periods.

4. Economic Appraisal

The economic appraisal will make use of a range of independent assessments. Some of these will be based upon the transport modelling set out in Section 3 of this document, while others will capture factors external to those being modelled. The proposed methodology considers TAG Units A1 and A2 – Cost Benefit Analysis and Economic Impacts.

4.1 Likely Scale of Impact

The scale of impact for the economic assessment will be captured by the traffic modelling as described in section 3. Outputs produced by the traffic models will be used as inputs to the economic assessment process.

4.2 Proposed Methodology

The proposed methodology considers TAG Units A1 and A2 – Cost Benefit Analysis and Economic Impacts. The economic appraisal will make use of a range of independent assessments. Some of these will be based upon the transport modelling as set out in Section 3 of this document, while others will capture factors external to those being modelled.

A summary of key economic appraisal assumptions can be found in Table 4.1 below.

Table 4.1 – Appraisal Assumptions Summary

Specification	Criteria/ Assumption
Base Year	*2019*
Scheme Opening Year	*2021*
Modelling/ Appraisal Horizon Year	*2026*
Appraisal Period	*60 years (2021 – 2080)*
Economic Price Base	*2010*
WebTAG Databook Version	*May 2019*

4.2.1 Transport Economic Efficiency

TUBA (version 1.9 or later) will be used to derive economic benefit over a 60-year appraisal period arising from travel time savings, vehicle operating costs and greenhouse gases. Peak hour data from the traffic model will be annualised within TUBA. Expansion factors will be derived to convert benefits calculated for each model time period into totals for the full year using the local ATC data.

4.2.2 *Accidents Appraisal*

Local accident data will be used to identify current levels of collisions within the study area and enable a quantified assessment of the accident reductions forecast as a result of the scheme. The accident benefits will then be appraised using the Cost Benefit Analysis Light Touch (COBALT) software.

4.2.3 *Scheme Costs*

The costs of scheme implementation will be assessed to capture changes to infrastructure.

These costs will be adjusted for real cost inflation and optimism bias as appropriate for a scheme at preliminary design stage. Any additional maintenance or renewal costs which may be required will also be captured.

4.2.4 *Reliability Appraisal*

Reliability is to be assessed qualitatively in accordance with TAG Unit A1.3.

4.2.5 *Assessment of Dependent Development*

There are four steps to be undertaken in the assessment of dependent development, these are:

- **Step 1:** Determine the quantity of new housing that should be regarded as dependent on a transport scheme;
- **Step 2:** Identify the minimum transport scheme required to restore a reasonable level of service;
- **Step 3:** Assess the transport user benefits of the transport scheme in isolation (that is, in the absence of the dependent development);
- **Step 4:** Assess the benefits of the dependent housing development assuming the transport scheme is provided.

A number of the development sites listed in Table 3.3 are considered committed developments, and not considered dependent on current scheme proposals. Based on the evidence presented in Section 3.9, it is likely that any future development with the prospect of significant trip generation onto the local highway network, beyond that which has already been granted planning permission, is likely to be dependent on some form of transport scheme to improve traffic flow conditions along the A6077 Haslingden Road and along Blackamoor Road.

In relation to Step 1 defined above, details of future development sites considered to be dependent on the proposed intervention can be found in Table 4.2 overleaf. This represents all explicitly modelled potential future development sites listed in Table 3.4, as well as the EG Waterside development listed in Table 3.3. The planning permission granted for the EG Waterside development is subject to a S106 agreement between the developer and BwDBC,

contributing land adjacent the A6077 Haslingden Road to facilitate widening of the carriageway and site development.

Current scheme proposals are considered to be the minimum transport scheme required to restore the network to a reasonable level of service and represent the preferred highway intervention option at specific locations across south east Blackburn.

Step 3 comprises a conventional transport user benefit assessment. In order to assess the transport user benefits of the scheme in isolation, without the effect of dependent development, the following model output scenarios will form the 'Core' scenario:

- Without Transport Scheme (DM) + without Dependent Development (the 'P' scenario); and
- With Transport Scheme (DS), without Dependent Development (the 'S' scenario).

As an additional sensitivity test, the following model output scenarios will be undertaken to assess the net land value uplift resulting from the proposed scheme:

- Without Transport Scheme (DM) + without Dependent Development (the 'P' scenario); and
- With Transport Scheme (DS), with Dependent Development (the 'R' scenario).

The benefits of the dependent development will be calculated using a two-step process:

- Estimating the land value uplift from the dependent new development; and
- Subtracting the net external costs.

Table 4.2 - Dependent Development Sites

LP Ref.	Site Name	Site Type	Number of Homes	Employment GFA (sq m)	Dependency Level	Dependency Level Justification
16/8	Blackamoor Road Development Site	Employment	-	37,600	100%	BwD LPP2, in relation to site 16-8, states "Necessary for the development to incorporate and contribute towards a new Fishmoor Link Road to improve connectivity between Blackamoor Road and Roman Road" as a key development consideration for this site. Unacceptable level of service on existing network will not support new development beyond that which is already committed. Viability of site significantly reduced without necessary infrastructure in place to support delivery.
16/8	Blackamoor Road Development Site	Housing	70	-	100%	BwD LPP2, in relation to site 16-8, states "Necessary for the development to incorporate and contribute towards a new Fishmoor Link Road to improve connectivity between Blackamoor Road and Roman Road" as a key development consideration for this site. Unacceptable level of service on existing network will not support new development beyond that which is already committed. Viability of the site significantly reduced without necessary infrastructure in place to support delivery.
28/6	Fishmoor Drive (Parcel 1) - Former THL Land	Housing	201	-	100%	Unacceptable level of service on existing network will not support new development beyond that which is already committed. Enhanced viability of the site for development following completion of the Fishmoor Link Road and the wider South East Blackburn Growth Corridor Scheme.
28/6	Fishmoor Drive (Parcel 2) - Former T2000	Housing	65	-	100%	Unacceptable level of service on existing network will not support new development beyond that which is already committed. Enhanced viability of site for development following completion of the Fishmoor Link Road and the wider South East Blackburn Growth Corridor Scheme.
28/6 + 16/8	Fishmoor Drive (Parcel 3) Newfield School	Housing	101	-	100%	Parcel sites on land identified within LP site allocation 16/8. Dependency justification as defined above. Enhanced viability of the site for development following completion of the Fishmoor Link Road and the wider South East Blackburn Growth Corridor Scheme.
16/7	Haslingden Road (Fishmoor Reservoir) Site	Housing	140	-	100%	BwD LPP2, in relation to site 16-7, states "Contribution towards improvements to local highways network in the locality" as a key development consideration for this site.

						Unacceptable level of service on existing network will not support new development beyond that which is already committed.
16/11	Johnson Road	Housing	70	-	100%	Unacceptable level of service on existing network will not support new development beyond that which is already committed.
13/6	Medipark Site	Employment	-	18,500	100%	Unacceptable level of service on existing network will not support new development beyond that which is already committed. Enhanced viability of the site for development following widening of Haslingden Road and completion of the wider South East Blackburn Growth Corridor Scheme.
-	TIBS / Fmr Blakewater College (Employment)	Employment	-	19,500	100%	Unacceptable level of service on existing network will not support new development beyond that which is already committed. Enhanced viability of the site for development following widening of Haslingden Road and completion of the wider South East Blackburn Growth Corridor Scheme.
13-Aug	Waterside Employment Site (Parcel A) - EG Waterside	Employment	-	11,495	100%	Site Has Planning Permission, however contributed land adjacent to the A6077 Haslingden Road as part of an S106 agreement with the LHA as a contribution to the current scheme. Unacceptable level of service on existing network will not support new development beyond that which is already committed.
13/8	Waterside Employment Site (Parcel B)	Employment	-	4,500	100%	Unacceptable level of service on existing network will not support new development beyond that which is already committed. Enhanced viability of the site for development following widening of Haslingden Road and completion of the wider South East Blackburn Growth Corridor Scheme.

The land value uplift consists of the uplift in land values arising from the development. This will be calculated using the relevant workbook provided by TAG[4], as well as the DCLG Appraisal Guidelines[5]. The land values in this worksheet will be sourced from the 'VOA Property Market Report 2011'[6] using the North West values or local land value estimates as the most suitable for this location.

[4] 'Valuing housing impacts workbook' available at: https://www.gov.uk/government/publications/webtag-economic-impacts-worksheets

[5] The DCLG Appraisal Guide available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/576427/161129_Appraisal_Guidance.pdf

[6] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/371470/pmr_2011.pdf

Table 4.3 – Land Value Uplift Calculations

Item	Value
Existing Land Use Value Calculation	
Gross Site Area (Ha)	tbc
£ per Ha Agriculture (£000s)	£16.3 *
Gross Agriculture Area (Ha)	tbc
£ per Ha Brownfield Land (£000s)	tbc
Gross Brownfield Land Area (Ha)	tbc
£ Total Site Area (Existing Land Use Value) [E]	tbc
Proposed Land Value Calculation (Gross Development Value)	
Net Developable Site Area (Ha)	37.83 (tbc)
£ per Ha Residential (£000s)	£1,350 *
Gross Residential Area (Ha)	tbc
£ per Ha Employment (£000s)	£650 *
Gross Employment Area (Ha)	tbc
£ Total Gross Development Value (£000s) [GDV]	tbc
Land Value Uplift Calculation	
£ Land Development Cost Estimate (development costs + fees) [C]	tbc
£ Residual Land Value [R = GDV – C]	tbc
Land Value Uplift (£000s) [R – E]	XXX (tbc)

* Obtained from VOA Property Market Report 2011

The net external costs will then be estimated using the methodology defined in TAG Unit A2 and the DCLG Appraisal Guide.

4.2.6 Regeneration and Wider economic impacts

Wider economic impacts refer to economic impacts which are additional to transport user benefits. They arise because market failures in secondary markets (non-transport markets), such as the labour and land markets, mean that the full welfare impact of a transport investment may not be reflected in the transport market.

In order to ensure compliance with the Lancashire Local Enterprise Partnership (LEP) a Gross Value Added (GVA) Assessment will be undertaken, capturing the wider economic impact of the scheme. Economic impacts captured in the calculation of GVA will overlap with those captured during appraisal of induced investment impacts resulting from dependent development, with some double counting of benefits between methodologies.

The Value for Money (VfM) statement produced in support of the main business case will provide full details of the economic appraisal undertaken and the calculated scheme BCR. The results of the GVA assessment will be presented separately, in order to comply with the requirements of the LEP assurance framework. GVA figures will not be included in the BCR calculation.

4.2.7 Social and Distributional Impacts

An assessment of the social and distributional impacts (DIs) for business users, transport providers, commuting and other users will be completed in line with TAG Unit A4 (Social and Distributional Impacts). TAG highlights a staged approach for the assessment of DIs – it is anticipated that all stages will be completed, and travel time benefits will be disaggregated into a seven-point scale.

Social and Distributional Impact (DI) assessments are used to evaluate a transport intervention's social impacts and how they vary across the different social groups. The proposed methodology considers TAG Unit A4 – Social and Distributional Impacts.

A qualitative social impact appraisal proportionate to the scale of the expected social impacts resulting from the scheme will be undertaken and reported in a social and distributional impacts appraisal report. This will be undertaken for each of the social impact metrics defined in TAG unit A4-1 *Social Impact Appraisal*.

DI appraisal will take place as per the 3-stage process outlined below and defined in TAG unit A4-2 *Distributional Impact Appraisal*:

- Step 1 is a screening process which identifies the likely impacts for each indicator. The results of this process will be entered into a screening proforma.
- Step 2 is the assessment process which includes:
    - Confirmation of the area impacted by the transport intervention (impact area);
    - Identification of social groups in the impact area; and
    - Identification of amenities in the impact area.
- Step 3 is the appraisal of impacts which completes a full appraisal and completion of the Appraisal Summary Table (AST).

4.3 Communication Strategy

The economic appraisal methodology and results will need to be approved by the following stakeholders:

- Lancashire Local Enterprise Partnership;
- Blackburn with Darwen Borough Council

It is noted that a reasonable amount of time will be needed for review by these stakeholders.

4.4 Risks

The key risks associated with the economic appraisal are as follows:

- Economic appraisal results demonstrate low BCR and indicate that scheme would be likely to have low value for money.
- Sensitivity tests indicate significant uncertainties in appraisal.
- Not able to reach agreement with key stakeholders.
- Delay in signing off documentation from key stakeholders.

4.5 Change Log

The Change Log will document any changes from the methodology proposed above.

5. Environment

5.1 Likely Scale of Impact

The scale of the impact of the scheme on the environment is sub-divided into a range of environmental impacts, as required by TAG which will include:

- Noise and vibration;
- Air quality (nitrogen dioxide and particulates);
- Greenhouse gases (carbon);
- Landscape and townscape;
- Historic environment;
- Biodiversity; and
- Water environment.

5.2 Existing Knowledge and Data

Baseline environmental data specifically for the scheme are is not currently available.

5.3 Constraints

An environmental constraints plan will be produced, showing any environmental designations within the vicinity of the scheme.

5.4 Proposed Methodology

A detailed review of the baseline situation is to be undertaken to inform the business case. This will identify any further surveys that are required to support the environmental assessments.

The proposed methodologies for the noise, air quality, greenhouse gases, landscape, townscape, historic environment, biodiversity and water environment assessments are summarised within Table 5.1 overleaf. It is anticipated that a number of environmental assessment reports will be submitted with and appraised with the planning application required for each of the proposed intervention elements.

Table 5.1 – Environmental Assessment Methodologies

Environmental Impact	Proposed Methodology Summary
Noise and vibration	A desk-based noise risk assessment has been undertaken and submitted as part of the planning application required for the scheme. The scheme is not expected to have a significant impact on noise across the defined impact area and will be within acceptable levels as compared to guideline criteria with appropriate development design and mitigation measures. As a result, further appraisal of noise and vibration impacts will not be undertaken. Results from the noise risk assessment will be reviewed and included in the Appraisal Summary Table submitted with the business case.
Air quality (nitrogen dioxide and particulates);	A desk-based air quality assessment has been undertaken and submitted in support of the planning application required for the scheme. This included: • An assessment of short-term impacts – considering impacts to air quality and dust soiling during the construction phase, in accordance with Institute of Air Quality Management guidelines; and • An assessment of long-term impacts - considering impacts to air quality during the operational phase, including dispersion modelling studies to assess the potential effects on sensitive receptors from emissions of NO_2 and PM_{10}. The scheme is expected to have a net benefit to long term air quality across the impact area, both along the A6077 Haslingden Road and around the designated AQMA at the Roman Road/ Blackamoor Road junction. Results from the air quality assessment will be reviewed and included in the Appraisal Summary Table submitted with the business case.
Greenhouse gases (carbon);	The effect of the scheme on traffic greenhouse gas emissions has will be considered for the scheme. The relative monetised change in greenhouse gas emissions (CO2e) between DM and DS scenarios will be obtained from TUBA for inclusion in cost-benefit analysis.
Landscape and townscape	The scheme is not expected to have a significant impact on landscape and townscape – a qualitative review will be undertaken and summarised in the Appraisal Summary Table.
Historic environment	A desk based archaeological assessment has been undertaken and submitted in support of the planning application required for the

	scheme. This identified any heritage assets adjoining or extending into land required to deliver the proposed scheme. The scheme is not expected to have a significant impact on the historical environment. As a result, further appraisal of impacts on the historic environment will not be undertaken. Results from this assessment, including any identified adverse impact on the historic environment will be included in the Appraisal Summary Table submitted with the business case.
Biodiversity	An ecological appraisal, including a desk study, extended Phase 1 Habitat survey and a badger monitoring survey have been undertaken and submitted in support of the planning application required for the scheme. This defined a number of measures to mitigate against the impacts of the scheme and associated development, as well as minimise the impacts to biodiversity. The appraisal also detailed a number of enhancement measures for how the final development can contribute towards a net gain in biodiversity. The scheme is not expected to have a significant impact on biodiversity. As a result, further appraisal of biodiversity and ecological impacts will not be undertaken. Results from the ecological appraisal will be included in the Appraisal Summary Table submitted with the business case.
Water environment	A flood risk assessment has been undertaken and submitted in support of the planning application required for the scheme. This Investigated all reasonably foreseeable potential risks of flooding to the site and the impact of the proposed scheme. This also defined a number of design proposals and recommendations to mitigate any potential risk of flooding. The scheme is not expected to have a significant impact on flood risk or the water environment. Results from the flood risk assessment will be reviewed and included in the Appraisal Summary Table submitted with the business case.

5.5 Communication Strategy

Blackburn with Darwen Borough Council will be consulted regarding the outcomes of the environmental assessment. All individual reports and the business case documents will be uploaded to an appropriate webpage where they will be available for viewing by the general public and other stakeholders or interested parties.

5.6 Risks

The major risks are defined below:

- Poor communication with consultant;
  - Clear brief; and
  - Discuss any issues at early stage
- Information provided
  - Information provided by the Transport Planning Team will not be in a format which the noise specialists can input in to their model or there are delays in providing that information. This can lead to delays in the programme.
  - This can be addressed through communicating their requirements appropriately to the relevant parties.
- Change in TAG guidance.
  - Any changes are partially mitigated by TAG's 'Proportionate Update Process' and will be discussed with the BwD as required. The Forthcoming Changes documentation does not currently list any significant relevant changes.

5.7 Change Log

The Change Log will document any changes from the methodology proposed above.

Appendix A - Risk Register – Haslingden Road

Phases 1 & 2 Risk Register

Last Updated:

							PRE- MITIGATION																POST MITIGATION															
																Total EV £	1,066,500															Total EV £	389,188						
							QUALITATIVE ASSESSMENT					QUANTITATIVE ASSESSMENT											QUALITATIVE ASSESSMENT					QUANTITATIVE ASSESSMENT											
ID	Type	Risk "There is a risk that..."	Cause "This is because..."	Consequences "If the event occurs, there will be the following consequence(s)..."	Contractual Risk Owner	Proximity	Likelihood	Cost Impact	Schedule Impact	Reputational Impact	Score	Likelihood (%)	Min (£k)	Most Likely (£k)	Max (£k)	EV Impact	EV	Mitigation Response	Mitigation Actions	Action Owner	Target Completion Date	Action Status	Likelihood (%)	Cost Impact	Schedule Impact	Reputational Impact	Score	Likelihood (%)	Min (£k)	Most Likely (£k)	Max (£k)	EV Impact	EV	Justification	Risk Status	Date Raised	Last Update	Escalate to Package Level Report?	Notes / Key Changes
	Regulatory / Legal	Euro Garages potentially getting planning permission to the second roundabout could cause serious impact to the Haslingden Road scheme. EG proposing additional access onto Shadsworth Road would affect visibility splays and proposed gated system it would back up traffic onto the main roundabout.		Brief could be subject to change following the TA review and delays to design due to TA process.			3. Possibly	3. Moderate	3. Moderate	3. Moderate		0.0%	£80,000	£140,000	£200,000	£140,000			Walter Aspinall to undertake Transport Assessment and review EG plans Enforce that Capita undertake the design for the additional access onto Shadsworth Road junction			Open	3. Possibly	2. Low	1. Negligible	3. Moderate		0.0%	£20,000	£50,000	£80,000	£50,000			Archived		24-Sep-19		10/10/19 - EG potential additional access has been incorporated into our design so risk can be archived.
2	Environmental	**Geotechnical Ground Investigations at Haslingden Road.**		The scheme will have potential to have major cost and programme implications			5. Almost Certain	5. Severe	4. High	4. High	25	87.5%	£400,000	£600,000	£800,000	£600,000	£525,000		Geotechnical surveys to be undertaken to establish ground conditions which will inform the design			Open	2. Unlikely	3. Moderate	3. Moderate	3. Moderate	6	12.5%	£80,000	£140,000	£200,000	£140,000	£17,500		Open		24-Sep-19		
3	Environmental	Approvals to undertake intrusive geotechnical surveys are dependant upon the cooperation of land owners		Access to the land and agreement to undertake potential surveys isn't obtained by the land owners assumptions will have to be made until the land is acquired			3. Possibly	3. Moderate	1. Negligible	2. Low		0.0%	£80,000	£140,000	£200,000	£140,000			Early engagement with land owners regarding access and land acquisitions undertaken by property			Open	2. Unlikely	1. Negligible	1. Negligible	2. Low		0.0%	£0	£10,000	£20,000	£10,000			Archived		24-Sep-19		10/10/19 - trial holes took place on Council owned lan and within the hospital boundaries.
4	Technical	**Electricity substation located within the car park area to the existing EG site. The actual substation will be adjacent to the back of the proposed footway.**		There is a potential for the current service to be diverted which will impact both on cost and programme			3. Possibly	3. Moderate	5. Severe	4. High	15	35.0%	£80,000	£140,000	£200,000	£140,000	£49,000		Gateway review following receipt of the C3's to assess amounts of abnormals and whether progression with this section of the scheme is continuing.			Open	2. Unlikely	2. Low	1. Negligible	2. Low	4	12.5%	£20,000	£50,000	£80,000	£50,000	£6,250		Open		10-Oct-19		10/10/19 - The design has been desrisked.
5	Regulatory / Legal	**All property and land acquisitions**		The property/land owners may refuse to cooperate leading to delays to the programme or potential redesign of the scheme. Both will impact on cost and programme.			5. Almost Certain	3. Moderate	2. Low	2. Low	15	87.5%	£80,000	£140,000	£200,000	£140,000	£122,500		TJ has been communicating with the majority of property owners to ensure timely acquisitions are negotiated.			Open	4. Likely	4. High	3. Moderate	2. Low	16	62.5%	£200,000	£300,000	£400,000	£300,000	£187,500		Open		24-Sep-19		10/10/19 - There are still land aquisitions to be undertaken, negotiations and discussions have been taking place for some time. The costs for these acquisitions has been estimated within this risk to ensure it is accounted for.
6	Regulatory / Legal	Capacity of existing BwD Framework to undertake the scheme.		Potential delays to procurement process or extended procurement timescales.			2. Unlikely	2. Low	2. Low	2. Low		0.0%	£20,000	£50,000	£80,000	£50,000			Work with BwD PMO and provide programme updates. Potential engagement with the framework in advance.			Open	1. Very Unlikely	1. Negligible	1. Negligible	1. Negligible		0.0%	£0	£10,000	£20,000	£10,000			Archived		24-Sep-19		Mike Cliffe held a meeting with the Framework contractors which was reported as positive.
7	Contractual	Form of NEC Contract and risk profile exposes the Client to unacceptable risk levels.		Erosion of risk budget allocation and project costs.			1. Very Unlikely	4. High	1. Negligible	1. Negligible		0.0%	£200,000	£300,000	£400,000	£300,000			Capita to carry out an assessment of the NEC Forms of Contract and advise the Client accordingly.			Open	1. Very Unlikely	1. Negligible	1. Negligible	1. Negligible		0.0%	£0	£10,000	£20,000	£10,000			Archived		24-Sep-19		
8	Stakeholder Management/ Comms.	Stakeholder consultation exercise for the end of November to discuss the detailed design. Detailed Design has been frozen, potential for programme delay.		Detailed design requires finalising prior to any consultation taking place. Potential for negative publicity from local businesses and residents.			4. Likely	4. High	3. Moderate	5. Severe		0.0%	£200,000	£300,000	£400,000	£300,000			Gateway Review with Design Freeze to be scheduled pending above risks in relation to risk: 1, 4, 5, 6 & 7. Mitigation of bad publicity through consultation even promoting the scheme benefits.			Open	2. Unlikely	2. Low	1. Negligible	2. Low		0.0%	£20,000	£50,000	£80,000	£50,000			Archived		24-Sep-19		
9	Technical	**Cost for unknown Statutory undertakers, potential diversion works as part of the scheme i.e. United Utilities, Virgin Media, BT etc.**		Existing services will need to be diverted on Haslingden Road, the costs associated with this have the potential to be quite high.			4. Likely	3. Moderate	3. Moderate	3. Moderate	12	62.5%	£80,000	£140,000	£200,000	£140,000	£87,500		Review following receipt of the C4's to assess final diversion costs			Open	3. Possibly	3. Moderate	2. Low	2. Low	9	35.0%	£80,000	£140,000	£200,000	£140,000	£49,000		Open		24-Sep-19		The scheme for Haslingden Road has been split up into phases in order to help reduce the cost for stats diversions.
10	Stakeholder Management/ Comms.	Stakeholder aspirations/scope creep - Scope changes may be requested/ required internally or by external stakeholders		Additional design and construction costs, delays to schedule should stakeholder requirements require substantial design amendments.			4. Likely	4. High	3. Moderate	5. Severe		0.0%	£200,000	£300,000	£400,000	£300,000			Ensure communication strategy well defined and agreed with stakeholders Ensure that the scope is clearly defined and communicated with the stakeholders and obtain their buy in early on Ensure that there is regular and on-going liaison with stakeholders. Ensure stakeholder communication plan is in place and followed through			Open	3. Possibly	4. High	2. Low	4. High		0.0%	£200,000	£300,000	£400,000	£300,000			Archived		24-Sep-19		10/10/19 - stakeholder consultaton has taken place throughout design process in order to prevent negative publicity.
11	Stakeholder Management/ Comms.	The impact of consultation under the Disability Equality Duty (DED) is unknown until consultation is underway. Risk that DED consultation may severley impact on design proposals and significant changes may be required to address their comments		Reputation affected - Bad press, legal proceedings and financial penalties, additional works post completion. Delay in programme to allow comments to be addressed.			3. Possibly	3. Moderate	3. Moderate	3. Moderate		0.0%	£80,000	£140,000	£200,000	£140,000			Ensure current proposals and benefits are communicated effectively to Disability Forums			Open	2. Unlikely	2. Low	2. Low	2. Low		0.0%	£20,000	£50,000	£80,000	£50,000			Archived		24-Sep-19		10/10/19 - proposals and benefits have been communicated as necessary.
12	Technical	Gateway approvals may take longer or be more onerous than anticipated/additional approvals are identified during the design process delaying detailed design process		Delay securing gateway approvals may affect the delivery programme, design completion, and contract award date.			4. Likely	4. High	5. Severe	3. Moderate		0.0%	£200,000	£300,000	£400,000	£300,000			Ensure requirement is fully understood prior to submission and submission meets and addresses the requirement Ensure that approvals process is understood and communicate with team as required.			Open	3. Possibly	3. Moderate	3. Moderate	2. Low		0.0%	£80,000	£140,000	£200,000	£140,000			Archived		24-Sep-19		10/10/19 - detailed design gateway approval has been obtained.
13	Contractual	Risk that final tender price from preferred supplier exceeds project budget		cost increase may lead to re-tender and overall schedule delays			4. Likely	3. Moderate	5. Severe	4. High		0.0%	£80,000	£140,000	£200,000	£140,000			Ensure procurement process is robust and any assumptions/exclusions and omissions are clearly stated in the cost plan.			Open	3. Possibly	4. High	2. Low	3. Moderate		0.0%	£200,000	£300,000	£400,000	£300,000			Archived		24-Sep-19		
14	Construction	The SE extents of the project adjoins/interfaces with the Highways England network.		Highways England may have planned works that coincide with the construction works, traffic management proposals on Haslingden Road may impact on the Highways England network.			3. Possibly	4. High	4. High	3. Moderate		0.0%	£200,000	£300,000	£400,000	£300,000			Close liaision with Highways England to discuss potential traffic management proposals and planned works on the Highways England network.			Open	2. Unlikely	2. Low	2. Low	2. Low		0.0%	£20,000	£50,000	£80,000	£50,000			Archived		24-Sep-19		
15	Environmental	Asbestos contained within existing property on Haslingden Road		Delays in construction periods to allow safe removal of asebestos, and additional unanticipated construction costs			3. Possibly	4. High	3. Moderate	2. Low		0.0%	£200,000	£300,000	£400,000	£300,000			Undertake preliminary and detailed asbestos surveys where necessary to establish whether there is Asbestos present and what type it is in order to plan necessary removal procedures where appropriate.			Open	2. Unlikely	2. Low	2. Low	2. Low		0.0%	£20,000	£50,000	£80,000	£50,000			Archived		24-Sep-19		All property demolition will be within another phase of the project at some point in the future.
16	Project Management	Potential for Haslingden Road Project needing a full planning application.		Major delays and impact to the programme and budget. Potential for the scheme to not go ahead if planning permission is refused.			5. Almost Certain	3. Moderate	4. High	2. Low		0.0%	£80,000	£140,000	£200,000	£140,000			Engage with planning authority early through pre application meetings to understand what requirements are needed for the planning application			Open	5. Almost Certain	1. Negligible	1. Negligible	1. Negligible		0.0%	£0	£10,000	£20,000	£10,000			Archived		24-Sep-19		Full planning application was submitted for HaslingDen Road 13/09/19
17	Regulatory / Legal	**Side Road Orders being objected to**		Major delays and impact to the programme and budget. Potential for the scheme to not go ahead if objections are raised.	BwD	Detailed Design	3. Possibly	3. Moderate	3. Moderate	2. Low	9	35.0%	£80,000	£140,000	£200,000	£140,000	£49,000		Engage with Legal Department and Local Authority early throughmeetings to understand what requirements are needed for the Side Road Orders			Open	2. Unlikely	2. Low	3. Moderate	1. Negligible	6	12.5%	£22,500	£55,000	£82,000	£53,167	£6,646		Open		24-Sep-19		BwD Legal have started this process, at present there has been no objections
18	Project Management	**LEP Business Case**		Approvals and submission dates are becoming a risk to the programme which could impact by delaying the scheme.	BwD	Business Case Developme nt	3. Possibly	3. Moderate	5. Severe	3. Moderate	15	35.0%	£80,000	£140,000	£200,000	£140,000	£49,000		Continuous engagement with the LEP and Jacobs providing them with an insight into our programme			Open	2. Unlikely	2. Low	3. Moderate	2. Low	6	12.5%	£24,000	£50,000	£80,000	£51,333	£6,417		Open		24-Sep-19		Walter Aspinall and Mike Cliffe have been engaging frequently with the LEP.
19	Technical	**Queries surrounding existing drainage system**	Limited knowledge from Local Authority	Drainage System wont be suitable for the project	BwD	Detailed Design	6. Issue	3. Moderate	4. High	2. Low	24	100.0%	£80,000	£140,000	£200,000	£140,000	£140,000		CCTV Drainage Survey to be undertaken. Discussions with United Utilities to be held			Open	4. Likely	3. Moderate	2. Low	2. Low	12	62.5%	£35,000	£100,000	£180,000	£105,000	£65,625		Open		10-Oct-19		
20	Technical	**Objections to the Traffic Regulation Orders**	Insufficient consultation / consultation period	Leghlly Legal Process	BwD	Detailed Design	3. Possibly	2. Low	4. High	2. Low	12	35.0%	£20,000	£50,000	£80,000	£50,000	£17,500		Continual communication with the Local Authority			Open	2. Unlikely	1. Negligible	3. Moderate	2. Low	6	12.5%	£0	£10,000	£20,000	£10,000	£1,250		Open		10-Oct-19		
21	Technical	**Signage Locations clash with statutory undertakers**	Late receipt of Signage information	Relocation of signs. Damage to statutory undertakers equipment and costs incurred.	BwD	Detailed Design	3. Possibly	3. Moderate	4. High	2. Low	12	35.0%	£80,000	£140,000	£200,000	£140,000	£49,000		Information regarding the signage to be issued to Capita Design Team from BwD as soon as possible.			Open	3. Possibly	3. Moderate	3. Moderate	2. Low	9	35.0%	£80,000	£140,000	£200,000	£140,000	£49,000		Open		10-Oct-19		

Appendix B - Risk Register – Blackamoor Road

Blackamoor Risk Register

Last Updated:

							PRE- MITIGATION													POST MITIGATION														
															Total EV £	1,128,063													Total EV £	506,104					
							QUALITATIVE ASSESSMENT					QUANTITATIVE ASSESSMENT									QUALITATIVE ASSESSMENT					QUANTITATIVE ASSESSMENT									
ID	Type	Risk "There is a risk that..."	Cause "This is because..."	Consequences "If the event occurs, there will be the following consequence(s)..."	Contractual Risk Owner	Proximity	Likelihood	Cost Impact	Schedule Impact	Reputational Impact	Score	Likelihood (%)	Min (£k)	Most Likely (£k)	Max (£k)	EV Impact	EV	Mitigation Response	Mitigation Actions	Action Owner	Target Completion Date	Action Status	Likelihood (%)	Cost Impact	Schedule Impact	Reputational Impact	Score	Likelihood (%)	Min (£k)	Most Likely (£k)	Max (£k)	EV Impact	EV	Justification	Risk Status	Date Raised	Last Update	Escalate to Package Level Report?	Notes / Key Changes
1	Environmental	**There could be contaminated land where the proposed link road will be built**	this will be unforseen unless a Geotechnical Ground Investigations at Blackamoor is commissioned	The scheme will have potential to have major cost and programme implications	BwD	Detailed Design	4. Likely	4. High	3. Moderate	2. Low	16	62.5%	£215,000	£322,500	£430,000	£322,500	£201,563		Geotechnical surveys to be undertaken to establish ground conditions which will inform the design	Jon Higgins	01-Aug-19	Open	2. Unlikely	2. Low	2. Low	2. Low	4	12.5%	£22,000	£54,000	£86,000	£54,000	£6,750		Open		11-Oct-19		All Geotechincal Ground Condition surveys have been undertaken, results so far show their isnt any contaminated land. There are still some outstanding results to be reviewed, however, it is deemed the scheme wont be impacted by contaminated land.
2	Project Management	**Capacity of existing BwD Framework to undertake the scheme.**	Whether there will be enough interest from the exiting contractors on the framework	Potential delays to procurement process or extended procurement timescales.	BwD	Procurement	2. Unlikely	2. Low	2. Low	2. Low	4	12.5%	£22,000	£54,000	£86,000	£54,000	£6,750		Work with BwD PMO and provide programme updates. Potential engagement with the framework in advance.	Timo Murphy	01-Aug-19	Open	1. Very Unlikely	2. Low	2. Low	2. Low	2	2.5%	£22,000	£54,000	£86,000	£54,000	£1,350		Open		11-Oct-19		Mike Cliffe held a meeting with the Framework contractors which was reported as positive.
3	Stakeholder Management Comms.	**Stakeholder consultation exercise for the end of November 2018 to discuss the detailed design.** **Detailed Design hast been frozen, potential for programme delay.**	Key stakeholders arent happy with the design proposals	Detailed design requires finalising prior to any consultation taking place. Potential for negative publicity from local businesses and residents.	CAPITA	Detailed Design	4. Likely	3. Moderate	3. Moderate	3. Moderate		0.0%	£86,000	£150,500	£215,000	£150,500			Gateway Review with Design Freeze to be scheduled. Mitigation of bad publicity through consultation even promoting the scheme benefits.	Alan Niemeyer	06-Sep-19	Closed	1. Very Unlikely	0. None	0. None	0. None		0.0%	£0	£0	£0	£0			Archived		11-Oct-19		
4	Technical	**Cost for the unknown Statutory undertakers, potential diversion works as part of the scheme i.e. ENW, United Utilities, Virgin Media, BT etc.**	Stats will need diverting in order for the scheme to go ahead	Existing services will need to be diverted on d Blackamoor, the costs associated with this have the potential to be quite high.	BwD	Detailed Design	6. Issue	5. Severe	4. High	3. Moderate	30	100.0%	£430,000	£645,000	£860,000	£645,000	£645,000		Review following receipt of the C4's to assess final diversion costs	Stephen Greenhalgh	29-Oct-19	Open	4. Likely	4. High	2. Low	2. Low	16	62.5%	£215,000	£322,500	£430,000	£322,500	£201,563		Open		11-Oct-19		We have now receved C4 Estimates for over half of the stat diversions which has dicreased from the original C3 Quotes received. Update to be provided following receipt of all C4 Eestimates.
5	Stakeholder Management Comms.	**Stakeholder aspirations/scope creep - Scope changes may be requested/ required internally or by external stakeholders**		Additional design and construction costs, delays to schedule should stakeholder requirements require substantial design amendments.			4. Likely	4. High	3. Moderate	5. Severe		0.0%	£215,000	£322,500	£430,000	£322,500			Ensure communication strategy well defined and agreed with stakeholders Ensure that the scope is clearly defined and communicated with the stakeholders and obtain their buy in early on Ensure that there is regular and on-going liaison with stakeholders. Ensure stakeholder communication plan is in place and followed through			Open	3. Possibly	4. High	2. Low	4. High		0.0%	£215,000	£322,500	£430,000	£322,500			Archived		10-Oct-19		10/10/19 - stakeholder consultation has taken place throughout design process in order to prevent negative publicity.
6	Stakeholder Management Comms.	**The impact of consutation under the Disability Equality Duty (DED) is unknown until consultation is underway. Risk that DED consultation may severley impact on design proposals and significant changes may be required to address their comments**		Reputation affected - Bad press, legal proceedings and financial penalties, additional works post completion. Delay in programme to allow comments to be addressed.			3. Possibly	3. Moderate	3. Moderate	3. Moderate		0.0%	£86,000	£150,500	£215,000	£150,500			Ensure current proposals and benefits are communicated effectively to Disability Forums			Open	2. Unlikely	2. Low	2. Low	2. Low		0.0%	£22,000	£54,000	£86,000	£54,000			Archived		24-Sep-19		10/10/19 - proposals and benefits have been communicated as necessary.
7	Technical	**Gateway approvals may take longer or be more onerous than anticipated/additional approvals are identified during the design process delaying detailed design process**		Delay securing gateway approvals may affect the delivery programme, design completion, and contract award date.			4. Likely	4. High	5. Severe	3. Moderate		0.0%	£215,000	£322,500	£430,000	£322,500			Ensure requirement is fully understood prior to submission and submission meets and addresses the requirement Ensure that approvals process is understood and communicate with team as required.			Open	3. Possibly	3. Moderate	3. Moderate	2. Low		0.0%	£86,000	£150,500	£215,000	£150,500			Archived		24-Sep-19		10/10/19 - detailed design gateway approval has been obtained.
8	Contractual	**Risk that final tender price from preferred contractor exceeds project budget**	The preferred contractors capacity might already be stretched leading the contractors to not want to win the work.	cost increase may lead to re-tender and overall schedule delays	BwD	Procurement	2. Unlikely	3. Moderate	5. Severe	4. High		0.0%	£86,000	£150,500	£215,000	£150,500			Ensure procurement process is robust and any assumptions/exclusions and omissions are clearly stated in the cost plan.	Timo Murphy	01-Aug-19	Open	2. Unlikely	2. Low	2. Low	3. Moderate		0.0%	£22,000	£54,000	£86,000	£54,000			Archived		11-Oct-19		
9	Project Management	**LEP Business Case**		Approvals and submission dates are becoming a risk to the programme which could impact by delaying the scheme.	BwD	Business Case Development	3. Possibly	3. Moderate	5. Severe	3. Moderate	15	35.0%	£86,000	£150,500	£215,000	£150,500	£52,675		Continuous engagement with the LEP and Jacobs providing them with an insight into our programme	Mike Cliffe/Walter Aspinall	30-Oct-19	Open	2. Unlikely	2. Low	2. Low	2. Low	4	12.5%	£20,000	£54,000	£80,200	£51,400	£6,425		Open		11-Oct-19		
10	Technical	**Queries surrounding existing drainage system**	Limited knowledge from Local Authority	Drainage System wont be suitable for the project	BwD	Detailed Design	6. Issue	3. Moderate	4. High	2. Low	24	100.0%	£86,000	£150,500	£215,000	£150,500	£150,500		CCTV Drainage Survey to be undertaken. Discussions with United Utilities to be held	Stephen Greenhalgh	30-Oct-19	Open	6. Issue	4. High	2. Low	2. Low	24	100.0%	£90,000	£220,000	£400,000	£236,667	£236,667		Open		11-Oct-19		
11	Technical	**Objections to the Traffic Regulation Orders**	Insufficient consultation / consultation period	Legthly Legal Process	BwD	Detailed Design	3. Possibly	2. Low	4. High	2. Low	12	35.0%	£22,000	£54,000	£86,000	£54,000	£18,900		Continual communication with the Local Authority	Alan Niemeyer	30-Oct-19	Open	2. Unlikely	1. Negligible	3. Moderate	2. Low	6	12.5%	£0	£11,000	£22,000	£11,000	£1,375		Open		11-Oct-19		
12	Technical	**Signage Locations clash with statutory undertakers**	Late receipt of Signage information	Relocation of signs. Damage to statutory undertakers equipment and costs incurred.	BwD	Detailed Design	3. Possibly	3. Moderate	4. High	2. Low	12	35.0%	£86,000	£150,500	£215,000	£150,500	£52,675		Information regarding the signage to be issued to Capita Design Team from BwD as soon as possible.	Rebekah Pittard	30-Oct-19	Open	3. Possibly	3. Moderate	3. Moderate	2. Low	9	35.0%	£80,000	£150,500	£215,000	£148,500	£51,975		Open		11-Oct-19		

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