

3512983U-PTR

HEREFORD CITY CENTRE TRANSPORT PACKAGE **BUSINESS CASE**

HEREFORDSHIRE COUNCIL

NOVEMBER 2015

Hereford City Centre Transport Package

Business Case

3512983U-PTR

Prepared for
Herefordshire Council

Prepared by
WSP|Parsons Brinckerhoff

Report Title	:	Hereford City Centre Transport Package (HCCTP) Business Case
PIMS Number	:	3512983U-PTR
Report Status	:	Final Version
Job No	:	3512983U-PTR
Date	:	26/11/2015

DOCUMENT HISTORY AND STATUS

Document control			
Prepared by	SH/HB/PR/Vicky Hammond (HC)	Checked by <i>(technical)</i>	PR
Approved by	HB	Checked by <i>(quality assurance)</i>	PR/HB
Revision details			
Version	Date	Pages affected	Comments
1.0	23/06/2015		Fully collated version with all five cases, Executive Summary and Appendices which incorporates feedback to date from HC and BBLP
1.1	27/07/15		Final version for issue to ITE
1.2	06/11/15		Updated Business Case following comments from ITE
1.3	26/11/15		Updated Business Case for Issue

AUTHORISATION SHEET

Client: Balfour Beatty Living Places
Project: Hereford City Centre Transport Package
Address: 26/11/2015

PREPARED BY

Name: Steve Harrison, Paul Roberts, Himanshu Budhiraja (all WSP|PB) and Vicky Hammond (HC)
Position: Various
Date: 26/11/2015

AGREED BY

Name: Mairead Lane and Jeremy Callard
Position: Construction Manager, Economy, Communities & Corporate Directorate and Team Leader Transport Strategy, Transportation - Planning
Date: 26/11/2015

AUTHORISED FOR ISSUE

Name: Himanshu Budhiraja
Position: Project Manager WSP|PB
Date: 26/11/2015

DISTRIBUTION

ACCEPTED BY

Name: Paul Tucker / Alasdair MacDonald
Position: Design & Build Manager, Balfour Beatty Living Places (BBLP) - Services Division/PM BBLP
Date: 26/11/2015

ACCEPTED BY

Name: Mairead Lane / Jeremy Callard
Position: Construction Manager, Economy, Communities & Corporate Directorate and Team Leader Transport Strategy, Transportation - Planning
Date: 26/11/2015

CONTENTS

	Page
List of Abbreviations	3
Executive Summary	5
1 Introduction	9
1.1 Background	9
1.2 Document Structure	9
2 Scheme History and Scheme Description	10
2.1 Scheme Overview and Scope	10
3 The Strategic case	12
3.1 Introduction	12
3.2 SC1: Scheme Description and Plan(s)	12
3.3 SC2: Problems and Evidence of Scheme Contribution to their Resolution	13
3.4 SC2: Wider Policy Context and Drivers	18
3.5 SC2: HCCTP Contribution to Resolving Transport Problems	20
3.6 SC3: Consequences of Not Implementing the Scheme	23
3.7 SC4: Aims and Objectives	24
3.8 SC5: Key Beneficiaries	27
3.9 SC6: Communications, Consultation and Stakeholder Management	28
3.10 SC7: Constraints and Interdependencies	41
3.11 SC8: Option Assessment	41
4 The Economic case	44
4.1 Introduction	44
4.2 EC1: Scope of Modelling and Economic Appraisal	44
4.3 EC2: Value for Money (Economy)	53
4.4 EC4: Value for Money (Environment)	58
4.5 EC5: Value for Money (Social)	66
4.6 EC6: Value for Money (Public Accounts)	73
4.7 Economic Case Summary and Conclusions	76
5 The Financial case	77
5.1 FC1: Capital Costs	77
5.2 FC2: LTB, Herefordshire Council and Third Party Contribution	83
5.3 FC3: Whole Life Costs and Maintenance Liabilities	83
6 The Commercial case	84
6.1 CC1: Income Generation	84
6.2 CC2 Procurement Options and Strategy	84
7 The Management case	89
7.1 MC1: - Project Programme, Risks and Deliverability	89
7.2 MC2 - Legal Powers and Consents	96
7.3 MC3 - Governance	98
7.4 MC4 - Benefits Realisation	102

7.5	MC5 - Monitoring and Evaluation Strategy	103
8	Next steps	106

List of Appendices

Appendix 1 – HCCTP Scheme Drawings

Appendix 2 – HCCTP Communication Strategy

Appendix 3 – Hereford Multi-Modal Transport Model - Model Development and Validation Report

Appendix 4 – TUBA Files

Appendix 5 – Operational Junction Modelling Technical Note

Appendix 6 – Economic Impact of Residential Housing Development

Appendix 7 – Noise Impact Assessment

Appendix 8 – Air Quality Impact Assessment

Appendix 9 – Non Motorised User Impact Assessment

Appendix 10 – COBALT Output File

Appendix 11 – WebTAG Worksheets for AMCB, Public Accounts & TEE

Appendix 12 – Appraisal Summary Table

Appendix 13 – Cost Estimate

Appendix 14 – Risk Register

Appendix 15 – Section 151 Officer Confirmation Letter

Appendix 16 – Delivery Programme

Appendix 17 – CPO Decision Letter

Appendix 18 – Monitoring & Evaluation Plan

LIST OF ABBREVIATIONS

AADT	Annual Average Daily Traffic
AMCB	Analysis of Monetised Costs and Benefits
AQMA	Air Quality Management Area
ASR	Appraisal Specification Report
BBLP	Balfour Beatty Living Places
BCIS	Building Cost Information Service
BCR	Benefit Cost Ratio
CHYM	Choose How You Move
CLR	City Link Road
COBALT	Cost and Benefit to Accidents – Light Touch
CPO	Compulsory Purchase Order
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
EiP	Evidence in Public
ESG	Edgar Street Grid
FUR	Functional Urban Region
GVA	Gross Valued Added
HC	Herefordshire Council
HCCTP	Hereford City Centre Transport Package
HMMTM	Hereford Multi Modal Transport Model
ITE	Independent Technical Evaluator
LEP	Local Enterprise Partnership
LGF	Local Growth Fund
LTB	Local Transport Body
MAC	Managing Agent Contract
MEP	Monitoring and Evaluation Plan
MIDB	Major Infrastructure Delivery Board
MLTB	Marches Local Transport Board
NMU	Non-Motorised User
NPV	Net Present Value
PT	Public Transport
PVB	Present Value of Benefits
PVC	Present Value Costs
QCRA	Quantitative Cost Risk Analysis

QRA	Quantified Risk Assessment
SEP	Strategic Economic Plan
SOBC	Strategic Outline Business Case
SPD	Supplementary Planning Document
SRO	Senior Responsible Owner
TEE	Transport Economic Efficiency
TPI	Tender Price Indices
TRO	Traffic Regulation Order
VOC	Vehicle Operating Costs
VoT	Values of Time
UDP	Unitary Development Plan
WEB	Wider Economic Benefits
WebTAG	Transport Analysis Guidance

EXECUTIVE SUMMARY

The Hereford City Centre Transport Package (HCCTP) is an integrated package of schemes and consists of the following key elements:

- A new City Link Road (CLR) integrated with complementary measures to support the delivery of a major regeneration scheme;
- Improvements to the public realm and the facilities for walking, cycling and public transport modes; and
- A new Transport Hub at Hereford railway station.

As a part of the Marches Growth Deal (2014), the HCCTP was one of the transport schemes identified as having priority for delivery in 2015/16, subject to submission of a successful business case.

The key objectives of the HCCTP are to support economic growth, improve accessibility and encourage active travel in line with the adopted policies of Herefordshire Council, the Marches LEP and Central Government. In particular the package of measures will:

- Enable the delivery of the Edgar Street Grid (ESG) regeneration area, a major mixed-use development, and support delivery of housing, particularly affordable housing within the city;
- Improve the public realm and create better walking, cycling and public transport infrastructure thereby better integrating new development with the historic city core;
- Enhance links between the railway station, the city centre and the ESG regeneration area;
- Improve east-west access between the A465 and A49(T) north of Hereford city centre;
- Improve access to, and interchange infrastructure at, Hereford railway station; and
- Help address the decline in Hereford's traditional role as a regional economic hub, and meet the national agenda for economic growth.

The delivery of the ESG regeneration area is currently significantly constrained, due to access issues, with parts of the regeneration area landlocked and inaccessible. The HCCTP will enable the full development of this brownfield site, thereby realising the achievement of the regeneration potential of the ESG area and delivering significant social benefit and increased amenity value of a currently underutilised area close to the city centre.

The HCCTP has a strong policy basis, having been developed in conjunction with key stakeholders over a number of years and has been incorporated into a range of key policy and strategy documents. The delivery of the HCCTP and the regeneration of the ESG area is a policy priority for Herefordshire Council and the Marches Local Enterprise Partnership.

The HCCTP will also contribute toward the achievement of a range of wider strategically important policy objectives, including: enabling economic growth and facilitating the Herefordshire Local Plan Core Strategy, reducing carbon emissions through behaviour change, providing better facilities for sustainable transport and making journeys healthier and easier for people.

A wide range of key stakeholders, including statutory consultees, have been consulted and engaged with during the development of the HCCTP and there is strong support for the proposals, thereby emphasising the deliverability of the package. The public and key stakeholder groups will be kept informed and engaged as appropriate through to scheme implementation.

The scope of modelling and economic appraisal of the HCCTP scheme was agreed with the Independent Technical Evaluator (ITE) at the outset of the appraisal process. The assessment of transport user benefits for the HCCTP used the existing validated Hereford SATURN model to provide traffic flow, travel time and distance matrices for the opening year (2017) and design year (2032). The user benefits for the scheme and value for money have been assessed using TUBA and COBA (safety benefits) software.

The scheme cost estimate has been compiled using scheme drawings with rates drawn primarily from Spon's Civil Engineering and Highway Works Price Book 2015. The estimate is based upon 4th Quarter of 2014.

The scheme costs (out-turn costs) are estimated at £40.9m, including preparation, supervision, construction, land acquisition and allowance for risk. A funding contribution of £16.0m is requested from the Marches Local Transport Body (LTB). The remaining funding will be provided by Herefordshire Council (£24.9m).

Herefordshire Council's Section 151 officer sign-off has confirmed the Council's commitment to delivery of the HCCTP package.

In summary the transport economic case for the HCCTP is:

- Present value of benefits: £63.2m ;
- Present value of costs (whole Life Cost): £41.8m;
- Net present value: £21.4m; and
- BCR (excluding regeneration): 1.51.

The majority of the scheme benefits are forecast to be delivered through improved journey times on the city centre road network when compared to the no scheme scenario. Other impacts which have contributed to the BCR include benefits to safety, noise, air quality, greenhouse gas emissions and non-motorised user benefits. In addition to the BCR of 1.51 there are significant regeneration benefits of the scheme.

The net present value of benefits arising from the regeneration enabled by the HCCTP (resulting from an uplift to land values and the availability of more public space, better amenity and improved urban realm associated with the change in land use), have been estimated at £147.4m compared with transport-related external costs of £60.7m, providing a net regeneration benefit of £86.6m.

It is therefore concluded that considering both transport and regeneration benefits, the HCCTP scheme will deliver significant benefits and represents good value for money.

The HCCTP is planned to be delivered in a phased basis with the CLR constructed first, followed by the phased delivery of the public realm and Transport Hub elements of the package. The project plan has been developed to allow for the appropriate time scale for detailed design, consultation and approvals both internally within Herefordshire Council and externally from Marches LTB.

The procurement strategy reflects this approach, with the CLR enabling works being awarded via Herefordshire Council's Public Realm Framework Contract, and the main CLR work via a separate OJEU process. The public realm works, including the Transport Hub, will be delivered in packages and is also currently proposed to be procured through the standard OJEU process, although this will be subject to review and Herefordshire Council will engage with the Marches LTB as appropriate if the procurement route needs to be amended and agree any significant changes to the approach.

The delivery of the scheme is based on a strong 'process led' governance methodology. The scheme is overseen by the Herefordshire Council Major Infrastructure Delivery Board (MIDB) led by the HCCTP's Senior Responsible Owner (Richard Ball, Assistant Director Place Based Commissioning, Herefordshire Council) and to whom the Project Manager (Mairead Lane, Construction Manager, Herefordshire Council) reports on a monthly basis. The MIDB is responsible for the development and delivery of major schemes across Herefordshire (including the HCCTP).

The scheme risks are actively being managed, with a project Risk Register in place and maintained as a live document. The Risk Register will continue to be reviewed at monthly progress meetings and will also be subject to scrutiny by the Herefordshire MIDB.

The advance works (demolition and culvert works) for CLR started in March 2015 and are progressing to programme. Procurement activities are currently underway with Prior Information Notice already published and Invitation to Tender scheduled for late November 2015. The construction of the main CLR works is programmed to begin in Spring 2016 and be completed by August 2017. The public realm and transport hub elements will be delivered in phases with completion programmed for October 2019.

In summary, the robust HCCTP business case clearly demonstrates how essential infrastructure improvements will deliver a positive return for the citizens of Herefordshire. The Hereford city centre regeneration will generate jobs, enable the development of an urban village and redistribute traffic around the city centre. The link road scheme will commence this year and will support a major mixed-use development, maximising the potential of a significant area of under-utilised land in a highly sustainable location for both Hereford and the county. It will improve links between the railway station and city centre, and is thoroughly integrated with both the historic fabric of Hereford and our Local Sustainable Transport Fund behavioural change project.

1 INTRODUCTION

1.1 Background

1.1.1 In 2013, Central Government announced that it was to devolve funding for major transport schemes to “Local Transport Bodies” (LTBs), via Local Enterprise Partnerships (LEPs), from April 2015 onwards. Additional transport schemes would be delivered through the competitive element of the Local Growth Fund (LGF), as set out in the Strategic Economic Plan (SEP) programme which runs to March 2021.

1.1.2 Subsequently, on July 7th 2014, the Government announced 39 Growth Deals across England which provided funds to LEPs. As part of the first wave of Growth Deals, the Marches LEP secured £75.3m from the Government’s Local Growth Fund to support economic growth in the area. As a part of the Marches Growth Deal (2014), Hereford City Centre Transport Package (HCCTP) was one of the transport schemes identified as having priority for delivery in 2015/16, subject to submission of a successful business case.

1.1.3 Like all Growth Deal schemes, HCCTP has received Stage 1 Outline Approval, based on submission in 2013 of a Strategic Outline Business Case (SOBC). The Business Case for the HCCTP has now been developed further in terms of detail and in line with the Marches LTB’s Assurance Framework, and is being submitted for further consideration and approval.

1.1.4 This Business Case builds upon the SOBC and has been developed based on Herefordshire Council’s understanding of the:

- Guidance on Major Scheme Business Cases – Version 1-July 2014, developed by Independent Technical Evaluator (ITE) for Marches MLTB;
- The Marches LTB Assurance Framework; and
- More detailed guidance from the Department for Transport’s (DfT) Transport Analysis Guidance (WebTAG) including, but not limited to, the Transport Business Case, and Value for Money Assessment: Advice Note for Local Transport Decision Makers.

1.2 Document Structure

1.2.1 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; and
- Chapter 8: Next Steps.

2 SCHEME HISTORY AND SCHEME DESCRIPTION

2.1 Scheme Overview and Scope

2.1.1 The HCCTP is an integrated package of schemes for Hereford as illustrated in Figure 2.1. The package consists of the following key elements:

- A new link road between the A465 and A49(T), referred to as the City Link Road (CLR);
- Public transport, pedestrian and cycle infrastructure improvements;
- Public realm improvements; and
- A new multi-modal Transport Hub at Hereford railway station.

2.1.2 The objectives of the HCCTP are to:

- Support the delivery of the Edgar Street Grid (ESG) regeneration area, a major mixed-use development, maximising the potential of a significant area of under-utilised land in a highly sustainable location for both Hereford and the county;
- Support delivery of housing, particularly affordable housing within the city;
- Improve the public realm and the walk and cycle links between the historic city centre and the ESG area, helping to better integrate new development with the retail and other services/facilities located in the historic city core;
- Improve walk, cycle and public transport links between the railway station, the city centre, and the ESG area, consistent with improving health outcomes by encouraging and enabling physical activity;
- Improve east-west access between the A465 and A49(T) to the north of the city centre;
- Improve access to, and interchange infrastructure at, Hereford railway station; and
- Help address the decline in Hereford's traditional role as a regional economic hub, and meet the national agenda for economic growth.

2.1.3 It is Herefordshire Council's intention to implement all elements of the HCCTP package in support of the achievement of these objectives.

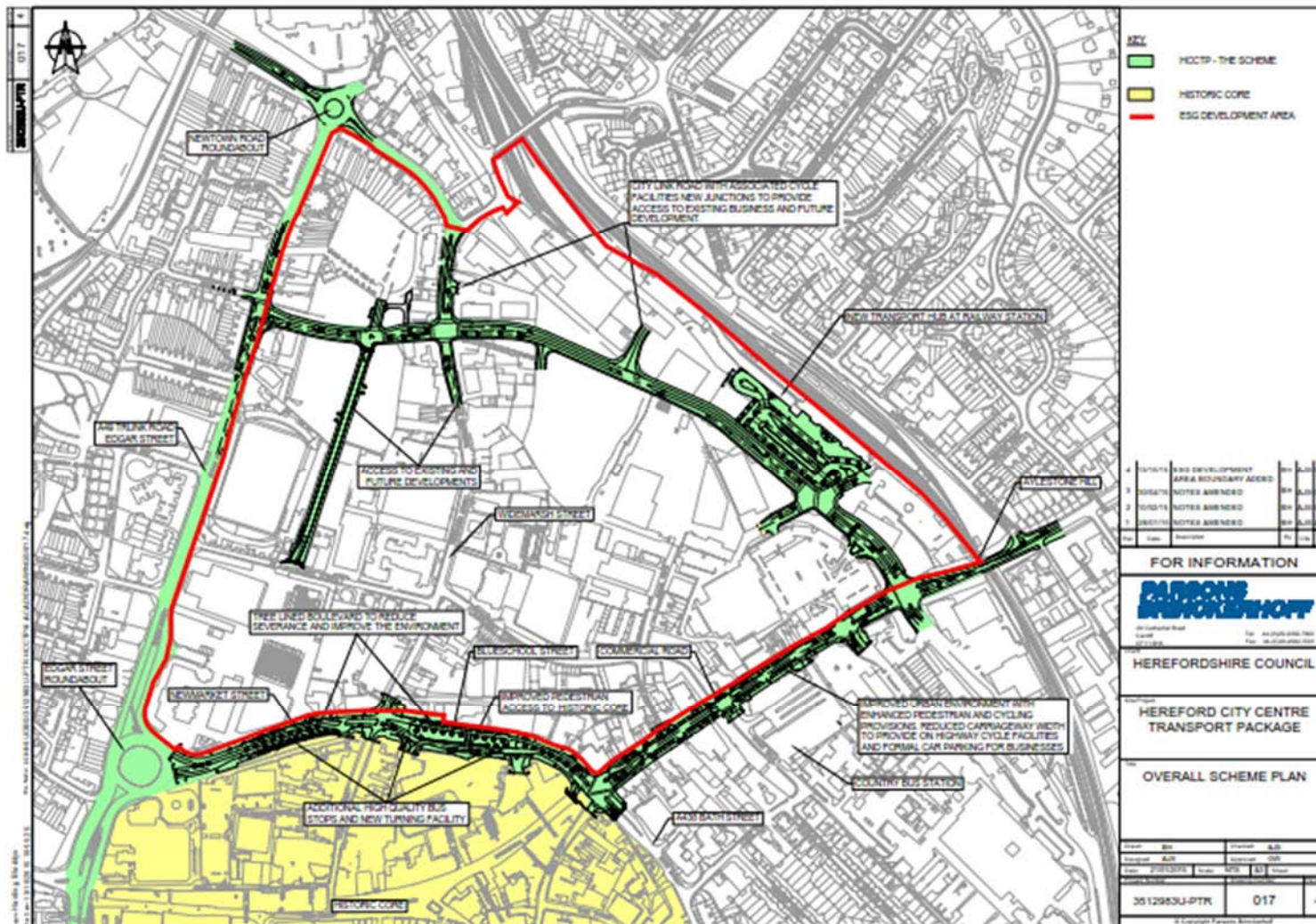


Figure 2-1 – Hereford City Centre Transport Package (HCCTP) Overview

3 THE STRATEGIC CASE

3.1 Introduction

3.1.1 The scope of the HCCTP scheme has not changed since the SOBC submission made by Herefordshire Council in 2013. The current Business Case therefore summarises the Strategic Case as presented in the SOBC, as well as providing additional information in support of the case for HCCTP.

3.2 SC1: Scheme Description and Plan(s)

Key Elements of the Scheme

3.2.2 The HCCTP includes a new link road (CLR) integrated with complementary measures to support the ESG regeneration proposals. It also improves the public realm and the facilities for walking, cycling and public transport modes along Commercial Road, Blueschool Street and Newmarket Street. A new Transport Hub at Hereford railway station will also be provided as part of the HCCTP.

3.2.3 The package consists of the following elements:

- A new (0.8km) single carriageway road from Edgar Street to Commercial Road (the CLR);
- 0.8km of off-road cycle way along the CLR;
- Public transport infrastructure improvements along Newmarket Street and Blueschool Street, including new and upgraded bus stops, enabling enhanced public transport access to the city centre;
- Public transport infrastructure improvements on Commercial Road, including upgraded bus stops;
- Cycle infrastructure improvements along Commercial Road, including new cycle lanes and advanced stop lines at signal junctions;
- Taxi infrastructure improvements along Commercial Road and Blueschool Street, including upgraded taxi ranks;
- Public realm improvements along Commercial Road to include new paving, improved pedestrian crossing facilities and a new city 'gateway' at Commercial Square;
- Public realm improvements on Blueschool Street to include a tree lined boulevard, enhanced pedestrian features and improved pedestrian crossing facilities; and
- New Transport Hub interchange facility at Hereford railway station.

3.2.4 Measures which will improve walk, cycle and public transport infrastructure in the city centre will complement the recent improvements on Newmarket Street and help to encourage greater use of these active travel modes for journeys to/from/within Hereford city centre, including those generated by the Edgar Street Grid (ESG) regeneration area development.

3.2.5 An overarching plan of the proposed HCCTP is provided in Figure 2-1 and further scheme drawings presented in Appendix 1.

3.3 SC2: Problems and Evidence of Scheme Contribution to their Resolution

Constraints on underutilised land with regeneration potential within ESG area

3.3.2 The delivery of the ESG regeneration is currently significantly constrained due to access issues, with parts of the regeneration land currently landlocked and inaccessible. The ESG proposals will regenerate approximately 43 hectares of brownfield land in the centre of Hereford. To enable the full development of this brownfield site, new and improved highway, walk, cycle and public transport infrastructure will be needed. Failure to address these access issues will adversely impact upon the achievement of the regeneration potential of the ESG area.

3.3.3 The regeneration programme comprises of a series of projects, including the Hereford Old Market retail and leisure development and the Urban Village. The ESG regeneration includes 800 new homes (including 35% affordable), 4.7 hectares of commercial, 8.2 hectares of retail and leisure (including 3.7 hectares as part of the recently completed Old Market development), and 0.8 hectares of Public Realm.

3.3.4 By enabling the delivery of the ESG regeneration, the HCCTP will therefore deliver a significant social benefit and increase in amenity value of a currently underutilised area close to the city centre. The redevelopment of this area is a policy priority for Herefordshire Council and the Marches LEP (see Section 3.4).

Car Dominated Environment Limiting Use of Active Travel Modes

3.3.5 The A49 (T), A438 and A465 are the three main strategic routes through Hereford and the main corridors which provide access to the ESG area. The A49 (T) carries an average of 42,470 vehicles per day (2013), the A438 Inner Ring Road (Newmarket Street and Blueschool Street) an average 26,400 vehicles per day (2013), whilst the A465 Aylestone Hill/Commercial Road carries an average of 10,557 vehicles per day (2013). These two way traffic volumes are significant, particularly for a physically constrained historic city with a total population of 55,000. The traffic flow profiles for the A49 (T) and A465 are illustrated in Figure 3-1 and Figure 3-2.

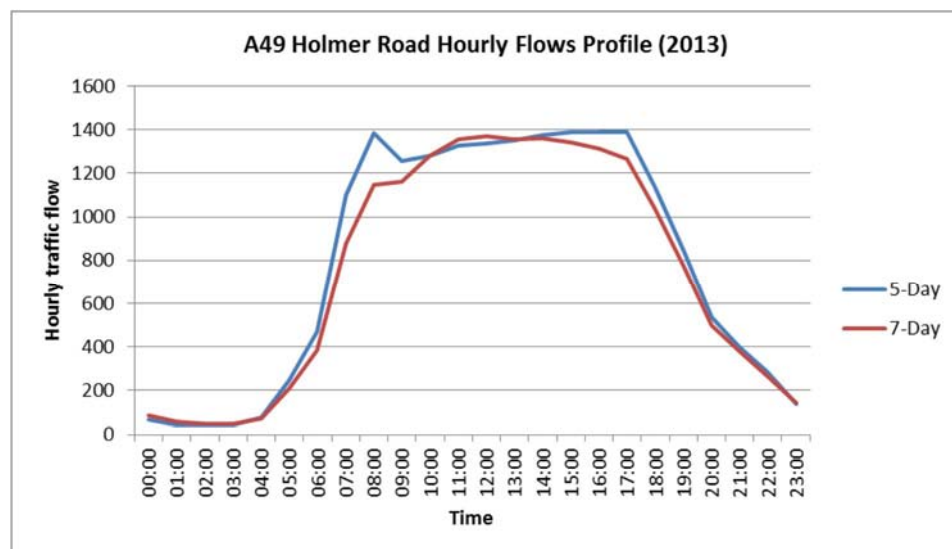


Figure 3-1 – A49 (T) Two-Way Traffic Flow Profile

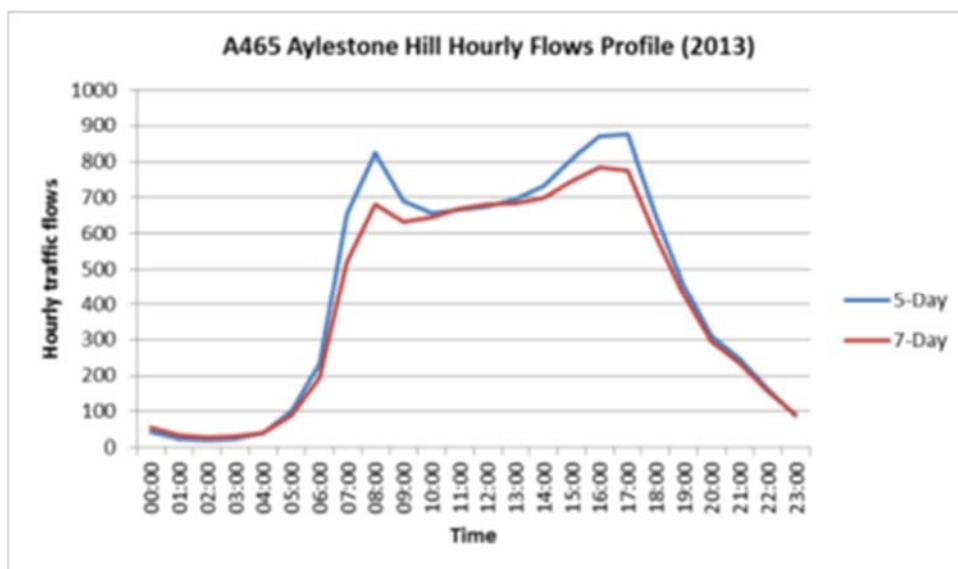


Figure 3-2 – A465 Aylestone Hill Two-Way Traffic Flow Profile

3.3.6 The dominance of vehicular traffic in parts of Hereford city centre (such as Blueschool Street, Newmarket Street and Commercial Road) and the associated traffic congestion problems are exacerbated by the fact that 67% of people who live in Hereford travel less than 10km to work by car (2011 Census) rather than use alternative modes such as walk, cycle or public transport (Figure 3-3).

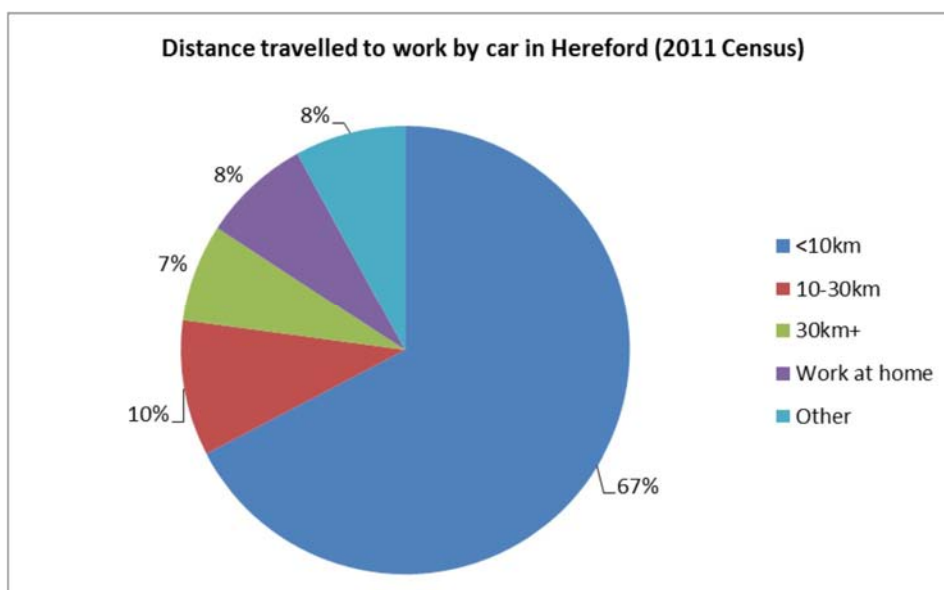


Figure 3-3 – Travel To Work Distance by Car in Hereford (2011 Census)

3.3.7 The scale of car use in conjunction with significant traffic flows, constrained highway infrastructure and limited opportunities to encourage use of alternative modes such as walk, cycle and public transport modes, have led to a series of problems, which undermine policy goals such as the regeneration of the ESG area, including:

- Traffic congestion, leading to extended travel times, increased transport costs and deteriorating operating conditions and costs for local public transport users and operators;
- Deteriorating accessibility to/from/within the city, particularly for walk, cycle and public transport modes;
- Deteriorating air quality; and
- Safety issues.

Severance

3.3.8 The volume of traffic along Newmarket Street, Blueschool Street and Commercial Road causes severance between the city centre and the ESG regeneration area, the railway station, the Country Bus Station and surrounding areas. The severance effect is worsened by narrow, poor quality pavements along sections of these roads and a lack of cycling infrastructure. This has led to a failure to provide a welcoming environment for pedestrians, other vulnerable road users wishing to access the city centre and businesses wishing to invest in the Hereford economy.

3.3.9 These problems are inconsistent with the policy aims of encouraging and integrating planned new development with the existing city core and encouraging use of active travel modes.

Deteriorating Public Transport Performance

3.3.10 Traffic conditions also adversely impact the performance of local bus services, leading to poor punctuality, increased costs and problems for users. The percentage of city bus services running on time in Hereford has shown a slight decline from 88% in 2012 to 84% in 2014 (Table 3-1). Whilst the levels of punctuality of bus services in Herefordshire and Hereford are comparable with and, in some cases, better than some other parts of the West Midlands, there is a need to ensure that there is not a decline to the poor levels of performance of the period prior to 2009/10, which saw less than 70% of bus services running on time.

Table 3-1 - Percentage of bus services running on time in Herefordshire

Performance Measure	2012	2013	2014
% of city bus services running on time	88%	91%	84%
% of bus services in Herefordshire running on time (including city centre services)	85%	87%	82%

3.3.11 The bus services which operate to/from/within the city provide the primary means of public transport access for the ESG regeneration area. These services are adversely impacted by traffic congestion during peak periods, and during unexpected events such as accidents or emergency utility works, with limited or no alternative routes available due to the restricted nature of the road network in Hereford.

3.3.12 The performance of the highway network adversely impacts bus users in terms of their journey times and the operators in terms of operating costs and demand.

Deteriorating performance can lead to falling patronage and reducing commercial strength of the network reflected in operator revenues.

Poor Public Transport Accessibility

- 3.3.13 Traffic conditions also adversely impact on public transport access to the city centre and the ESG area. Peak period traffic conditions make it difficult for public transport vehicles to manoeuvre without delay into/out of the main Country and City Bus Stations which are accessed from Commercial Road and the Edgar Street / Newmarket Street roundabout, respectively.
- 3.3.14 Traffic conditions also make it difficult for buses to access the kerb line at on-street bus stops. This adversely impacts on accessibility, especially for mobility impaired passengers.
- 3.3.15 In combination, these issues lead to extended bus journey times, impact accessibility for users and impose increased operating costs on service providers.

Poor Cycle Accessibility

- 3.3.16 Cycle access to and within the city is poor. This is a particular problem for journeys between the city centre and the railway station along Commercial Road.
- 3.3.17 There are no designated cycle provisions and cyclists currently have to negotiate their way through two and three lanes of traffic along Commercial Road, Blueschool Street and Newmarket Street.

Poor Pedestrian Accessibility

- 3.3.18 Pedestrian access is poor between the railway station and the city centre and ESG regeneration area due to a combination of poor quality pavements, staggered crossing facilities and a significant volume of traffic along Commercial Road. The volume of traffic results in reduced opportunities and/or extended time needed to cross Commercial Road, leading to reduced accessibility and an unfavourable environment for pedestrians.
- 3.3.19 Pedestrian access across Blueschool Street between the city centre and the ESG area is also restricted with limited opportunity or facilities for pedestrians to cross the road safely. There is also a significant flow of traffic along Blueschool Street, with an Annual Average Daily Traffic (AADT) of 26,400 (2013). The current small central refuge is often used by pedestrians as a means to stagger their crossing of this busy road despite its primary function being to segregate traffic along this dual carriageway section of Newmarket Street and Blueschool Street.

Safety

- 3.3.20 The accident history in the city centre area is of concern. The A49 Edgar Street, A438 Newmarket Street and A465 Commercial Road / Square have each recorded over 25 accidents over the five year period between 2009 and 2013 a number of which were serious or fatal (see Table 3.2, below). Note that accidents on Commercial Road/Square include those which occurred on Commercial Road from the Station Approach junction to, and including, the Commercial Square junction.

Table 3-2 - Accidents in the HCCTP area by severity (2009-2013)

Link Location	No. Slight Accidents	No. Serious Accidents	No. Fatal Accidents	Total No. Accidents
A49 Victoria Street	13	2	0	15
Barrs Court Road	5	1	0	6
Commercial Road/Square	25	5	0	30
Edgar Street	24	5	1	30
Eign Street	8	0	1	9
Newmarket Street/Blueschool Street/Bath St	23	2	0	25
Newtown Road	4	1	0	5
Widemarsh Street	9	1	0	10
Totals	111	17	2	130

3.3.21 A465 Commercial Road/Square is classified as an accident cluster site with more than 6 personal injuries recorded in a 25m radius of this location over the past 5 years. During the period, six cyclists and nine pedestrians were involved in collisions with vehicles at this location.

3.3.22 With Commercial Road being the main walk and cycle access route to the city centre from the railway station, hospital and the Country Bus Station, this safety issue is of particular concern.

Sub-optimal Interchange Provisions (with Rail)

3.3.23 The quality and physical integration of the multi-modal infrastructure at Hereford railway station is sub-optimal and inconsistent with the aim of encouraging use of active travel to/from the city and associated development areas. The interchange environment is vehicle dominated resulting in conflict with pedestrians, including those accessing the station by bus, coach and taxi.

3.3.24 Car access to the station from the north and west is currently constrained by the need to route via the congested sections of the city's highway network, in particular Newmarket Street, Blueschool Street and Commercial Road.

Impact on Health and Physical Activity

3.3.25 The lack of provision for cyclists in Hereford city centre combined with a poor environment for pedestrians, particularly along on Commercial Road and Blueschool Street, discourages use of active modes and is contributory factor in encouraging use of car for short distance journeys to/from/within Hereford. In turn, this contributes towards Herefordshire having a high percentage of people (60.2%) who currently do not meet their recommended levels of physical activity (as established by UK Chief Medical Officer). In addition, 66.8% of people are classified as overweight or obese, which exceeds that of the national average (63.8%). This imposes an economic, personal and social cost.

Wider Problems

- 3.3.26 The constraints imposed by the existing transport infrastructure will also adversely impact on the ability of Hereford to support the delivery of the wider overall growth set out in the Herefordshire submitted Local Plan Core Strategy (2015-2032). Herefordshire Council submitted the Herefordshire Local Plan Core Strategy to the Secretary of State for Communities and Local Government for consideration on 23rd September 2014. The examination hearings were held in February 2015 and the Planning Inspectorate's report on the plan is scheduled to be received in Summer 2015, with the intention to adopt the plan in 2015.
- 3.3.27 If planned development proceeds without the implementation of the HCCTP, the transport network will suffer increased congestion/costs, adverse environmental impacts and declining accessibility, which will ultimately discourage the achievement of the full quantum of planned development, inhibit economic performance and lead to deteriorating health outcomes.
- 3.3.28 An Air Quality Management Area (AQMA) was declared in Hereford in 2006. This covers the majority of the A49 through Hereford, and the A438 inner ring road. Levels of particulate matter have increased annually over the past 3 years reaching 49.2ug/m³ in 2013, exceeding the recommended threshold of 40ug/m³. Measures which encourage use of active modes for journeys to / from / within Hereford will help to manage transport related emissions.

3.4 **SC2: Wider Policy Context and Drivers**

- 3.4.1 The HCCTP and its individual scheme elements have been developed over a number of years and incorporated into a wide range of key strategy documents at the strategic and local level. Since SOBC submission, the strategic case for the HCCTP scheme has been further emphasised by a number of key regional strategies and local plans, which are summarised in the following sections.

Marches Local Enterprise Partnership (LEP) Strategic Economic Plan (SEP)

- 3.4.2 The Marches SEP provides evidence of the strengths, challenges, and opportunities for the Marches LEP and describes how investment will start some major development sites in the LEP region. It also sets out the guiding principles for the new Investment Fund. The vision of the SEP is '*to create 70,000 new homes and almost 40,000 new jobs over the next 20 years accelerating growth and providing opportunities for all who live and work here*'. This includes significant planned growth in Hereford, including that planned for the ESG regeneration area, comprising 800 new homes (including 35% affordable), 4.7 hectares of commercial, 4.5 hectares of retail and leisure and 0.8 hectares of Public Realm.

- 3.4.3 The Marches LEP has secured a total of £75.3m from the Local Growth Fund with new funding confirmed for 2015/16 which includes the HCCTP and the Telford Growth Package, and for 2016-2021 including the Hereford South Wye Transport Package, Telford Eastern Gateway, Shrewsbury Integrated Transport Package, Oxon Link Road, Telford Bus Station and The Marches Skills Capital Programme.

Herefordshire Local Plan Core Strategy (2015-2032)

- 3.4.4 Herefordshire's submitted Local Plan Core Strategy sets out the vision for Hereford and includes policies and plans to improve transport conditions in the city by a number of measures including: upgrades for pedestrians on Newmarket Street,

Blueschool Street and Commercial Road, enabling a range of environmental enhancements, as well as a new Transport Hub that better integrates rail, bus and taxi services. The Local Plan Core Strategy will also be supported by new and improved highway infrastructure, including the CLR, the Hereford Western Relief Road and the associated Southern Link Road (as part of the South Wye Transport Package).

3.4.5 Policy HD1 sets out the growth planned for Hereford, including around 6,500 new homes within the plan period and a minimum of 15 hectares of new employment land. Major residential development will take place in the following locations:

- Around 800 new dwellings in Hereford City Centre (HD2);
- Around 500 dwellings at the Northern Urban Expansion Area (HD4);
- Around 1,000 dwellings at the Western Urban Expansion Area (HD5); and
- Around 1,000 dwellings at the Southern Urban Expansion Area (HD6).

3.4.6 The growth associated with Policy HD2 refers to the ESG regeneration area, the redevelopment of which is currently constrained due to access issues. New and improved highway, walk, cycle and public transport infrastructure will be needed to enable the full development of this brownfield site.

3.4.7 Policy HD2 goes on to state:

“The successful and sustainable future of the city relies upon maximising its current strengths and realising opportunities for the regeneration and redevelopment of the city centre. The role of Hereford as the main business, service and focal point for the county will be maintained and enhanced through the expansion of its retail, commercial, leisure and residential functions.”

and

“In addition to new retail and leisure opportunities, city expansion and regeneration proposals will also provide new homes (including affordable ones) and tackle existing movement and flooding constraints, improving the city for residents and visitors. Maintaining and enhancing the city’s historic heritage and environmental assets will be high priority issues, as will the sustainability of the new development for existing and future generations.”

and

“The Core Strategy aims to improve Hereford’s status as a sub-regional shopping destination by enhancing and improving existing facilities and integrating new development into the historic centre by enhancing and improving existing facilities and integrating new development into the historic centre. The Eign Gate and Edgar Street regeneration areas are the focus for achieving this aim”.

3.4.8 The Core Strategy has been subject to significant consultation and progressed through its Evidence in Public (EiP) in February 2015. The plan is expected to be adopted in the Summer of 2015.

Local Transport Plan 3

3.4.9 As part of Herefordshire’s LTP3 strategy, building the CLR was identified as a priority, because of its potential to improve access to the railway station, better integrate bus

services and support affordable housing. The LTP3 was subject to full public consultation in 2011/12 before adoption in 2013.

Herefordshire Unitary Development Plan (UDP) (March 2007)

- 3.4.10 The CLR was included as one of a limited number of safeguarded schemes within the adopted UDP. The UDP confirmed the role of the proposal within the overall ESG scheme, enabling the downgrading to traffic of the inner ring road (Newmarket Street and Blueschool Street). The UDP was subject to a number of significant consultations before adoption.

Edgar Street Grid Herefordshire Ltd Master plan (2008)

- 3.4.11 A master plan for the ESG area was developed in 2008 to take forward the vision for the study area. Incorporated in this were proposals to:
- Enhance infrastructure provisions for pedestrians and cyclists along Blueschool Street and Newmarket Street;
 - Create a new link road (CLR) near to the railway line designed to reduce severance from the city centre caused by the inner ring road (Newmarket Street and Blueschool Street);
 - Provide high quality bus stops at the interface between the ESG area and the city centre along Blueschool Street; and
 - Provide bus priority measures along Newmarket Street and reduce delays along Commercial Road.

Herefordshire Streetscape Design Strategy (2009)

- 3.4.12 The analysis of existing streetscapes in Hereford as part of the Streetscape Design Strategy highlighted the challenges of establishing connectivity and permeability of Newmarket Street and Blueschool Street in the ESG area and that redeveloping these areas would require bold interventions over many years.

Summary

In summary, the HCCTP proposals are underpinned by a significant number of policy drivers. These include supporting economic growth and delivering health benefits. The provision of a package of new and enhanced transport infrastructure is viewed as being essential to the delivery of a range of agreed policy objectives.

3.5 SC2: HCCTP Contribution to Resolving Transport Problems

- 3.5.1 The HCCTP package will contribute to the resolution of the transport related problems set out previously, as well as supporting the successful delivery of the local and regional plans and policies discussed above. Table 3-3, summarises how the HCCTP will contribute toward the resolution of these problems.

Table 3-3 - Summary of Transport Problems Resolution

Problem	HCCTP contribution to resolution
<p>Car Dominated Environment Limiting Use of Active travel Modes</p>	<p>The HCCTP will contribute toward better management of traffic flows and encourage reduced dependence on the car for journeys to/from/within the city centre.</p> <p>The CLR will provide an alternative route for traffic travelling east-west across the north side of the city centre, with consequent re-assignment of a proportion of journeys to this new road from Newmarket Street, Blueschool Street and Commercial Road.</p> <p>The package of measures along Commercial Road, Blueschool Street and Newmarket Street will encourage greater use of non-car modes for journeys to/from/within the city centre, thereby contributing toward a reduction in dependency on the car.</p>
<p>Severance</p>	<p>The HCCTP will provide improved infrastructure and facilities for pedestrians seeking to access the city centre, particularly across Blueschool Street and Newmarket Street and along Commercial Road.</p> <p>The package will increase pedestrian connectivity and permeability to/from/within the city centre through a new signalised crossing across Blueschool Street, a more permeable centre reserve which will provide greater opportunities to cross between the signal controlled crossing points, and improved pedestrian walk routes along Commercial Road.</p> <p>The re-routing of through traffic via the CLR in combination with public realm improvements along Newmarket Street, Blueschool Street and Commercial Road will also help to better manage traffic volumes and reduce traffic speeds, thereby reducing severance and creating a safer and more pleasant environment for pedestrians and cyclists.</p> <p>In combination these will reduce transport related severance and improve access to the historic city centre from existing and planned development in the ESG area, along Commercial Road and also the railway station.</p>
<p>Deteriorating Public Transport Performance</p>	<p>The HCCTP will contribute towards improving bus and passenger access to/from bus stops along Commercial Road, Blueschool Street and Newmarket Street. It will also enable buses to better access the city centre and ESG area. In combination, this will support improvements to public transport performance.</p>
<p>Accessibility including Public Transport, Cycling and pedestrians</p>	<p>The HCCTP will improve access by all main modes of transport to the city centre and the ESG area.</p> <p>The CLR will provide access to and across the ESG regeneration area as a whole, opening up land which is currently inaccessible and underutilised. It will also provide improved access to the railway station and associated Transport Hub.</p> <p>The public realm and associated pedestrian, cycle and public transport infrastructure improvements along Newmarket Street, Blueschool Street and Commercial Road will improve access to the city centre by these modes, particularly from the ESG area, the railway station, the Country Bus Station and along Commercial Road.</p> <p>The bus stop infrastructure improvements will improve public transport access to/from the city centre and the ESG area. The measures will also improve access</p>

Problem	HCCTP contribution to resolution
	onto/off buses for the mobility impaired.
Safety	<p>The HCCTP measures will better manage traffic flows and speeds along Commercial Road, Blueschool Street and Newmarket Street.</p> <p>In combination with the public realm improvement measures along Newmarket Street, Blueschool Street and Commercial Road/Square this will contribute toward reduced conflicts with pedestrians and cyclists.</p>
Sub-Optimal Interchange provisions	<p>The HCCTP will provide enhanced quality facilities for interchange, including:</p> <ul style="list-style-type: none"> • Improved pedestrian walk routes; • New, better quality and higher capacity facilities for bus users and operators (enabling additional bus services to operate via the station); and • A re-organised traffic circulatory system as part of the Transport Hub, reducing conflict with pedestrians and cyclists. <p>The CLR will also provide improved vehicular access to the station from the north and the west.</p> <p>In combination these measures will improve access to rail services, particularly by sustainable modes of transport and are integrated with the HCCTP measures to enhance walk and cycle access to/from the city centre.</p>
Impact on Health and Physical Activity	<p>The HCCTP includes a range of improvements to walk and cycle infrastructure. The improvements include: a cycle way along the new CLR, new cycle facilities along Commercial Road, and public realm improvements on Commercial Road, Blueschool Street and Newmarket Street.</p> <p>The new infrastructure and improved environment for pedestrians and cyclists will encourage more active travel, reduce short distance journeys by car, increase physical activity and lead to health benefits.</p>

Contribution Towards Resolving Wider Problems

3.5.2 The HCCTP package has also been developed to help support the delivery of a number of strategic policies and objectives outlined in a range of local and regional (Marches) strategy documents. These documents include:

- Hereford Local Plan Core Strategy (2011 – 2031), adopted in October 2015;
- Herefordshire Local Transport Plan;
- Marches LEP SEP (2014);
- Hereford City Centre Air Quality Management Plan (AQMP); and
- Marches LEP Local Transport Body Initial Major Scheme Priorities and associated Growth Deal, signed between the Marches LEP and central government on 16 January 2015.

3.5.3 The HCCTP forms part of the medium to long term strategy to accommodate the growth planned for Hereford and wider Herefordshire, and also forms a key part of the

infrastructure requirements set out in the Marches LEP Strategic Economic Plan and National Growth Agenda.

- 3.5.4 The HCCTP forms a critical part of the Marches LEP's Strategic Economic Plan (SEP) which has highlighted the scheme as a crucial part of the short term programme of investment in transport infrastructure required to support planned levels of strategic employment and housing development.
- 3.5.5 The delivery of the HCCTP will assist the delivery of economic growth in the city by means of supporting the regeneration of underutilised areas of the city, and the delivery of key housing and retail areas. This will in turn generate new employment opportunities.
- 3.5.6 The delivery of residential development on 10 hectares of land will be dependent on the successful delivery of HCCTP. This will therefore, support the key development proposals submitted within Herefordshire's Core Strategy Local Plan.
- 3.5.7 The HCCTP public realm measures will also help to better integrate the planned new ESG development with the existing city centre, with resultant benefits to the local economy through increased footfall and retail spend. In this way the HCCTP will help to increase the total benefits of the ESG redevelopment.

3.6 SC3: Consequences of Not Implementing the Scheme

- 3.6.1 Without the HCCTP the problems and issues outlined above will continue and, in the longer-term, be exacerbated. In summary, the impact of not implementing the HCCTP would be that:
- It will not be possible to deliver the planned ESG area regeneration. It is estimated that in the absence of improved transport access only 250 of the planned 800 dwellings could be delivered;
 - Traffic conditions will continue to deteriorate, leading to increasing delays, poor accessibility, continued and growing severance and worsening environmental conditions, resulting in growing costs both to individuals and businesses;
 - Deteriorating transport network performance will constrain economic development and may result in new businesses being discouraged from locating in Hereford and the growth of existing businesses being compromised;
 - The public realm and pedestrian facilities will remain in a degraded form, leading to continued severance and poor accessibility. This will discourage use of active travel modes to access the city, with consequent adverse impacts on traffic conditions, the environment, physical activity and health;
 - Planned cycle infrastructure improvements in the city centre will not be delivered resulting in large gaps in the city cycle network thereby discouraging cycling for journeys to/from/within the city centre and imposing adverse impacts in terms of traffic conditions, the environment, physical activity and health;
 - The performance of the public transport network will continue to be adversely impacted upon by worsening traffic conditions and inadequate infrastructure, with consequent adverse impacts on accessibility, journey times, reliability, costs and demand;
 - The degraded public realm along Commercial Road will remain thereby maintaining the poor quality walk and cycle links into the city centre, including from the railway station, with the road continuing as a car dominated route and

causing severance between the hospital / Country Bus Station / railway station and the city centre;

- The quality of interchange facilities at the railway station will remain poor with adverse impacts in terms of integration of transport modes and encouraging sustainable access to/from rail services;
- Existing and planned retail and housing development will continue to be severed from the city centre by the heavily trafficked dual carriageway along Newmarket Street and Blueschool Street, thus failing to build on the recently implemented and successful public realm improvements at the junction between Newmarket Street and Widemarsh Street; and
- The delivery of planned commercial, retail and housing development will be delayed or reduced in scope and scale, thereby undermining the soundness of the Herefordshire Local Plan Core Strategy (2015-2032).

3.7 SC4: Aims and Objectives

Scheme Objectives

3.7.2 The HCCTP local objectives have been developed based on the following:

- Appreciation of current and future issues and problems;
- Understanding of the opportunities and constraints that impact the performance of the transport network;
- Appreciation of the key drivers or the causes of the problem; and
- Appreciation of the wider policy context and the objectives to be delivered at national, regional and the local level (not necessarily in the scheme area).

3.7.3 Objectives have therefore been developed at two levels namely:

- **Level 1 – Strategic Objectives (L1)** – These are defined as objectives which transport contributes to, but not always in a direct manner. It results in outcomes that are reflected over a wider area and/or to non-transport issues; and
- **Level 2 – Scheme Specific Objectives (L2)** – These are defined as the objectives which reflect the direct effects of transport intervention. They also include the desired outputs and outcomes which are directly aspired for in the scheme area.

Level 1- Strategic objectives

- Objective L1-O1 – Enable the regeneration of the ESG area and Hereford city centre to support economic growth;
- Objective L1-O2 – Reduce emissions of carbon dioxide, through behaviour change and providing facilities for active travel including public transport;
- Objective L1-O3 – Improve health outcomes by encouraging and enabling physical activity; and
- Objective L1-O4 – Support delivery of housing, particularly affordable housing within the city.

3.7.4 These objectives support and are consistent with national, regional and local transport objectives including those within the Marches 'Strategy for Growth 2013-2022',

Herefordshire's recently adopted Local Plan Core Strategy and the Local Transport Plan.

Level 2- Scheme Specific Objectives

3.7.5 The scheme specific objectives for the HCCTP, which are in addition to the strategic objectives, have been divided into the three main scheme elements, namely, the CLR, public realm improvements and the Transport Hub. These objectives are as listed below and will start to realise with the delivery of various scheme elements as per the programme outlined in Chapter 7 and Appendix 16.

CLR specific objectives:

- Objective L2-O1 – Unlock inaccessible and underutilised land for development within the ESG area through provision of:
 - A new (0.8km) single carriageway road (the CLR) from Edgar Street to Commercial Road; and
 - A new 0.8km off-road cycle way along the CLR.
- Objective L2-O2 – Improve multi-modal access to the railway station, including through provision of :
 - A new single carriageway road between Edgar Street (A49) the railway station and the A465; and
 - A new 0.8km off-road cycle way between Edgar Street and the railway station.
- Objective L2-O3 – Provide additional highway capacity on the network to enable delivery of HCCTP improvements to existing city centre transport infrastructure and public realm.

Public realm improvements specific objectives:

- Objective L2-O4 – Reduce severance between the existing city centre and ESG area through provision of public realm improvements on Blueschool Street, including:
 - Enhanced pedestrian features (including footway paving); and
 - A new pedestrian crossing facility linking the ESG with the city centre (via the Maylord Shopping Centre entrance).
- Objective L2-O5 – Improve access to the ESG area, the city core and for west/east 'cross city' journeys for active travel modes (including public transport) through provision of:
 - Cycle infrastructure improvements along Commercial Road, including 0.75km of new on-street cycle lane and advanced stop lines at 4no. signal controlled junctions;
 - Public realm improvements along Commercial Road to include new paving, improved pedestrian crossing facilities at two locations on Commercial Road and at the junction between Commercial Road, Blueschool Street, Bath Street and Union Street; and
 - Public transport infrastructure improvements along Newmarket Street, Blueschool Street and Commercial Road, including new or upgraded bus stops and associated passenger facilities.

- Objective L2-O6 – Enhance road safety by all modes at accident cluster sites within the ESG area through provision of:
 - New or upgraded pedestrian crossing facilities;
 - New facilities for cyclists;
 - New facilities for bus users; and
 - New and formalised facilities for taxi users and operators.
- Objective L2-O7 – Increase footfall in the ESG area and city centre through provision of improved access to these areas by active travel modes.

Transport Hub specific objectives:

- Objective L2-O8 – Provide enhanced interchange facilities for public transport users, through provision of:
 - A new integrated facility for bus and taxi operators and users adjacent to Hereford railway station; and
 - Improved pedestrian walk routes between the railway station and the surrounding road network.
- Objective L2-O9 – Improve access to Hereford railway station for all modes including walking and cycling through delivery of the CLR, public realm and Transport Hub measures outlined above.

Contribution to Wider Objectives

- 3.7.6 The HCCTP package has also been developed to help support the delivery of a number of strategically important policies and objectives outlined in a range of local and regional (Marches) strategy documents. These are summarised below.
- 3.7.7 The Local Transport Plan sets out the overarching objectives against which the Herefordshire Council's transport packages and programmes must be appraised. These are consistent with national transport objectives and the Marches 'Strategy for Growth 2013-2022.
- 3.7.8 The LTP objectives for 2013-2016 focus on a suite of measures with the aim of:
- Enabling economic growth;
 - Reducing carbon emissions through behaviour change and provide facilities for sustainable transport including public transport;
 - Facilitating the Core Strategy; and
 - Making journeys healthier and easier for people.
- 3.7.9 The vision for Hereford is to create a better environment with fewer cars and improved facilities for cycling, walking and public transport use.

Enabling Economic Growth and Facilitating The Core Strategy

- 3.7.10 The HCCTP will assist the delivery of economic growth in the city by means of supporting the regeneration of underutilised areas of the city, and supporting access to key housing and retail areas. This will in turn generate new employment opportunities. The delivery of the HCCTP measures will provide multi-modal access

to the proposed regeneration sites, supporting the key development proposals in Herefordshire's submitted Local Plan Core Strategy.

- 3.7.11 The HCCTP public realm measures will also help to better integrate the planned new development with the existing city centre, with consequent benefits to the local economy through increased footfall and retail spend. In this way the HCCTP will help to increase the total benefits of the redevelopment.

Reducing Carbon Emissions (through behaviour change and providing facilities for sustainable transport including public transport)

- 3.7.12 The HCCTP will support this objective through the provision of enhanced infrastructure for pedestrians, cyclists and public transport users, delivering a new Transport Hub and improving the public realm. In combination these measures will improve accessibility to the city centre by these more sustainable modes of transport, thereby encouraging their use and reducing car dependency.

Marches Local Enterprise Partnership (LEP) Strategic Economic Plan (SEP)

- 3.7.13 The HCCTP will contribute toward the achievement of the SEP vision set out in Section 3.4.2. In particular, it will support the achievement of the growth through providing access to this regeneration area through a combination of the new CLR and new/improved active mode infrastructure.

Herefordshire Local Plan Core Strategy (2015-2032)

- 3.7.14 The HCCTP will contribute toward the achievement of the recently adopted (October 2015) Herefordshire Local Plan Core Strategy summarised in Section 3.4. In particular it will provide the transport infrastructure required to enable the delivery of some of the planned growth for Hereford set out in Policy HD1 and Policy HD2. Specifically, the HCCTP will support the delivery of the growth planned for the ESG regeneration area.

- 3.7.15 The success of the project will be monitored via a number of performance indicators. These are set out in the HCCTP Monitoring and Evaluation Plan in the Management Case (Chapter 7). The evaluation of outcomes will be published in a 'One Year After' and 'Five Year After' report and submitted to the LTB board and Independent Technical Evaluator.

3.8 SC5: Key Beneficiaries

- 3.8.1 The key beneficiaries of the HCCTP will include:
- Active travel mode users, who will benefit in terms of:
 - Improved access to Hereford city centre and the ESG redevelopment area;
 - Safer conditions for travel in the city centre;
 - Improved waiting and boarding facilities at bus stops; and
 - Improved interchange facilities at Hereford railway station.
 - Local businesses in the city centre, who will benefit in terms of increased footfall arising from:
 - Improved walk, cycle, public transport and car access to their businesses for existing customers; and

- Improved access to their businesses from residents and employees located in the ESG redevelopment area.
- Promoters of the ESG regeneration area, who will benefit from increased development value arising from:
 - Improved access to this area by all modes of transport for new development residents, businesses and employees;
 - Improved access between this area and the city centre; and
 - Improved access between this area and the railway station.
- Local residents, businesses and other users of the Hereford transport network, arising from:
 - Improved management of traffic flows and speeds;
 - Road safety improvements at accident cluster sites such as Commercial Road/Square; and
 - Health benefits associated with increased use of active modes of transport.
- Public transport operators, arising from:
 - Improved vehicular access to/from bus stops;
 - Improved management of traffic flows and speeds; and
 - Better conditions for users which may generate additional demand and revenue.

3.8.2 Details of the HCCTP inputs, outputs, outcomes and impacts are provided in the Management Case (Chapter 7 of this Business Case) and it's supporting appendix, Monitoring and Evaluation Plan (Appendix 18).

3.9 **SC6: Communications, Consultation and Stakeholder Management**

Communications Strategy

3.9.2 A Communication Strategy for the HCCTP has been established and is provided in Appendix 2. It identifies the communication channels that should be utilised to ensure all relevant parties are kept informed as the project develops. Tactical plans are developed within this strategy when necessary for specific projects. Communications have and will be tailored to meet the needs of each stakeholder and will take into consideration the objectives for the scheme.

3.9.3 The Communications Strategy involves:

- Keeping people informed;
- Working with partners; and
- Listening to concerns and issues raised by individuals and organisations and doing what can be done to address these.

3.9.4 The Communication Strategy covers the HCCTP from its development through to its delivery and implementation.

Consultation and Stakeholder Management

3.9.5 A Consultation and Stakeholder Management Strategy for the HCCTP has been established. Significant engagement and consultation has been undertaken on the various elements of the HCCTP over the period since the inception of the project in 2007. This has been undertaken using a variety of methods, including:

- Face-to-face meetings;
- Workshops;
- Public consultation events and materials; and
- Social media (Facebook).

3.9.6 It is recognised that throughout the design, implementation, and monitoring stages of this major transport infrastructure project the engagement of a wide range of stakeholders is key to ensuring successful delivery. The three distinct elements of the HCCTP project (CLR, public realm improvements and Transport Hub) have all had varying levels of consultation and stakeholder engagement during their development and design process.

Key Consultees

3.9.7 A wide range of key stakeholders have been consulted and engaged with during the development of the three elements of HCCTP. Depending on the different stages of scheme design and development, either some, or all, of the following stakeholders have been engaged with as appropriate. These include:

- Statutory consultees, (including: Environment Agency, Natural England and English Heritage);
- Herefordshire Council elected members;
- Member of Parliament for Hereford and South Herefordshire;
- Marches LEP;
- Chamber of Commerce (both Herefordshire and Worcestershire);
- Local businesses;
- Local landowners;
- Local homeowners/residents;
- Emergency services;
- Herefordshire Council employees representing services covering regeneration, transport and planning;
- Public/private partnership representatives;
- Local college and school representatives;
- Public service representatives;
- Transport user groups;
- Transport operators;
- Environmental organisations;
- Local action groups;

- Transport action groups;
- Archaeologists;
- Place of Worship representatives;
- Local leisure facilities representatives; and
- Members of the Public.

Consultation and Stakeholder Management - to date

3.9.8 A summary of the consultation already undertaken for the HCCTP and the key outcomes of the consultation is provided below.

Initial Stakeholder Engagement

3.9.9 Between 24th May 2007 and 6th July 2007 Herefordshire Council held a six week public consultation exercise in relation to its Supplementary Planning Document (SPD) which outlined a design framework to inform future developments in the ESG area. The wide range of stakeholders set out above were involved in a programme of meetings, focus group sessions, and workshops.

3.9.10 The findings of the consultation fed into the master planning work for the ESG and associated highway network, which ultimately informed, influenced and guided the production of the HCCTP. The conclusions of the master planning work were incorporated into the Herefordshire UDP through Policy T10 and formed the basis of the safeguarded CLR alignment between the A49 and A465, which is included within the HCCTP. Further information on options assessment is provided in Section 3.11.

3.9.11 Consultation and stakeholder engagement for individual elements of the HCCTP to date is as below:

City Link Road

3.9.12 There has been a substantial amount of stakeholder consultation regarding the proposed CLR element of the HCCTP. The consultees involved in the design process for the CLR included those set out in Section 3.9.7 in addition to the consultation with Environmental Statutory Consultees. Subsequently there was further engagement with the Environmental Statutory Consultees including:

- English Heritage;
- The Environment Agency; and
- Natural England.

The following sections summarises the consultation and its outcomes.

English Heritage

3.9.13 Consultation with English Heritage was undertaken during Winter 2014/15. In response to the consultation English Heritage recommended undertaking an impact assessment in the form of a desk based analysis to identify the heritage assets affected by the scheme and the significance of those assets. The aim of this assessment was to understand the impact of the works on heritage assets (both direct and indirect and either positive or negative) and to identify appropriate mitigation measures during the implementation of the scheme.

3.9.14 As a result, a desk based assessment of the HCCTP scheme's potential impacts on particular heritage sites has been undertaken with suitable mitigation identified. This is included in this Business Case (see Chapter 4).

The Environment Agency:

3.9.15 The Environment Agency (EA) was initially consulted in a meeting on 30th May 2012 to discuss issues relating to the drainage of the scheme.

3.9.16 With regards to discharge rates, the EA advised that the rate currently provided (and referred to in the Outline Drainage Strategy) is specific to the Widemarsh Brook and has been in place for some time. They did, however, advise that a higher rate could be accepted if it could be proven that the brook currently accepts more than this.

3.9.17 The Initial contact with the EA suggested that, although a restriction has been placed on the discharge rate, their overall requirement is that there is no increase in flood risk as a result of the development.

3.9.18 Since the EA consultation in 2012, a drainage strategy for the ESG Development has been prepared, which:

- Incorporates the outcome of the results of flood modelling carried out previously for the Yazor Brook Flood Alleviation Scheme and identifies the residual flood risk across the CLR and ESG development site;
- Proposes the methods for mitigating against the impact of the residual flood risk;
- Identifies the existing drainage arrangements within the ESG regeneration area to establish a baseline which any drainage impact of the CLR proposals could be compared against; and
- Proposes how the drainage arrangements for the CLR and future development proposals should be implemented to ensure that that there is no additional flood risk created.

3.9.19 The design of the CLR follows the drainage strategy. It includes attenuation storage in the form of an open, landscaped, dry basin in the Police training ground site with the majority of attenuation storage required under the Station Approach section of the CLR in the form of large box culverts.

Natural England

3.9.20 Consultation with Natural England was undertaken during Winter 2014/15. In regards to the CLR, Natural England commented that it was not apparent from the plans provided to them if sustainable urban drainage is being included within the proposals. They highlighted in particular that the River Wye Special Area of Conservation (SAC), River Wye Site of Special Scientific Interest (SSSI) and River Lugg SSSI could be impacted by the CLR.

3.9.21 These comments have been taken account of as part of the development of the drainage strategy, where a sustainable drainage approach has been adopted. The CLR and development drainage is partly being discharged into the Widemarsh Brook via attenuated storage which forms part of the sustainable urban drainage approach. Constraints, such as the land availability, unsuitable topography and ground conditions and the site's end use as a completely urban setting do not lend themselves to the use of other types of sustainable drainage.

3.9.22 In addition to the environmental statutory consultees, **Highways England** (previously **Highways Agency**) was involved in design review consultations during the course of the project development, including design workshops in 2009. **Welsh Water** was also consulted in meeting on 25th May 2012 to clarify their objection to the drainage aspect of scheme. The statutory consultees were also consulted as part of the planning process during 2010. The key points from this consultation are as summarised below:

Highways England (Highways Agency until April 2015)

3.9.23 After reviewing the initial CLR scheme drawings in 2012, Highways England (then Highways Agency) suggested that departures from standard may be necessary at the Link Road junction with the A49 for reduced visibility to the right of the junction and substandard footpath widths. However, following this and further review of the design minor amendments were made to the design of road markings to avoid the need for a departure for visibility. Similarly the final detailed designs provide for sufficient footway widths, therefore not requiring departure from standard. An area to the front of the carpet warehouse was purchased (as part of the CPO) to allow for this.

3.9.24 Highways England also stressed the need for traffic management to be considered as part of the detailed design of the CLR. This has been taken into account by the design team when compiling the detailed designs of the CLR. A traffic management plan will be issued with the construction contract data and further developed in the lead up to award. It will be refined and more detail added when the contractor is appointed.

Welsh Water

3.9.25 Welsh Water initially lodged an objection to the planning application for the CLR because they considered development in the ESG regeneration area, including the CLR, to be premature without a detailed drainage strategy. They were also clear in their desire to not receive any surface water from the ESG regeneration area (including the CLR).

3.9.26 These comments have been taken account of as part of the development of the drainage strategy as set out above.

3.9.27 As part of the funding application to the DfT, formal support for the scheme was provided by key stakeholders, including:

- Jesse Norman (the Member of Parliament for Hereford and South Herefordshire);
- Marches LEP;
- Chamber of Commerce (both Herefordshire and Worcestershire); and

3.9.28 During Spring 2014 a Public Inquiry was held to consider the Compulsory Purchase Order (CPO) and Side Roads Order for the CLR. Landowners and other stakeholders attended, and following the Public Inquiry process the CPO and associated Side Roads Order for the CLR scheme were confirmed by the Secretary of State for Communities and Local Government and the Secretary of State for Transport.

Public Realm Improvements and Transport Hub

3.9.29 Stakeholder consultation has been undertaken in respect of the proposed public realm improvements on Commercial Street, Blueschool Street, and Newmarket Street

and Transport Hub elements of the HCCTP. This consultation is on-going and has included consultation with Environmental Statutory Consultees as follows:

- English Heritage;
- The Environment Agency; and
- Natural England.

English Heritage

3.9.30 Consultation with English Heritage was undertaken during Winter 2014/15. The response to the consultation was the same as that for the CLR. This has been discussed in Sections 3.9.13 – 3.9.14 .

The Environment Agency

3.9.31 In addition to the consultation on the CLR set out above, the Environment Agency were invited to respond to the Public Realm and Transport Hub elements of the HCCTP during Winter 2014/15. A consultation letter was sent to the EA outlining progress with the scheme and inviting further comments. Whilst further comments were not received prior to the submission of the business case there will be continued engagement with the EA as part of the preparation of and consultation on the detailed designs for the public realm and Transport Hub elements of the HCCTP. This is allowed for within the programme.

Natural England

3.9.32 Consultation with Natural England was undertaken during Winter 2014/15. Natural England was complementary on the inclusion of sustainable transport measures within the Public Realm and Transport Hub designs noting that it broadly reflected the Local Transport Plan 2013 –2015.

3.9.33 They suggested that the cycling measures (e.g. lanes, bicycle parking spaces) were developed in further detail on the scheme drawings. This comment was duly noted and the will be incorporated in the subsequent stages of scheme design.

3.9.34 Overall, Natural England and English Heritage were generally in support of the Public Realm and Transport Hub proposals and no specific issues have been fed back by the Environment Agency.

3.9.35 In addition to the above, representatives from **Highways England** (previously the **Highways Agency**) (along with a number of experts and key stakeholders) attended two 2-day design workshops each on 15th/16th Oct 2009 and 8th/9th Dec 2009 held to collectively develop public realm improvement design options for Commercial Street, Blueschool Street, and Newmarket Street. Conceptual upgrade designs for Newmarket Street and Blueschool Street, which later extended to include Commercial Square and Commercial Road amongst other outcomes, were produced at the meetings.

3.9.36 Other stakeholders that attended the design workshops on 15th/16th Oct 2009 and 8th/9th Dec 2009 included:

- **Herefordshire Council;**

- **Board members of the ESG redevelopment company** (later known as Hereford Futures);
- **Local businesses** - Colomon Properties Ltd; C/O Kwik Fit; The Old Market Inn; Maylord Shopping Centre; and Stanhope PLC;
- **Public Transport operators** including First Bus;
- **Other transport operators, organisations and user groups** - Confederation of Passenger Transport; Hereford Access for All; Hereford Pedicabs and Cargo; Herefordshire Hackney Carriage and Private Hire Association; Living Streets Pedestrian Association; Hereford Cycle Users' Group; Hereford & District Wheelers Cycling Club; and S.M.A.R.T. @Rotherwas;
- **Public Services** - Emergency Services (Police, Ambulance, Fire); and West Mercia Police; and
- **Special User Groups** - Royal National College for the Blind; and Herefordshire Association for the Blind.

3.9.37 As a result of the design workshops, conceptual designs were produced for improvements to Newmarket Street and Blueschool Street, later extended to include Commercial Square and Commercial Road. Elements of the public realm improvements identified by the design workshops have been included in the scheme designs and include:

- Measures to enable traffic turning movements around a new central island on Blueschool Street, thereby reducing needless diversion around the Edgar Street roundabout;
- A new right turn into Widemarsh Street off the westbound carriageway of Blueschool Street to facilitate access into the Garrick multi-storey car park; and
- Enhanced pedestrian priority by providing improved road crossing provision on Newmarket Street, Blueschool Street and Commercial Road.

3.9.38 Following the two design workshops, a number of public consultation events were held at various locations across Herefordshire. Through the use of a bespoke questionnaire, the general public's thoughts and opinions were collated about existing road conditions in the ESG area and the outline public realm improvement proposals produced at the design workshops.

3.9.39 The results of the questionnaire were also used to support the public consultation process that formed part of the CLR planning application process.

3.9.40 Additional consultation with **public transport operators on the public realm (and Transport Hub)** elements of the HCCTP was undertaken during 2014/2015. The proposed public realm elements of the HCCTP will impact on bus operations in a number of ways, including:

- Reducing the traffic using Commercial Road, Blueschool Street and Newmarket Street, with consequent benefit to bus operations in terms of journey times, delays and reliability;
- Improving bus stop and bus stand infrastructure;
- Providing additional on-street bus stops along Blueschool Street and Newmarket Street;

- Consolidating on-street bus stops at three high quality facilities along Commercial Road; and
 - Enabling bus routes to be revised to better access key destinations in the city centre.
- 3.9.41 In view of this, bus operators have a clear and legitimate interest in the HCCTP.
- 3.9.42 The additional consultation took the form of a bespoke HCCTP bus and coach operator half-day workshop held on 14th November 2014. The workshop was attended by the key bus and coach companies, in particular, those operating the higher frequency commercial services in the city and the main inter-urban bus services. The companies which attended the workshop included:
- First Bus;
 - Stagecoach (both West and South Wales subsidiaries);
 - Yeomans Travel;
 - Sergeants Bros Ltd;
 - Lugg Valley Travel;
 - DRM (Bromyard); and
 - National Express.
- 3.9.43 Between them the above companies operate the majority of scheduled bus and coach services to/from/within Hereford.
- 3.9.44 In addition to the operators, the workshop was attended by representatives of bus and rail user groups.
- 3.9.45 At the workshop the operators and bus/rail user representatives' response to the public realm elements of the HCCTP was generally positive, particularly in terms of the proposed improvement to public transport infrastructure.
- 3.9.46 A number of specific issues and questions were raised which were taken into account and influenced the next iteration of the public realm outline designs. Table 3.4 below details the issues raised in the workshop and the response of Herefordshire Council and the design team:

Table 3-4 – Public Realm - Summary of Issues and Design Responses

Issue Raised:	Response:
<ul style="list-style-type: none"> • If the Country Bus Station were closed, there is likely to be a need for additional on-street bus stands on Commercial Road 	<ul style="list-style-type: none"> • The HCCTP scheme does not include proposals to close the Country Bus Station. As such, the HCCTP does not propose to provide additional on-street bus stands along Commercial Road.
<ul style="list-style-type: none"> • The existing (outbound) bus stop (Franklin Barnes) located immediately east of the junction with Blueschool Street and Bath Road should be retained (although some minor relocation would be acceptable) 	<ul style="list-style-type: none"> • It was decided that this bus stop will be retained

<ul style="list-style-type: none"> The walk route between the Hospital and the Commercial Road bus stops need to take account of the needs of the users (including the mobility impaired), particularly in terms of crossing facilities 	<ul style="list-style-type: none"> Widened pavements and pedestrian crossing feature/area have been incorporated into outline designs between Commercial Square and the Hospital.
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

- 3.9.47 In addition, a number of specific issues and questions were raised which will inform the detailed designs. These include:
- The need for effective enforcement of bus stops/bus stop clearways along Commercial Road;
 - The arrangement of bus stands and stops should be such that buses/coaches are not blocking the carriageway; and
 - A preference for linear drive-through bus stands rather than a shallow saw tooth drive-through alternative.
- 3.9.48 Additional consultation with **representatives of taxi operators on the public realm elements** of the HCCTP was undertaken during 2015. The proposed public realm and Transport Hub elements of the HCCTP will impact on taxi operations in a similar way to that for bus operations, in particular in terms of:
- Reducing traffic using Commercial Road, Blueschool Street and Newmarket Street, with consequent benefit to taxi operations;
 - Maintaining and formalising on-road facilities for taxis along Commercial Road;
 - Providing additional late night taxi pick-up facilities along Blueschool Street (utilising bus stop infrastructure) enabling taxis to better serve the city's night time economy; and
 - Maintaining taxi rank capacity at Hereford railway station.
- 3.9.49 The additional consultation took the form of a bespoke HCCTP taxi operator representative meeting held on 29th January 2015. The meeting was attended by the Chairman of Herefordshire Hackney and Private Hire Association and Herefordshire Council Taxi Licencing Officers.
- 3.9.50 At the meeting the taxi operator representatives' and Taxi Licencing Officers' response to the public realm elements of the HCCTP was generally positive, particularly in terms of the proposed maintenance and formalising of evening and late night taxi rank and pick-up facilities along Commercial Road. In conjunction with the provision of a new taxi pick up facility on Blueschool Street the HCCTP was seen to offer the opportunity to address a number of operational and road safety issues associated with night time taxi provision.
- 3.9.51 The potential to apply additional restrictions on vehicular access to Newmarket Street and Blueschool Street at set times of the day was also raised during the taxi operator consultation. Whilst noted, this proposal is not consistent with the results of the ESG master planning and HCCTP development process and will not be included in the submitted scheme.
- Transport Hub*
- 3.9.52 Stakeholder consultation has been undertaken in respect of the proposed new Transport Hub, which would be located adjacent to and accessed from the new CLR.

This consultation is on-going. This has included consultation with statutory consultees.

3.9.53 A major public consultation event was held on 29th January 2009 to engage the relevant stakeholders on the development and designs of the proposed Transport Hub. Stakeholders in attendance included:

- Representatives of Hereford's rail and bus operators;
- Representatives of Hereford's taxi and cycle organisations;
- Representatives from special user groups (including the Royal National College for the Blind); and
- General public.

3.9.54 Following this, the consultee comments were fed into the scheme development process and the outline proposals for the Transport Hub proposals were further developed. Table 3.5 below details some of the comments that were raised in the public consultation event and how these subsequently informed the outline designs of the Transport Hub and scheme development.

Table 3-5 – Transport Hub - Summary of Issues and Design Responses

Comment raised:	How the comments informed the outline designs and scheme development:
<ul style="list-style-type: none"> • Some bus company representatives suggested that the layover area of the Transport Hub was too small. 	<ul style="list-style-type: none"> • The HCCTP scheme does not include proposals to close the Country Bus Station. As such, the HCCTP does not propose additional layover capacity at the Transport Hub to accommodate current Country Bus Station provision.
<ul style="list-style-type: none"> • There were numerous queries regarding the proposed function and operation of the Aylestone Hill & Commercial Road / Station Approach junction to provide adequate access to the proposed new Transport Hub. There were traffic concerns around this area as attendees saw the area as a bottleneck. 	<ul style="list-style-type: none"> • This junction was assessed as part of the future year LinSig junction assessments (see Chapter 4) to confirm its performance post scheme implementation.
<ul style="list-style-type: none"> • Some attendees felt that the Stonebow Road junction (and petrol station lights) with Commercial Road should be addressed within the proposals for the Commercial Road junction. 	<ul style="list-style-type: none"> • This junction was assessed as part of the future year LinSig junction assessments (see Chapter 4) to confirm its performance post scheme implementation.

3.9.55 A “Station Transport Hub Review” meeting was held on 25th October 2010 to review the outline master plan proposal for the development around the railway station, incorporating the Transport Hub and proposing a land swap for parking to enable the retention of the Rockfield retail store in close proximity to its current location. The meeting was attended by representatives from the rail industry, including:

- Network Rail; and

- Arriva Trains Wales.
- 3.9.56 The representatives all expressed support for the outline scheme concept and master plan, agreeing that the approach was sound and that commercial benefit could be realised. It was suggested that the development of the Transport Hub would have to be phased and would be reliant on commercial interest to exploit and invest. Subsequently an outline phasing plan was produced.
- 3.9.57 In addition, Jesse Norman (the Member of Parliament for Hereford and South Herefordshire) has also shown support for the proposed Transport Hub. In particular he has highlighted that a new single hub will give a long overdue boost to local sustainable transport, as well as encouraging visitors to travel sustainably in the county. This support was also set out in his letter to DfT to support the scheme in its application for funding.
- 3.9.58 Additional consultation on the Transport Hub element of the HCCTP with public transport operators was undertaken during Autumn 2014 and January 2015. In terms of bus and coach operators this was included in the half-day workshop held on 14th November 2014.
- 3.9.59 At the workshop the bus and coach operators and user representatives' response to the Transport Hub elements of the HCCTP was generally positive. In particular the provision of a modern and fit-for-purpose interchange was welcomed.
- 3.9.60 There were, however, some specific issues brought up in the workshop which were taken into account and fed into the next iteration of outline designs. Table 3.6 below details these issues and how they informed the outline designs.

Table 3-6 – Transport Hub - Summary of Public Transport Operator Issues and Design Responses

Issue raised:	Response:
<ul style="list-style-type: none"> • If Country Bus Station closed, the Transport Hub will not have sufficient capacity for Wednesday (Market Day) peak demand (particularly in terms of layover and boarding. NOTE: Suggestion made that a part of the Country Bus Station site be retained to accommodate bus/coach layover 	<ul style="list-style-type: none"> • The HCCTP scheme does not involve proposals to close the Country Bus Station. As such, the HCCTP does not propose to provide additional layover capacity at the Transport Hub to accommodate Country Bus Station provision.
<ul style="list-style-type: none"> • If the City Bus Station is withdrawn from use than the bus stop by the old Franklin Barnes building is retained. 	<ul style="list-style-type: none"> • The recommendation was taken into account and, as a result, the bus stop by the old Franklin Barnes building is retained in outline designs.

- 3.9.61 Some specific points were raised in terms of the layout and capacity of the proposed Transport Hub and these will inform the detailed design development process. Examples of these include:
- That passenger facilities should meet current industry quality standards in terms of security, shelter, information, seating and signage;

- That the Transport Hub needs to be designed to accommodate National Express Coaches that have wheelchair lifts, thus requiring additional space;
 - That the design capacity of the Transport Hub takes account of the forecast operational and passenger demand, in particular during the peak periods, including times of peak school and college student demand; and
 - That the layout should minimise conflict between the various types of user (bus/coach/taxis/Kiss&Ride) and segregation between modes be considered;
- 3.9.62 In respect of the capacity and layout of the Transport Hub a capacity review will be undertaken as part of the detailed design process.
- 3.9.63 In terms of the rail industry, bespoke meetings have been held with:
- Arriva Trains Wales (21st November 2014 and 23rd January 2015);
 - London Midland (22nd December 2014); and
 - Network Rail (12th January 2015 and 23rd January 2015)
- 3.9.64 The response of the two train operating companies and Network Rail was positive, highlighting the way in which the Transport Hub will help to better integrate the rail network with Hereford and its hinterland (via interchange). They also highlighted that the scheme will also compliment:
- The current “Access for All” funded improvements at Hereford station;
 - Marches Line re-signalling, which will increase rail-side capacity of the station; and
 - Aspirations to improve the reliability and frequency of Hereford – Worcester (- Birmingham) services
- 3.9.65 Network Rail has provided in principle support for the Transport Hub proposal, subject to design, in particular they have stated that:
- “Network Rail would be happy to work further with Herefordshire Council in developing this concept. At this stage we would seek a design which offered discrete functions between railway- and non-railway land, and facilities available to railway users would need to be retained for regulatory reasons. Nevertheless, this can be accomplished as part of a development which more fully integrates the railway into the built environment of Hereford city.”*
- 3.9.66 Arriva Trains Wales (who are the current station operator) have also, in principle, expressed their support for the Transport Hub proposal and have stated their willingness to work with Herefordshire Council in developing the scheme.
- 3.9.67 Some specific points were raised in terms of the:
- Operational management of the Transport Hub (in particular the bus and coach stands);
 - The provision of adequate access through the Transport Hub for HGV’s and long vehicles to the Network Rail maintenance depot;
 - The maintenance of taxi rank and short stay parking capacity; and
 - The overall capacity of the facility.

3.9.68 These have informed the design process to date and further engagement at detailed design stage will ensure that the key stakeholder concerns are appropriately addressed.

Consultation and Stakeholder Management - Proposed going forward

3.9.69 The key consultation and stakeholder groups will be kept informed and engaged as appropriate prior to the Full Approval stage and through to the Implementation stage. The level of involvement of each of the key consultation groups will vary. It is also expected that any changes to the expected involvement or support of any particular stakeholders will be reviewed continually and updated as appropriate. The proposed stakeholder management strategy for each of the key consultation groups is presented in this section.

Marches LTB

3.9.70 It is proposed to have continued engagement with the Marches LTB and their Independent Technical Evaluators between the formal approval stages. Comments or requests for further information from the Marches LTB will be addressed as appropriate by Herefordshire Council.

Statutory Consultees

3.9.71 Following the engagement with statutory consultees during the winter of 2014/15, there will be further consultation following the submission of the business case and during the detailed design stage.

Key Stakeholders

3.9.72 The key stakeholders will be kept informed about the progress of the scheme through various communication channels including, the Herefordshire Council website supplemented by bespoke emails and post. There will also be on-going engagement with them during the detailed design stage. This will be undertaken by providing stakeholders with revised versions of the scheme plans/details along with a commentary to explain any major changes. It is also proposed that wherever required, and as appropriate, they will be engaged through meetings.

Public Consultation

3.9.73 Herefordshire Council will continue to update its dedicated area of their website providing an overview of the scheme and detail of the works programmed in for the duration of the scheme.

3.9.74 In addition to the dedicated website page Herefordshire Council will:

- Offer email newsletters;
- Use Twitter, Facebook and possibly other social media feeds with dedicated feeds;
- Produce a generic hard copy leaflet to alert people to the online content and to encourage them to visit the website or sign up for email newsletters;
- Provide an alternative information channel for people who cannot access online information; and

- Provide content to staff in the council and individuals to encourage them to distribute general and specific information to existing networks of businesses and other organisations and will provide general and specific content to people writing existing newsletters.

3.10 SC7: Constraints and Interdependencies

- 3.10.1 There are no major constraints affecting the ability of the scheme to solve the problems that it has been developed to address.
- 3.10.2 Planning permission for the CLR scheme was granted in March 2010. Following a Public Inquiry, The County of Herefordshire District Council (Edgar Street Grid and Link Road) CPO 2013 associated with the CLR has been confirmed.
- 3.10.3 Work on the ESG retail expansion started in 2013 with the Old Market Shopping Centre being opened in May 2014. For the ESG site to fulfil its role as an expansion to Hereford city centre and support the delivery of the submitted Herefordshire Local Plan Core Strategy and the Marches LEP's strategy for growth, it must have adequate transport access and good quality links with the existing city centre. If severance between the ESG and the city centre continues this is likely to have an adverse impact on footfall in the historic core of the city with consequent adverse impact on the local economy, health and environment. Without the delivery of the HCCTP, the public realm and other improvements along Commercial Road, Blueschool Street and Newmarket Street will also not be deliverable and the associated benefits not realised.
- 3.10.4 The ESG site is highly sustainable given its central location. If the residential potential of this site is not realised it could result in further 'green field' residential development on the edge of the city. This will result in a loss of environmental amenity and continued reliance on car use placing additional pressure on congested routes including the A49(T).
- 3.10.5 The HCCTP will have a high level of integration with, and will impact upon, other planned infrastructure and the LSTF funded travel awareness and behavioural change campaigns. The HCCTP supports the objectives of the UDP, emerging Local Development Framework Core Strategy, Local Transport Plan and Economic Strategy. The package aims to secure Hereford's long term future as a sustainable and resilient city for both existing and future generations.

3.11 SC8: Option Assessment

- 3.11.1 A range of transport options have been considered as part of the development of the preferred package of schemes. This option development and assessment was undertaken in partnership with Highways England (previously the Highways Agency) and other key stakeholders.

Initial Master planning Work – 2003/04

- 3.11.2 The principle of the need for a link road crossing the northern part of the ESG regeneration area was established through initial master planning work undertaken in 2003/4. The link road was viewed as the best option for providing an alternative to the Inner Ring Road for traffic travelling between the A49 and A465 and also for traffic accessing the ESG itself. The new link road would enable the ESG area to be united with the historic city centre and facilitate pedestrian movement and permeability

between the two. The new link was also seen as providing improved strategic access to Hereford Railway Station.

- 3.11.3 The proposed alignment across the north of the ESG area sought to avoid creating similar severance issues to that posed by the Inner Ring Road (Newmarket Street and Blueschool Street) whilst also enabling delivery of housing and commercial development within an acceptable walking distance of the city centre.
- 3.11.4 Alternative options were considered at the initial master planning stage, namely:
- Placing the Inner Ring Road in an underpass;
 - Constructing a new link road between Widemarsh Street and Commercial Road only, thereby avoiding the need for a new junction with the A49 (Edgar Street);
 - Implementing the new link road, but also restricting the Inner Ring Road to pedestrians, cyclists, public transport and service vehicles;
- 3.11.5 The underpass option was discarded in terms of construction logistics, highway geometry, costs and archaeological impacts.
- 3.11.6 The Widemarsh Street - Commercial Road option was discarded due to the traffic implications for Newtown Road/Burcott Road and the need for the demolition of dwellings along Newtown Road to accommodate the scheme.
- 3.11.7 Restricting access to the Inner Ring Road was rejected due to concerns over the traffic impact at the junction between the new link road and Commercial Road.
- 3.11.8 The conclusions of the initial master planning work were incorporated into the UDP and formed the basis of the safeguarded link road alignment through Policy T10.
- Additional Master planning – 2007/08*
- 3.11.9 During 2007/08 further master planning work considered two additional options, including:
- Northerly alignment of link road along Barrs Court Road; and
 - Southerly alignment of link road along Blackfriars Street/Coningsbury Street.
- 3.11.10 The Barrs Court Road alignment was rejected on basis of cost, adverse impact on residential amenity, loss of dwellings and failure to access parcels of land identified for development within the ESG area.
- 3.11.11 The Blackfriars Street/Coningsbury Street alignment was rejected on basis of its adverse impact on a primary school (traffic impact), repeat of the severance caused by the existing Inner Ring Road adjacent to an area where significant levels of footfall were anticipated to be generated, and failure to access parcels of land identified for development within the ESG area .
- 3.11.12 Further options were subsequently developed and assessed. The options considered were:
- **Option 1-** Make no significant changes to the highway network around the ESG area, with some changes to car parking capacity;

- **Option 2-** Close the existing dual carriageway Inner Ring Road between Edgar Street and Commercial Road and replace with new dual carriageway link road between Edgar Street and Commercial Road some 300m further north, running north of the football ground and Morrison's supermarket;
- **Option 3-** Significantly reduce traffic levels on existing Inner Ring Road, by making it bus and access only westbound and provide a new dual carriageway link road some 300m to the north of the football ground;
- **Option 4-** Significantly reduce traffic levels on the inner ring road by provision of a new single carriageway link road along the line of Blackfriars Street and Conningsby Street some 100m north of existing alignment (south of football ground); and
- **Option 5-** Provide a new single carriageway link road between Edgar Street and Commercial Road, enabling traffic to route between the A465, Aylestone Hill and the A49 via the new link as opposed to via Commercial Road and the Inner Ring Road. In addition, a new north-south service road would be provided connecting directly to the new link road, with revised junction layouts on Newmarket Street and Blue School Street.

3.11.13 When tested, Options 1- 4, inclusive failed to meet the objectives of the HCCTP. The key findings were:

- **Option 1** - Traffic model outputs showed that without a link road, traffic conditions along the inner ring road would significantly worsen and the pedestrian connectivity and safety problems would not be solved;
- **Option 2** – Whilst this option resolved issues of traffic levels on Newmarket Street it caused significant problems elsewhere on the network;
- **Option 3** – This option eased problems along Commercial Road but exacerbated them at the Edgar Street roundabout;
- **Option 4** – This option relieved Newmarket Street of some traffic, however, significant problems remained at Edgar Street roundabout and along Commercial Road; and
- **Option 5** – This performed the best of the five options in terms of meeting agreed objectives. The traffic modelling identified that it would provide greater operational benefits than the other options with no significant impact on Edgar Street roundabout and with improved conditions along Commercial Road and Blue School Street.

3.11.14 As a result of the assessment, Option 5 was identified as the preferred option. This provided the basis of the HCCTP.

4 THE ECONOMIC CASE

4.1 Introduction

4.1.1 The economic case assesses the proposed scheme to identify its economic impacts, and the resulting Value for Money. In line with Marches LTB appraisal requirements, the impacts considered are not limited to those directly impacting on the measured economy or only those which can be monetised. The economic, environmental, social and distributional impacts of a proposal are all examined, using qualitative, quantitative and monetised information as appropriate and proportional to the level of the scheme. In assessing Value for Money, all of these are consolidated to determine the extent to which a proposal's benefits outweigh its costs.

4.1.2 The Value for Money assessment is set out in the following sections.

4.2 EC1: Scope of Modelling and Economic Appraisal

4.2.1 Transport and Operational Junction Modelling Approach

4.2.2 The scope of modelling and economic appraisal of the HCCTP scheme was agreed with the Independent Technical Evaluator (ITE) at the onset of the appraisal process. An initial Appraisal Specification Report (ASR) was submitted to ITE in October 2014. Feedback from ITE resulted in modifications to the proposed approach, which has informed the overall modelling and economic appraisal. It is summarised in the following sections.

Transport Model

4.2.2.1 The assessment of highway user benefits for the HCCTP utilises a cordoned model from the existing Hereford SATURN model to provide traffic flow, travel time and distance matrices for the Opening Year (2017) and the Design Year (2032). The Hereford SATURN model has been based on the Hereford Multi Modal Transport Model (HMMTM). This model was validated to 2012 transport data as presented in the Model Development and Validation Report attached in Appendix 3.

4.2.2.2 Recent traffic count data (2014) was used to ensure that current transport conditions in the area of the package are compatible with those recorded in 2012, the HMMTM model base year. Traffic data for five count sites shown in Figure 4-1 was used to undertake this comparison. These surveys were undertaken for both the morning peak (08:00 – 09:00) and evening peak (17:00 – 18:00PM) periods on the 11th June 2014.

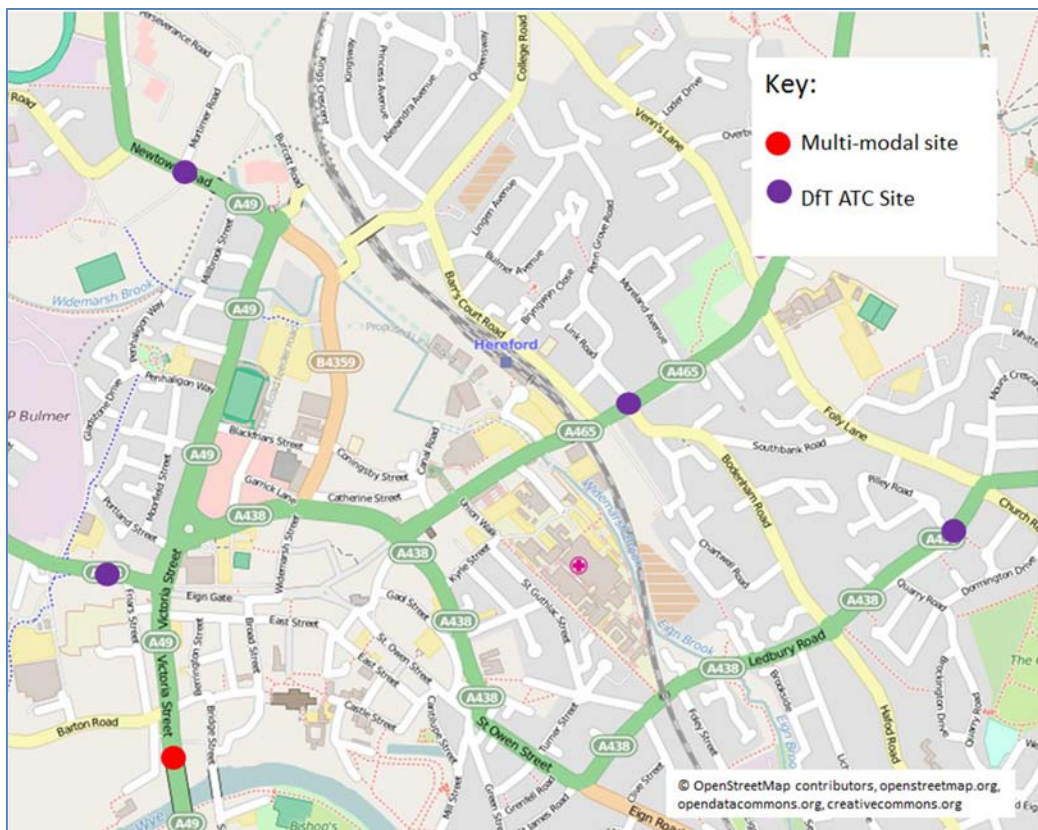


Figure 4-1 – Traffic Count Sites (2014 data)

4.2.2.3 The peak period traffic flows from these traffic counts have been compared to the 2012 modelled traffic flows using the following criteria. This is summarised in Table 4-1: and Table 4-2.

- Individual flows within 100 veh/h for flows <700 veh/h;
- Individual flows within 15% for flows 700 – 2,700 veh/h;
- Individual flows within 400 veh/h for flows >2,700 veh/h;
- GEH statistic less than 5 for all flows; and
- 85% of ALL links to pass Flow and GEH criteria.

4.2.2.4 These results show that the 2012 model is reliable within the city centre. The evening peak model just fails to reach the 85% criteria however the differences within the traffic flows are within that which can be explained by daily variation.

Table 4-1: Comparison of Observed Flows vs. Modelled Flows – AM peak (08:00 – 09:00)

Link	Survey Flow PCU/Hr	Model Flow PCU/Hr	Difference	% diff from survey	Flow Criteria	GEH	
Newtown Road Outbound	756	726	30	4%	Pass	1.1021	
Newtown Road Inbound	988	1134	-146	-15%	Pass	4.4822	
A465 Outbound	484	577	-93	-19%	Pass	4.0378	
A465 Inbound	705	741	-36	-5%	Pass	1.3205	
Ledbury Road Outbound	348	276	73	21%	Pass	4.1061	
Ledbury Road Inbound	575	503	72	13%	Pass	3.1013	
Eign Street Outbound	738	738	0	0%	Pass	0.0000	
Eign Street Inbound	840	810	31	4%	Pass	1.0620	
A49 Outbound	1388	1582	-194	-14%	Pass	5.0343	
A49 Inbound	1821	2117	-296	-16%	Fail	6.6598	
					% Passed	90%	80%

Table 4-2: Comparison of Observed Flows vs. Modelled Flows – PM peak (17:00 – 18:00)

Link	Survey Flow PCU/Hr	Model Flow PCU/Hr	Difference	% diff from survey	Flow Criteria	GEH	
Newtown Road Outbound	850	928	-78	-9%	Pass	2.6160	
Newtown Road Inbound	953	920	33	3%	Pass	1.0784	
A465 Outbound	702	751	-49	-7%	Pass	1.7997	
A465 Inbound	499	518	-19	-4%	Pass	0.8206	
Ledbury Road Outbound	536	399	137	26%	Fail	6.3362	
Ledbury Road Inbound	353	272	81	23%	Pass	4.5821	
Eign Street Outbound	803	765	38	5%	Pass	1.3571	
Eign Street Inbound	800	693	108	13%	Pass	3.9352	
A49 Outbound	1900	2209	-309	-16%	Fail	6.8172	
A49 Inbound	1656	1755	-99	-6%	Pass	2.3972	
					% Passed	80%	80%

4.2.2.5 The analysis showed that the land use changes between 2012 and 2014 in the vicinity of the package have had little impact on transport demand in the morning and evening peak periods. Based on this analysis and in discussion with the ITE it was agreed that a cordon from the Hereford SATURN model is fit for purpose for the assessment of the HCCTP Business Case.

Model Cordoning

4.2.2.6 The primary impact of the HCCTP scheme is local re-routing, with minimal impact on route choice outside of the immediate scheme study area and in the case of the demand model, on mode choice, destination choice and time of day choice. Therefore as suggested by WebTAG Unit M3.1, Section 2.2.12, using a cordon model to assess the HCCTP scheme was considered appropriate. The basis for this is that the HCCTP scheme would have negligible impact outside of local route choice (i.e. no significant demand effects).

4.2.2.7 The model cordon area was determined using flow difference plots by comparing the wider Hereford model network with the existing highway layout (the Do Minimum scenario) to that containing the proposed HCCTP changes (the Do Something scenario) for the AM and PM peaks in the 2017 opening year. The flow difference plots are shown in Figure 4-2 and Figure 4-3.

4.2.2.8 The plots show the change in flow on each link from the Do Minimum (DM) scenario to the Do Something (DS) scenario for the stated time period. The green bars indicate an increase in traffic along the modelled link, with blue bars indicating a decrease. The width of the bars indicates the magnitude of the change, with thicker bars representing a larger flow change.

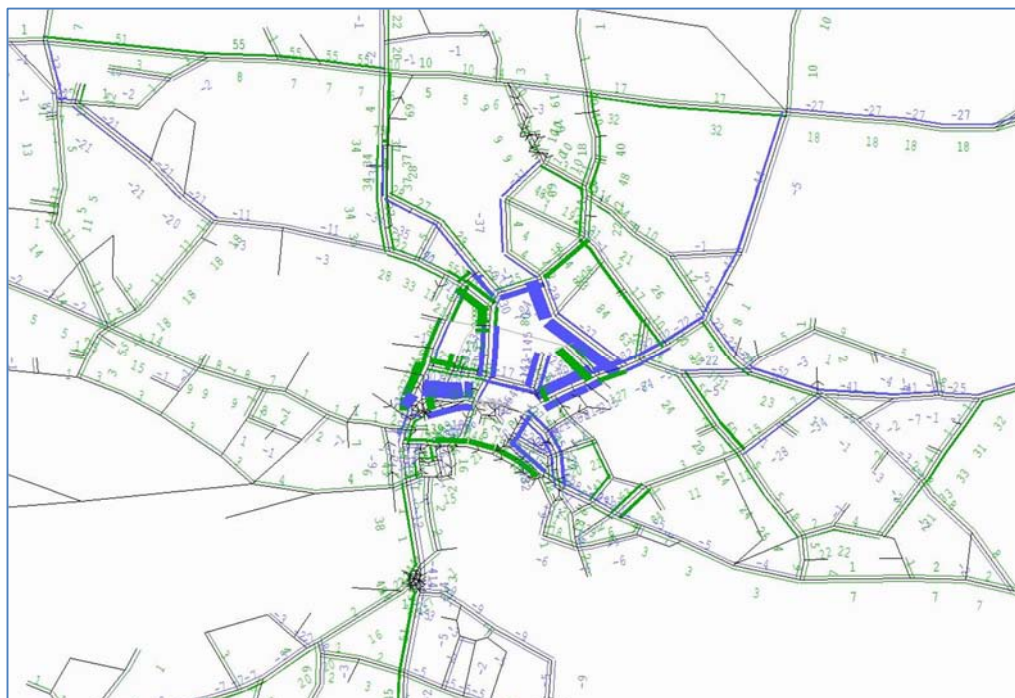


Figure 4-2 – 2017 AM Peak Flow Difference Plot

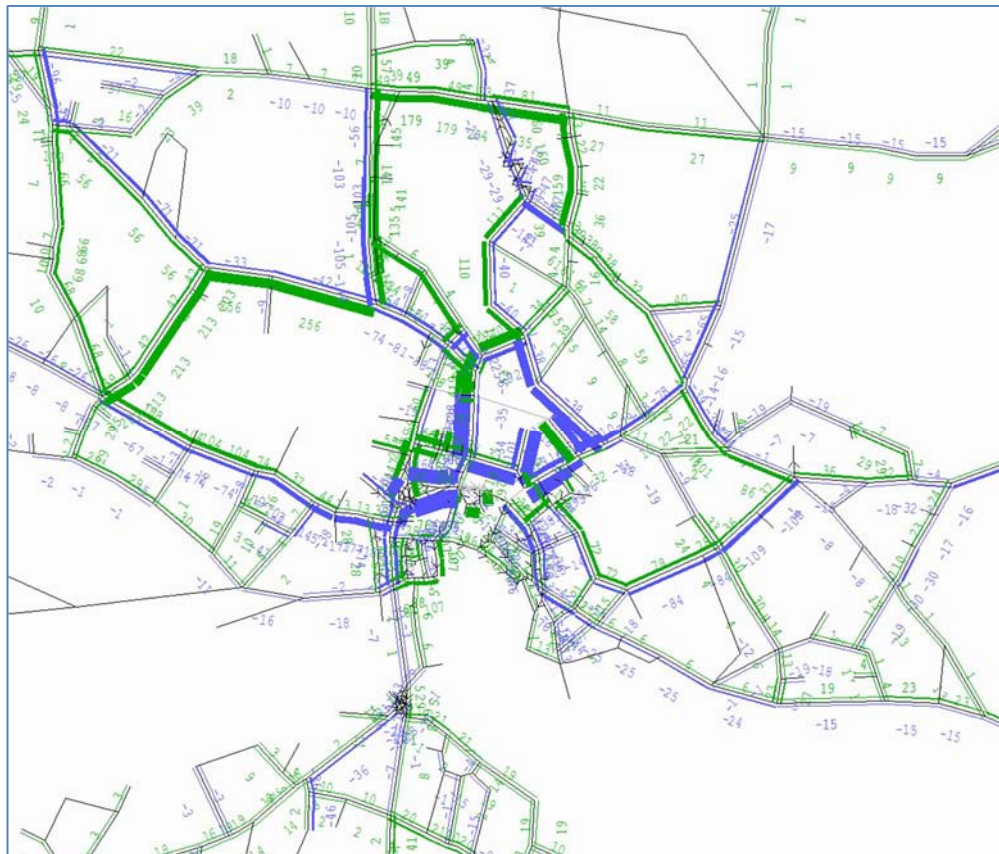


Figure 4-3 – 2017 PM Peak Flow Difference Plot

4.2.2.9

Based on the analysis of the flow changes between the DM and DS scenarios, the extents of the cordon were defined as follows and shown in Figure 4-4:

- North – A4103 Roman Road between the Homer Road and College Road junctions;
- East – Folly Lane, Ledbury Road, A465 Aylestone Hill;
- South – River Wye; and
- West – Westfaling Street, Wordsworth Road, Yazor Road, Grandstand Road (East) and Homer Road.

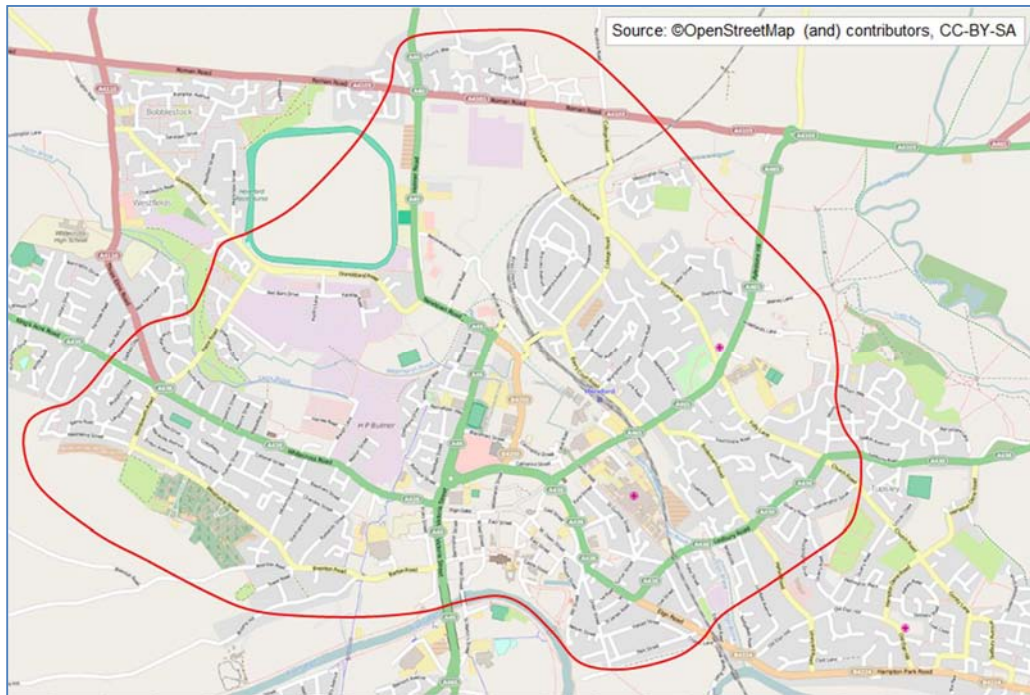


Figure 4-4 – Model Cordon Area

Cordon Model Specification

- 4.2.2.10 Highway improvements proposed as part of the HCCTP have been coded into the models. The staging and timing of traffic signal controlled junctions altered by the scheme have been reviewed and updated from the original Hereford SATURN model during the coding process.
- 4.2.2.11 Growth is taken from the models which have been developed to support the South Wye Transport Package and include TEMPRO growth and planned developments as described in the emerging local plan.
- 4.2.2.12 For the HCCTP scheme, fixed demand assignment has been considered appropriate. For the purposes of the model, it is assumed that any level of public transport demand change will be only as a consequence of the re-location of bus stops and potentially due to improvement in the public transport infrastructure on Newmarket Street / Blueschool Street and the Transport Hub relocation. These are considered outside of the highway assignment modelling using a Spreadsheet modelling tool as discussed in Section 4.5.1 under Non- Motorised User Benefits.
- 4.2.2.13 The following scenarios have been modelled:
 - **Do Minimum Scenario (DM)**- Without any form of transport scheme or dependent development; and
 - **Do Something Scenario (DS)** – With the entire HCCTP scheme, including the City Link Road (CLR), Public Realm and Transport Hub works.
- 4.2.2.14 The proposed scheme will unlock the Edgar Street Grid (ESG) area for future development, which includes provision of 800 residential units, as is discussed further in Section 4.3.4. Both DM and DS scenarios have been tested in isolation of the

additional 800 houses, the impact of which has been independently tested using the WebTAG A2.3 guidance.

- 4.2.2.15 It should be noted that for the purpose of the operational junction modelling, the air quality assessment and the noise assessment, a worst case DS is assumed, which includes the development of 800 residential units in the ESG area.

Operational Junction Modelling

- 4.2.2.16 In order to demonstrate the impacts of the HCCTP scheme on key junctions within the model cordon area, operational junction modelling has been undertaken for the following locations:

- CLR / A49 Edgar Street / Prior Street, proposed signal junction at the western extent of the CLR;
- CLR / A465 Commercial Road & A465 Commercial Road / Stonebow Road, existing signal junctions which will form the eastern extent of the CLR and be modified as part of the proposed scheme;
- A465 Commercial Road / A438 Bath Street / A438 Blueschool Street junction at Commercial Square, a signalised junction which will be modified as part of the HCCTP public realm scheme; and
- A438 Blueschool Street / Widemarsh Street / A438 Newmarket Street / Wall Street junction at Widemarsh Gate, a signalised junction which will be modified as part of the HCCTP public realm scheme on Blueschool Street and Newmarket Street.

- 4.2.2.17 All junctions have been assessed using LinSig V3, an industry standard assessment tool for modelling the capacity of signalised junctions.

- 4.2.2.18 The three existing junctions have been modelled for a 2014 base year, based on traffic survey data, and validated against queue survey data. All three junctions are signal controlled and have been modelled, using data taken from the signal specification reports and outputs from the SCOOT system.

- 4.2.2.19 For all future year assessments the traffic flows are taken from the HCCTP SATURN model, for 2017 and 2032, DM and DS, AM peak, Inter peak and PM peak scenarios. The assessments are based on the DM and the worst case DS which for the purpose of the operational junction modelling includes the development of 800 residential units in the ESG area. All forecast year assessments (DM and DS) have been optimised within LinSig.

4.2.3 Economic Assessment Approach

Transport Scheme Costs

- 4.2.3.1 In order to understand the Value for Money (VfM) of a scheme, it is necessary to know its estimated delivery costs. The derivation of costs for the scheme is discussed in detail in Chapter 5 ('The Financial Case'). For use in a VfM assessment, DfT guidance states that several adjustments must be made to the 'raw' costs. These adjustments are discussed below.

4.2.3.2 The risk adjusted scheme costs at Q4 2014 prices are presented in Table 5-4 in the Financial Case. For use in TUBA, the risk adjusted scheme costs have been further adjusted for optimism bias, with an uplift of 15%, and to take into account inflation using the BCIS All-In TPI index, as discussed in Paragraphs 0.0.0.0 to 5.1.27 in the Financial Case.

4.2.3.3 Within TUBA the risk, optimism bias and inflation adjusted costs have been converted to Present Value Costs (PVC) in 2010 prices discounted to 2010, for comparison with the values of transport impacts over the 60 year appraisal period.

TUBA

4.2.3.4 The Transport Economic Efficiency (TEE) assessment incorporates the monetary benefits that accrue through reductions in travel time and vehicle operating costs (VOC) over the 60 year appraisal period. The journey time and VOC benefits usually make up the majority of a scheme's monetised benefits.

4.2.3.5 The assessment has been undertaken in-line with current Marches LTB, WebTAG and Treasury Green Book guidance to quantify transport user benefits between the existing situation and the proposed improvements. The TEE assessment has been undertaken using TUBA.

4.2.3.6 Using this information, the WebTAG values of time (VoT) and vehicle operating costs (VOC) for various vehicle types and journey purposes, the difference between the two scenarios has been quantified and monetised over a standard 60-year appraisal period. The scheme benefits were then compared to the forecast costs, discounted to a common base price of 2010 values, and a benefit to cost ratio (BCR) calculated.

4.2.4 Approach to Assessment of Other Impacts

4.2.4.1 Other impacts have been assessed outside of TUBA, including regeneration, and the majority of Environmental and Social impacts. The assessment of these non-TUBA impacts has been undertaken following WebTAG guidance and with agreement of ITE. The majority of the non-TUBA impacts have been assessed qualitatively, with the exception of the following:

- **Noise** – Noise impacts have been assessed in accordance with WebTAG Unit A3.2 Noise Impacts, and based on the worst case DS which for the purpose of the noise assessment includes the development of 800 residential units in the ESG area;
- **Air Quality** – Air Quality impacts have been assessed in accordance with WebTAG A3.3 Air Quality Impacts, and based on the worst case DS which for the purpose of the air quality assessment includes the development of 800 residential units in the ESG area;
- **Regeneration** – the impacts due to dependent development have been assessed in accordance with WebTAG Unit A2.3 development;
- **Safety** – Safety impacts have been assessed in accordance with WebTAG Unit 3.5.4, using DfT's COBALT software; and
- **NMU** – A bespoke Spreadsheet based assessment in accordance with:

- WebTAG Unit A5.1 (Active Mode Appraisal), to assess journey time savings for pedestrians due to bus stop relocation and the proposed Transport Hub, in accordance with WebTAG Unit A1.3 (User and Provider Impacts); and
- Journey quality has been assessed using values from WebTAG Unit A4.1 Social Impact Appraisal.

4.2.4.2 The above impacts have been assessed over the standard 60 year appraisal period, and monetised in 2010 prices discounted to 2010, for consistency with the TUBA impacts. The full Analysis of Monetised Costs and Benefits (AMCB) in Section 4.6.3 include the TUBA impacts and the monetised impacts listed above to calculate the overall BCR for the scheme. It should be noted that, in line with WebTAG guidance, the regeneration impacts, although quantified, are not presented in the overall scheme BCR in the ACMB table.

4.3 EC2: Value for Money (Economy)

4.3.1 Transport Economic Efficiency

User Benefits

4.3.1.2 The transport user benefits for the DS scenario relative to the DM scenario have been assessed using TUBA v1.9.4. The business user benefits as forecast by TUBA are shown in Table 4-3.

Table 4-3: Business User Benefits (TUBA Results)

Benefit	Results ('000's, 2010 prices discounted to 2010)
Travel Time	£11,536
Vehicle Operating Costs	-£436
User Charges	£0
During Construction and Maintenance	£0
Total	£11,100

4.3.1.3 The scheme is expected to provide a net benefit in terms of journey times to business users in Hereford.

4.3.2 The full TUBA output is provided in Appendix 4.

4.3.2.1 It should be noted that the proposed scheme will also provide benefits to transport providers such as bus, rail and taxi operators, as the scheme improves access to Hereford city centre by bus, and improves connectivity between the city centre, the Transport Hub and the railway station. However these benefits have not been quantified as part of this Economic Case.

Operational Junction Modelling

4.3.2.2 As discussed in Section 4.2 operational modelling was undertaken to demonstrate the impacts of the HCCTP scheme on key junctions within the model cordon area. A detailed summary of the operational modelling is presented in Appendix 5. The assessments are based on a DM scenario with no additional development in the ESG area and the worst case DS scenario including the additional housing associated with the dependent development of the ESG area. As a result the assessment would be considered to be pessimistic and any dis-benefits over-stated.

4.3.2.3 The finding of the assessments are summarised below.

- **A49 Edgar Street / CLR Junction** - The proposed junction is forecast to operate within capacity in the worst case DS scenario across modelled time periods and forecast years (2017 and 2032). As this junction is a proposed junction as part of the CLR scheme it has not been considered in the DM scenarios;
- **Commercial Road / Station Approach / Stonebow Road Junctions** - The junction is forecast to operate better in the worst case DS than in the DM scenario, for all time periods except for the AM peak in 2032. For the majority of

future year scenarios, both DM and worst case DS scenarios are forecast to operate over capacity;

- **Commercial Square** - The junction is forecast to operate better overall in the worst case DS than in the DM scenario; however, both DM and worst case DS scenarios are forecast to be over capacity for most time periods; and.
- **Widemarsh Gate** - The junction is forecast to generally operate better in the worst case DS than DM scenario.

4.3.2.4 Overall, it is considered that the existing junctions assessed will operate better with the HCCTP scheme than in the DM scenario. For each junction there are certain time periods or specific approach arms where there are localised issues with DS operations but overall it is considered that the junctions will operate better with the HCCTP scheme in place than without it.

4.3.2.5 The proposed junction between the CLR and A49 Edgar Street is forecast to operate within capacity in all scenarios tested.

4.3.2.6 The operational modelling results presented here represent a worst case as the assessment includes trips generated by the proposed development of 800 residential units in the ESG area. It is expected that as the ESG regeneration is implemented, the promoting developers will identify and fund the additional (to HCCTP) transport infrastructure that will be required to mitigate the adverse impacts on the performance of the transport network.

4.3.2.7 In addition, if smarter travel choice initiatives are implemented for developments in the ESG area (and other areas including Hereford City and the wider county), in line with adopted policies, this would serve to reduce the traffic impact of the dependent development.

4.3.2.8 Overall the scheme will result in a *Moderate Beneficial* impact with respect to business users and transport providers.

4.3.3 Reliability

4.3.3.1 The current business case does not claim any specific reliability benefits for the scheme. Therefore these have not been quantified.

4.3.3.2 The HCCTP scheme, through providing a new link road between A49 Edgar Street and A465 Commercial Road, will contribute toward better management of traffic flows, and the proposed public realm and public transport improvements will encourage reduced dependence on the car for journeys to/from/within the city centre. The CLR will provide an alternative route for traffic travelling east –west / west-east across the north side of the city centre, with consequent re-assignment of a proportion of journeys to this new road from Newmarket Street, Blueschool Street and Commercial Road. The CLR will also provide improved access to the railway station from both the A49 and A465, thereby increasing network resilience and improving journey time reliability.

4.3.3.3 Furthermore, the improvements to public realm along A465 Commercial Road and A438 Blueschool Street / Newmarket Street, together with enhanced public transport facilities are expected to ensure improvements to journey time reliability for travel by all modes of transport.

4.3.3.4 The scheme will therefore result in a *Slight Beneficial* impact with respect to the reliability impacts.

4.3.4 EC3: Wider Economic Benefits

Wider Economic Benefits (WEB)

4.3.4.2 TAG Unit A2-1 considers agglomeration, output in imperfect markets and taxation from employment as wider impacts. Their relevance to the current WEB appraisal is not significant as summarised below:

- Agglomeration benefits to DfT's Functional Urban Regions (FURs) – areas with high population / employment density. Hereford is not an area that is classified as a FUR and these benefits therefore have not been estimated and included; and
- Labour supply is only really applicable to schemes which bring pools of underused workers into commuting journey time of vacant jobs – which is not the case with HCCTP.

4.3.4.3 Whilst WEB impacts have not been estimated for the reasons stated above, it is possible to appraise the impact of the scheme on imperfect markets. This can be done by including an allowance in relation to percentage adjustment to the business user benefits. However this has not been undertaken for this Economic Case and therefore the overall benefit of the HCCTP is likely to be in excess of the benefits stated within this Economic Case.

Regeneration

4.3.4.4 A relatively recent (January 2014) addition to the “wider economic impacts” suite of guidance within WebTAG Unit A2.3 covers the assessment of economic benefits generated by transport in the context of dependent development.

4.3.4.5 As set out in the Strategic Case, there are plans in place to regenerate a total of approximately 43 hectares of brownfield land in the ESG area. The programme comprises a series of projects, including the recently completed Hereford Old Market retail and leisure development, and the Urban Village.

4.3.4.6 The Urban Village area (where the new residential developments will be situated) comprises approximately 25 hectares (circa 60% of the total ESG area). Of this, approximately 10 hectares (40% of the 25 hectares) will be net residential land scheduled for development. This equates to 800 new homes (including 35% affordable).

4.3.4.7 A large proportion of the proposed residential development in the ESG will only be able go ahead if the CLR is constructed as the CLR provides the necessary transport access to the Urban Village development.

4.3.4.8 As part of its WebTAG guidance, DfT has developed a valuation model to estimate the value of a housing development identified as dependent on a given transport scheme. There are three key elements to the model:

- 1) Residential land value: based on hectareage of dependent housing x residential land value per hectare;
- 2) Existing land use value: based on hectareage of dependent housing x per hectare value of land in existing use; and

- 3) Net external impact of housing development: based on hectarage of dependent housing x per hectare external impact of development. This also incorporates the “external impact” of the dependent development scheme.

4.3.4.9 The external impact refers to the change in impacts due to the change in land use and as stated in WebTAG, the model draws upon estimates of the external benefits of undeveloped land (see Table 7.10 of the ODPM study, *Valuing the External Benefits of Undeveloped Land*). Note that, depending on the type of change in land use, these net external impacts can be either positive or negative. In the case of Hereford, they are positive as the new development will include improved urban realm and improved amenity / public space as well as the residential housing development.

4.3.4.10 The **external impacts** therefore include the change in benefits such as amenity and recreational space gains once the land is developed for its new use. The model employs the mean average of the reported estimates of external benefits of different types of land (obtained from the ODPM study).

HCCTP Assessment Input Data Assumptions

4.3.4.11 The data used in the model is described below.

Two sets of **land values** were obtained from Herefordshire Council:

- 1) Existing land value: based on mixed uses (ranging from a relatively ‘high value’ public car park to a relatively ‘low value’ undeveloped land near the Essex Arms in the ESG), an average land value of £864,850 per hectare has been assumed;
- 2) Residential land value: based on typical values of city centre residential land (derived from a recent, i.e. February 2015, District Value report and recent Herefordshire Council marketing), an average value of £1,655,570 per hectare has been assumed.

4.3.4.12 The **extent of new residential land** that will be dependent on the new link road is based on the following assumptions:

- The Urban Village area (where the new residential developments will be situated) comprises approximately 25 hectares (60% of the total ESG area); and
- Of this, 10 hectares (40% of the 25 hectares) will be net residential land scheduled for development.

4.3.4.13 The assumption therefore is that all residential development on these 10 hectares of land will be unlocked by the CLR.

External Impact Values

4.3.4.14 As discussed above, there are two elements to this:

- 1) **External Impacts** (change in amenity, recreational space etc.): the values used are taken from WebTAG Unit A2.3 (appraisal tool) and represent the difference between the “Urban Fringe” value (£236,620 per hectare *in perpetuity*) and the “Urban Core” value (£14,282,000 per hectare *in perpetuity*).

The 'urban fringe' category is appropriate for existing land use in the ESG as this represents urban fringe areas where there is transition between an urban area and a less well built up area. Similarly, the 'urban core' category is appropriate as this represents public spaces and city park-type uses in central urban areas. Based on the values above, the *net* externality benefit in perpetuity is £14,045,380 per hectare (2010 prices);

- 2) External transport-related impacts: these values have been taken directly from the TUBA work undertaken as part of the transport economics appraisal. The values derived from this work represent impacts such as monetised journey time differences and changes in vehicle operating costs. The external cost to transport users isolates the expected marginal impact on existing users of the highway network if trips from the proposed development are introduced.

4.3.4.15 DfT Appraisal tool used to undertake this analysis is attached in Appendix 6.

Assessment Results

4.3.4.16 Based on use of the DfT tool, the results show that the 'unlocked' development in the ESG will generate over £147.4 million of benefits. This comprises £6.9 million of benefits associated with the land value gain as well as £140.5 million of benefits associated with the change in land use and the availability of more public space, better amenity and improved urban realm.

4.3.4.17 The marginal transport impact in the opening year is estimated at £1.01 million (at 2010 prices), resulting in a cumulative external transport cost over 60 years of £60.7 million.

4.3.4.18 Overall the proposed scheme is estimated to provide a net regeneration benefit of £86.7 million. It is therefore considered that the HCCTP scheme is likely to have a Large Beneficial impact on Regeneration.

4.3.5 Summary of Value for Money (Economy)

4.3.5.1 Table 4-4 provides a summary of the overall Economy impacts of the proposed scheme.

Table 4-4 – Summary of Value for Money (Economy) Impacts

Impacts	Benefit ('000s, 2010 prices, discounted)	Qualitative Score
Business users & transport providers	£11,100	Moderate Beneficial
Reliability impact on Business users	Qualitative assessment	Slight Beneficial
Regeneration	£86,648, but not included in the PVB or BCR	Large Beneficial
Wider Impacts	Not applicable	Not applicable
Total Economy Impact	£11,100	

4.4 EC4: Value for Money (Environment)

4.4.1 Noise

4.4.1.1 Noise annoyance from transport is defined as the nuisance to people caused by road and rail traffic related noise and vibration, and can have a negative impact on an individual's health and well-being. Although individuals vary considerably in their response to any given level of road traffic noise, it has been found that there is a reasonably stable correlation between noise exposure and the average or community annoyance response.

4.4.1.2 A noise assessment of the HCCTP has been conducted in accordance with WebTAG Guidance (Unit A3.2 Noise Impacts, DfT, November 2014) to provide a monetary valuation of changes in noise levels between future 'with' and 'without-scheme' scenarios. The noise impacts of the HCCTP scheme include all the noise sensitive receptors located within 600m of the physical works associated with the HCCTP scheme, and within 600m of any affected routes within 1km from the scheme. In total, 6,732 properties were assessed.

4.4.1.3 At present, it is mainly residents who live in the residential properties to the west of Edgar Street which are susceptible to noise annoyance from traffic. In addition, traffic along Blueschool Street, Newmarket Street and Commercial Road is also a current source of noise annoyance for the relatively small number of dwellings located in close proximity.

4.4.1.4 The construction of the CLR, linking the A49 to the A465 between the A49 / Prior Street junction and Station Approach in the east, means that the proposed scheme will impact on additional noise-sensitive properties, particularly in the vicinity of the junction between the CLR and B4359 Widemarsh Street.

4.4.1.5 Appendix 7 presents the results of the noise impact assessment of the HCCTP scheme based on the output of the noise models.

4.4.1.6 The assessment has used the worst case DS scenario (i.e. including 800 residential units in the ESG area) and shows that the proposed scheme will result in a net benefit in terms of noise annoyance, with 7 fewer people estimated to be annoyed by noise with the proposed scheme in place. This is as a result of a decrease in noise for properties near Barrs Court Road and on a short section of the A49. However there are also some areas which have a minor increase in noise, which results in the scheme having an overall monetary dis-benefit in terms of noise.

4.4.1.7 Table 4-5 below details the key outputs of the WebTAG noise assessment.

Table 4-5: Summary of WebTAG Noise Assessment

Net Present Value of Noise Proposal (60 Year Period):	-£253,626 *positive value reflects a net benefit (i.e. noise reduction.)
Estimated Population Annoyed (Do-Minimum):	2,283
Estimated Population Annoyed (Do-Something):	2,276
Net Noise Annoyance Change in 15th Year After Opening (no. of people):	-7 *positive value reflects an increase in people annoyed by noise

- 4.4.1.8 An assessment of the distributional impacts of the noise changes due to the scheme over different income domains has been undertaken. This is presented in Appendix 7, and shows the worst affected income domain is the 40-60% group.
- 4.4.1.9 It should be noted that, as stated in Section 4.2, the assessment of the noise impacts has been based on the worst case DS scenario which includes development of 800 residential units in the ESG area. The noise results therefore represent a worst case assessment.
- 4.4.1.10 The overall WebTAG noise assessment shows that the HCCTP scheme results in a slight reduction in the number of people annoyed by noise, but with a dis-benefit in terms of monetary impacts. Overall the scheme is predicted to result in a Slight Adverse impact in terms of transport related noise impact in the affected area.

4.4.2 Air Quality

- 4.4.2.1 The Air Quality impacts of HCCTP scheme have been assessed using WebTAG Guidance (Unit A3.3 Air Quality Impacts, DfT, November 2014). The calculation of roadside pollutant concentrations relating to the HCCTP scheme area followed the methodology set out in the Design Manual for Roads and Bridges (DMRB), Volume 11, Section 3, Part 1, Air Quality (DMRB 11.3.1, HA207/07) for a detailed assessment. The distributional impacts were assessed using WebTAG Guidance (Unit A4.2 Distributional Impact Appraisal, Distributional Impacts of Air Quality, DfT, January 2014).
- 4.4.2.2 The Air Quality assessment focuses on quantifying the forecast vehicular output of PM₁₀ (Particulate matter less than 10µmaerodynamic diameter) and NO₂ (Nitrogen dioxide) in the worst case DS scenario compared with the DM scenario. Further details about the methodology used to assess the potential Air Quality impacts of the HCCTP are provided in Appendix 8.
- 4.4.2.3 Following a WebTAG compliant screening assessment, a total of 22 roads were identified as meeting the criteria, mainly covering the principal routes through Hereford (i.e. Edgar Street, Blueschool Street, Newmarket Street and Commercial Road).
- 4.4.2.4 For the Local Air Quality Assessment, roadside pollutant concentrations were calculated at residential properties within a 200m buffer of the 15 principal routes. A total of 4,142 residential properties were assessed for concentrations of NO₂ and PM₁₀.
- 4.4.2.5 For the Regional Air Quality Assessment, the Hereford SATURN model (as discussed in Section 4.2) was used to calculate total pollutant emissions.
- 4.4.2.6 The results of the Air Quality assessment are summarised in Table 4-6, with further details provided in Appendix 8.

Table 4-6: Summary of WebTAG Air Quality Assessment

Summary of Key Impacts	Quantitative	Monetary	Distributional
<p>Overall there is a net deterioration in exposure to PM₁₀ and NO₂. The scheme does not result in any exceedances of air quality objectives</p> <p>Net increase in emissions in area at risk of exceedance of EU limit values</p>	<p>Assessment Score:</p> <p>2017 PM₁₀: 94.04 NO₂: 1165</p> <p>2032 PM₁₀: 27.47 NO₂: 294</p> <p>Emissions NO_x (tonnes per year):</p> <p>2017: 2.3 (0.1 in area of risk of exceedance of limit value) 2032: 0.8 +61 tonnes over 60 year appraisal period</p>	<p>Value of Change in PM₁₀ concentration: NPV: -£118,475</p> <p>Value of Change in NO_x emissions: NPV: -£42,886</p> <p>Total value of change in air quality: -£161,361</p>	<p>Air quality benefits are weighted towards areas with income deprivation – this is a beneficial impact.</p> <p>Dis-benefits are weighted towards less deprived areas</p>

- 4.4.2.7 For PM₁₀ concentrations, improvements in air quality are forecast along Barrs Court Road and Burkett Road, Coningsby Street and part of Edgar Street, Newmarket Street and Widemarsh Street. The greatest improvement is forecast at the junction of Barrs Court Road and Commercial Road (decrease of 0.710µg/m³), however deteriorations in air quality are forecast elsewhere, with the greatest increase in PM₁₀ concentrations at Ledbury Road (increase of 4.25µg/m³). In 2032, improvements in air quality are also forecast on Whitecross Road and Grandstand Road on the north-western edge of Hereford.
- 4.4.2.8 For NO₂, improvements in air quality are forecast along Barrs Court Road and Burcott Road, Coningsby Street and part of Edgar Street, Newmarket Street and Widemarsh Street. The greatest improvement is seen at Barrs Court Road (decrease of 2.29µg/m³). However, deteriorations in air quality are modelled elsewhere, with the greatest increase in NO₂ emissions forecast at Widemarsh Street (increase of 0.635µg/m³). In 2032, improvements in air quality are also forecast on Whitecross Road on the north-western edge of Hereford.
- 4.4.2.9 Overall there is a forecast net worsening of exposure to both PM₁₀ and NO₂ as a result of the proposed HCCTP scheme. A small net increase in regional emissions for NO_x is forecast and, moreover, increases in emissions are forecast to occur along some routes identified in national modelling as being at risk of exceeding the EU limit value in the opening year. This risk is negligible by 2020.
- 4.4.2.10 An assessment of the distributional impacts of the impact on air quality over different income domains has been undertaken. This is presented in Appendix 8, and shows air quality benefits are weighted towards areas with income deprivation and dis-benefits are weighted towards less deprived areas.

4.4.2.11 It should be noted that, as stated in Section 4.2, the assessment of air quality impacts has been based on the worst case DS scenario which includes development of 800 residential units in the ESG area. The air quality results therefore represent a worst case assessment.

4.4.2.12 The valuation of local air quality impacts shows a *Slight Adverse* impact as a result of the proposed scheme due to the increase in exposure to PM₁₀ and NO_x emissions.

4.4.3 Greenhouse gases

4.4.3.1 The Climate Change Act 2008 set a legally binding target to reduce the UK’s greenhouse gas emissions to at least 80 per cent below base year levels by 2050. Carbon dioxide (CO₂) is the primary greenhouse gas emitted through human activities and is used as a key indicator for the purpose of assessing the impact of transport options on climate change.

4.4.3.2 The impact that the HCCTP scheme has on greenhouse gas emissions has been assessed through the TUBA assessment.

4.4.3.3 The results of the assessment are summarised in Table 4-7 which shows the change in carbon dioxide equivalent emissions, in tonnes, attributable to the scheme being in place and demonstrates the Net Present Value (NPV) of the carbon dioxide emissions associated with the implementation of the proposed scheme over a 60 year period.

4.4.3.4 Table 4-7 shows there is a forecast net decrease of greenhouse gas emissions over the 60 year appraisal period as a result of the scheme, with a benefit of £734,000 over 60 years. In the scheme opening year there is a net increase in emissions, although the net increase decreases with time, and by 2027 there will be a net decrease in emissions for each year for the remainder of the assessment period.

4.4.3.5 Overall, the HCCTP scheme is expected to have a *Slight Beneficial* impact on greenhouse gas emissions.

Table 4-7: Change in Carbon Dioxide equivalent emissions (tonnes)

In opening year:	Over 60 year appraisal period:
+690	-14,961
NPV (2010 prices, discounted to 2010)	£734,000

4.4.4 Landscape

4.4.4.1 Landscape is a broad category in terms of environmental impact and is assessed using a qualitative measure. The potential impact of a scheme on both the physical characteristics and cultural characteristics of a place is accounted for, with the Impact on Landscape criterion assessing how a scheme may affect an area’s “sense of place”.

4.4.4.2 The ESG area is situated on low lying level ground within the Widemarsh Brook floodplain. The ESG is a predominantly urban environment containing a mixture of post-World War II (WWII) and more recent residential, retail, light industrial and commercial developments. Three major roads form the boundaries of ESG.

- 4.4.4.3 The landscape towards the north of the ESG area contains a number of open spaces which are mainly hard surfaced; functioning as forecourts, parking and storage areas for the surrounding industrial and retail settlements. A small number of open green spaces, which have not previously been developed, remain in the ESG including the Essex Arms playing fields which is currently used a police dog training area with no public access.
- 4.4.4.4 The construction of the CLR will require the removal of a small number of trees along Widemarsh Brook and will cut through some of the Essex Arms playing fields. However, this will be offset by the planting of a street trees and shrubs along the proposed CLR route to help integrate the road into the surrounding landscape and townscape whilst also compensating for the loss of greenery associated with the scheme.
- 4.4.4.5 In addition new trees will be planted along Commercial Road, Blueschool Street, and Newmarket Street as part of the public realm improvements. The majority of these trees will be planted as part the new tree-lined boulevard along Blueschool Street and Newmarket Street. These will enhance the landscape of this road and the ESG, creating a more aesthetically pleasing environment in which pedestrians can move about in whilst augmenting the sense that the Hereford Cattle Market Development area is a pedestrian friendly retail hub.
- 4.4.4.6 The design of the integrated Transport Hub is in keeping with the proposed, public realm improvements along Commercial Road, Blueschool Street and Newmarket Street as it includes the introduction of resin bound footways and the planting of new trees in the station's forecourt. These design elements will enhance the landscape of the ESG by creating a uniform environment along the main roads within the ESG area whilst also adding to area's greenery.
- 4.4.4.7 Overall, the HCCTP scheme is expected to have a *Moderate Beneficial* impact on landscape.

4.4.5 Townscape

- 4.4.5.1 Townscape is the physical and social characteristics of the built and un-built urban environment and the way in which those characteristics are perceived. The term Townscape refers to both the physical development form and the usage and management of an area's buildings, structures and spaces. It is this mix of characteristics and perceptions that make up and contribute to townscape character and give a 'sense of place' or identity.
- 4.4.5.2 The physical and social townscape characteristics of the ESG area are very much influenced by pre and post WWII industrial, commercial and residential development. The southern area of the ESG is dominated by 19th Century redbrick buildings which are used for residential and commercial purposes. Commercial Road has a wide thoroughfare lined with numerous shop frontages and public houses. The Cattle Market redevelopment project in the south-western corner of the ESG has transformed the area into a retail and leisure hub. The Cattle Market project included the upgrading of pavement and landscape which has created a more open and permeable pedestrian environment on Newmarket Street.
- 4.4.5.3 In comparison to the more densely built up townscape found in the south of the ESG, the northern area of the ESG is characterised by large, hard-surfaced open areas, sparsely populated with large modern commercial buildings (including car sales,

timber merchants and building supplies). One of the largest of these hard-surfaced, open areas is Merton Meadow car park which has around 800 car parking spaces.

- 4.4.5.4 The construction of the CLR will result in the loss of open space within Merton Meadow car park and the Essex Arms playing fields; which is currently used as a police dog training ground (with no public access to this space). The proposed scheme will significantly improve townscape in the ESG area as the redevelopment of the area will include new open spaces and parks, which will significantly improve the character of the ESG, and integrate it better with the existing Cattle Market redevelopment area.
- 4.4.5.5 In addition, the proposed reduction of carriageway widths along Commercial Road, Newmarket Street and Blueschool Street (which are part of the public realm improvement plans) will reclaim existing road carriageway land for pedestrian and cycling activities, as well as for public transport access. Due to these streets being located in the Hereford Central Area Conservation Area, Herefordshire Council are obliged to ensure the preservation and enhancement of the area's traditional townscape, so the proposed public realm improvements have been designed to complement the historic character of the city centre.
- 4.4.5.6 The proposed public realm improvements and Transport Hub designs are in keeping with public realm improvements made at, and around, the Widemarsh Street / Newmarket Street junction and are in keeping with the dominant redbrick buildings along these routes. The inclusion of a mixture of paved and resin bound footways along Commercial Road, Blueschool Street and Newmarket Street will enhance the aesthetic quality of these areas, further adding to their attractiveness as a place to partake in retail and leisure activities, whilst also emphasising their role as a pedestrian friendly area. The integrated Transport Hub will become a focal point within the ESG area.
- 4.4.5.7 Within a limited section of Widemarsh Street, the setting and access of locally important buildings, such as the Oxford Arms and the former Coningsby Hospital (which is a red stoned, Grade II Listed Building) will be temporarily affected by the presence and construction of the CLR. However, the impact will be reduced by landscaping planned to help integrate the CLR into the existing townscape. Care will also be taken to make sure there are no longer lasting impacts on these buildings due to the construction of the CLR.
- 4.4.5.8 Overall, the HCCTP scheme is expected to have a *Moderate Beneficial* impact on Townscape.

4.4.6 Heritage of historic resources

- 4.4.6.1 The heritage of historic resources criterion assesses a proposed scheme's impact on man-made buildings, areas and sites of historical importance and the sense of identity and place which the combination of these features provides. This can include features that are commonplace to an area, being representative of its distinctiveness, and features that are significant due to their rarity, exemplary form or style, or historical associations.
- 4.4.6.2 With the exception of the remnants of the City Wall, the HCCTP area does not contain any designated historic sites or Scheduled Ancient Monuments but it does contain three buildings of local interest; one of which is a Grade II Listed building (Coningsby Hospital). The construction of the CLR may have temporary visual and access impacts including on Coningsby Hospital. The site is home to the St John's Medieval

Chapel and Coningsby Hospital Museum and the structure is believed to have stood on the site since the 13th Century. However once the scheme is in place there are not likely to be any adverse impacts on these buildings.

4.4.6.3 The Hereford Central Area Conservation Area covers Commercial Road, Blueschool Street and part of Newmarket Street, all of which will be altered as part of the proposed scheme. As these streets are located in a conservation area, Herefordshire Council are obliged to ensure the preservation and enhancement of the area's historical character.

4.4.6.4 Newmarket Street and Blueschool Street are aligned approximately with the former medieval city wall and ditch. Two adjacent sections of the City Wall are located on the reservation separating the Maylord Shopping Centre bus and vehicle exit lanes from the main Blueschool Street carriageway and stand to a maximum height of c. 2.5m. While the outer face appears to be largely original medieval fabric, with later insertions and blocking, the inner face has been substantially rebuilt in brick. The HCCTP proposals will retain these sections of City Wall and enhance their setting as part of the public realm enhancements along Blueschool Street.

4.4.6.5 The majority of the area to the north of the ESG (through which the CLR will be routed) has the monotonous and functional character of post-WWII trading or industrial estates of piecemeal development with little consideration given to coherent planning or design. Therefore, any alteration of this environment through the construction of the CLR will have a minimal impact on the valued historic character of the ESG and wider Hereford area.

4.4.6.6 Overall, the HCCTP scheme is expected to have a *Neutral* impact on Historic Environment.

4.4.7 Biodiversity

4.4.7.1 The Biodiversity sub-objective is based on advice from Natural England and appraises the impact of the scheme on biodiversity and earth heritage (geological). Guidance from Web TAG Unit A3 has been used to aid the qualitative assessment of the proposed scheme's impact on biodiversity.

4.4.7.2 The majority of the area that the HCCTP will alter and impact is considered urban and does not house much biodiversity. However, the area to the north of the ESG, on the route of the proposed CLR, does contain some biodiversity particularly in the Essex Arms playing fields and alongside Widemarsh Brook.

4.4.7.3 The potential adverse effects on the River Wye, Widemarsh Brook and other locally designated sites from the construction of the CLR have been mitigated for within the design via a range of measures including habitat replacement. Other potential construction effects such as those associated with the generation of dust and noise will be mitigated with the implementation of a Construction Environmental Management Plan.

4.4.7.4 The designs of the CLR, public realm improvements and new integrated Transport Hub include the planting of a new street trees and shrubs, providing an opportunity for biodiversity enhancement in these specific areas whilst offsetting the impact on biodiversity caused by the scheme as a whole.

4.4.7.5 Overall, the HCCTP scheme is expected to have a *Slight Beneficial* impact on Biodiversity.

4.4.8 Water environment

4.4.8.1 The assessment of the scheme's impact on the water environment in the area has been undertaken qualitatively with no specific sampling having been carried out.

4.4.8.2 With the use of best practice measures during construction via the implementation of a Construction Environmental Management Plan, no adverse effects on ground or surface water resources are expected.

4.4.8.3 Overall, the HCCTP scheme is expected to have a *Neutral* impact on Water Environment.

4.4.9 Summary of Value for Money (Environment)

4.4.9.1 Table 4-8 provides a summary of the overall Environmental impacts for the HCCTP scheme.

Table 4-8: Summary of Value for Money (Environment) Impacts

Impacts	Benefit ('000s, 2010 prices, discounted)	Qualitative Score
Noise*	-£254	Slight Adverse
Air Quality*	-£161	Slight Adverse
Greenhouse Gases	£734	Slight Beneficial
Landscape	Qualitative assessment	Moderate Beneficial
Townscape	Qualitative assessment	Moderate Beneficial
Heritage of Historic Resources	Qualitative assessment	Neutral
Biodiversity	Qualitative assessment	Slight Beneficial
Water Environment	Qualitative assessment	Neutral
Total Environment Impact	£319	

*Assessment based on the worst case DS, including the dependent development

4.5 **EC5: Value for Money (Social)**

4.5.1 **Commuters and Other Users**

User Benefits

4.5.1.2 The impact on Commuters and Other Users has been determined as part of the TUBA assessment of Transport User Benefits in the Value for Money (Transport Users). The results are set out in Table 4-9.

Table 4-9: Consumer User Benefits (from TUBA)

Benefit	Results ('000's, 2010 prices discounted to 2010)		
	Commuters	Other Users	Total (Commuters & Other Users)
Travel time	£41,533	£2,161	£43,694
Vehicle operating costs	£2,055	-£285	£1,770
User charges	£0	£0	£0
During Construction and Maintenance	£0	£0	£0
Total	£43,588	£1,876	£45,464

4.5.2 The full TUBA output is provided in Appendix 4.

Non-Motorised User Benefits

4.5.2.2 In addition to the TUBA benefits discussed above, the HCCTP scheme includes proposals for an integrated Transport Hub and relocation of bus stops as part of the improvements to the public realm. These will reduce walking times between bus and rail services, and between bus stops and new development around the railway station. The scheme will be able to accommodate a greater number of bus services and add potential for bus layover, providing better opportunity for (bus/rail) service integration.

4.5.2.3 The public realm improvements along Commercial Road, Blueschool Street and Newmarket Street, will serve to improve access for walking and cycling modes between the railway station, the proposed Transport Hub and the city centre.

4.5.2.4 Non-Motorised User (NMU) benefits and public transport (PT) benefits due to bus stop relocation and Transport Hub and public realm improvements have been considered as part of this Economic Case.

4.5.2.5 The NMU benefits are considered as additional to transport user benefits determined by TUBA. For the purpose of reporting the NMU benefits, it has been assumed that the impacts would be classified as a Social impact, i.e. impacting on Commuters and Other Users, rather than Business Users.

4.5.2.6 It should be noted that the public realm improvements will also provide benefits to transport providers such as bus, rail and taxi operators as the scheme improves access to the city centre by bus, and improves connectivity between the city centre, the Transport Hub and the railway station. However these benefits have not been quantified as part of this Economic Case.

- 4.5.2.7 The assessment of NMU impacts has been undertaken in accordance with WebTAG Unit A5.1 – Active Mode Appraisal and calculated in accordance with WebTAG Unit A1.3 (User and Provider Impacts) using values from the TAG Green Book. Benefits have been estimated using WebTAG compliant parameters and methods, and have been discounted to the common price base of 2010.
- 4.5.2.8 The assessment has considered the following:
- **Bus Stop Relocation** – the economic impacts from the addition and relocation of bus stops on Newmarket Street, Blueschool Street and Commercial Road have been derived based on journey time savings for passengers as a result of reduced walking distance to access bus services;
 - **Public Realm** – an assessment of the Journey Quality impacts in relation to the proposed public realm improvements;
 - **Bus Quality Improvements** – the impacts of improved quality bus stop infrastructure, including elements such as shelters, seating, information, and raised kerbs. Improvements in quality will improve waiting conditions, improve dwell times resulting from improved access onto and off buses, and improved bus docking with the kerb line; and
 - **Transport Hub** – an assessment of the impacts of shorter walking distances between the proposed Transport Hub and Hereford railway station, compared to the distance between the existing county bus station and the railway station.
- 4.5.2.9 Full details of the NMU assessment are provided in Appendix 9. The total forecast NMU benefit is approximately £5,455,987 (in 2010 prices, discounted to 2010).
- 4.5.2.10 Overall it is expected that the HCCTP scheme will result in *Large Beneficial* impacts in terms of Commuters and Other Users.
- 4.5.3 Reliability Impact on Commuting and Other Users**
- 4.5.3.1 As discussed in Section 4.3.3, the HCCTP is forecast to enable improved management of future growth in traffic demand in the city centre, as the CLR will provide an alternative route for traffic travelling east-west / west-east across the north side of the city centre. The proposed scheme therefore provides greater resilience to deal with disruptive incidents on the road network, with a resultant reduction in adverse impacts on network performance, which serves to improve journey reliability.
- 4.5.3.2 With the proposed CLR in place, Hereford’s railway station will be accessible from both the east via Commercial Road (the current access) and west from Edgar Street (via the CLR). This will result in greater network resilience and improved journey reliability.
- 4.5.3.3 In comparison with the DM scenario, cyclists will benefit from improved journey times as the introduction of dedicated cycle lanes on Commercial Road will enable faster and safer journeys through the city.
- 4.5.3.4 It is expected that the HCCTP scheme will result in *Slight Beneficial* impacts in terms of Reliability for Commuters and Other Users.

4.5.4 Physical activity

- 4.5.4.1 Physical inactivity is a primary contributor to a broad range of chronic diseases, and physical activity can help prevent weight gain, obesity and improve mental health. Cycling and walking measures are an integral part of the HCCTP proposals. The introduction of additional cycling and walking infrastructure will provide the catalyst for more people to use active modes, thereby contributing to increased numbers of people taking part in physical activity.
- 4.5.4.2 Public realm improvement measures proposed as part of the HCCTP scheme along Commercial Road, Blueschool Street and Newmarket Street include:
- Widening of footways on Commercial Road;
 - Provision of cycle lanes along Commercial Road, and associated infrastructure at junctions;
 - Additional and upgraded pedestrian crossings; and
 - Upgrading paving and landscaping.
- 4.5.4.3 The construction of a the integrated Transport Hub, and associated pedestrian and cyclist provision will further encourage the use of active transport modes within Hereford.
- 4.5.4.4 The construction of the CLR will include provision of cycling and walking measures as part of the scheme
- 4.5.4.5 The above measures will encourage walking and cycling to/from/within the city centre and between the proposed Transport Hub and the city centre. The HCCTP measures will also improve access between the ESG area and the city centre. In combination, the new and improved pedestrian and cyclist infrastructure, coupled with the proposed re-location of bus stops on Newmarket Street and Blueschool Street and the provision of a new Transport Hub, will make the city of Hereford more accessible to NMUs and will encourage further walking and cycling activity. This will help deliver health benefits associated with increases in physical activity.
- 4.5.4.6 It is expected that the HCCTP scheme will result in *Moderate Beneficial* impacts in terms of Physical Activity.

4.5.5 Journey Quality

- 4.5.5.1 Journey quality comprises three aspects – traveller care, traveller views, and traveller stress. This section appraises the scheme's impact on journey quality for all users.
- 4.5.5.2 The HCCTP will provide enabling infrastructure which will address difficulties of access and severance, both within the ESG area itself and in respect of its links to other areas, notably the city centre to the south.
- 4.5.5.3 The public realm improvements proposed as part of the HCCTP scheme include traffic calming measures, tree planting, and the introduction of new and improved bus stops, all of which will result in an improved environment on Newmarket Street, Blueschool Street and Commercial Road for pedestrians, cyclists and public transport users and will provide easier access between the city centre and ESG development.

As a result, the proposed scheme is expected to improve journey quality in terms of 'Traveller Stress' and 'Traveller Care' for both road users and non-road users.

4.5.5.4 A quantitative assessment of journey quality has been undertaken as part of the NMU Impact Assessment, as discussed in Section 4.5.1. The total benefit over the 60 year assessment period, discounted to 2010 was calculated to be approximately £2 million of the overall NMU benefit of £5.5 million.

4.5.5.5 It is expected that the HCCTP scheme will result in *Moderate Beneficial* impacts in terms of Journey Quality.

4.5.6 Accidents

4.5.6.1 The implementation of transport schemes may impact on the risk of accidents occurring, and on the number and severity of casualties.

4.5.6.2 An assessment of the impact that the proposed HCCTP scheme has on accidents has been undertaken in accordance with WebTAG Unit 3.5.4, using the DfT's COBALT (Cost and Benefit to Accidents – Light Touch) Spreadsheet tool. COBALT assesses the safety impacts of road schemes, based on a comparison of accidents by severity and associated costs across an identified network in the DM and DS scenarios. Using details of link and junction characteristics, their relevant average accident rates and associated costs, and forecast traffic volumes by link and junction, COBALT predicts the amount of accidents saved (or not saved) and the associated monetary benefit (or dis-benefit) over a 60 year appraisal period between the DM and DS scenarios. The basis of the assessment is consistent with WebTAG, and therefore the monetised impacts can be considered additional to the TUBA impacts presented elsewhere in this Economic Case.

4.5.6.3 Table 4-10 provides a summary of the COBALT assessment for the HCCTP scheme. The full COBALT output is included in Appendix 10.

Table 4-10: Summary of COBALT Assessment Results

	Benefits (over 60 year assessment period)
Casualties Saved	Slight: 57.0 / Serious: 4.6 / Fatal: 0.4
Total Accidents Saved	44.9
NPV Accident Benefits ('000s, 2010 costs discounted to 2010)	£2,319

4.5.6.4 The COBALT assessment predicts that the HCCTP scheme will result in a reduction in accidents of 44.9 accidents over the 60 year assessment period, resulting in a benefit of £2.319 million.

4.5.6.5 Therefore the scheme is expected to have result in *Moderate Beneficial* impacts in terms of accidents.

4.5.7 Security

4.5.7.1 The implementation of transport schemes may impact on the level of security for road users, public transport passengers and freight.

- 4.5.7.2 The HCCTP will provide good, well lit public spaces and improve access, with open vistas in accordance with Secured By Design and WebTAG sub-objective 3.4.2.
- 4.5.7.3 The public realm improvement proposals include additional street lighting along Commercial Road, Blueschool Street, and Newmarket Street. The proposed Transport Hub will also be well lit. The proposed Transport Hub and relocated bus stops will provide a safer waiting environment for transport users.
- 4.5.7.4 It is anticipated that the new and enhanced network infrastructure, together with improved lighting, public spaces, and better waiting environments, will provide a positive impact in terms of reducing actual and perceived risk of street crime.
- 4.5.7.5 Furthermore, the introduction of the CLR is expected to improve network resilience and is anticipated to improve response times for emergency vehicles
- 4.5.7.6 It is expected that the HCCTP scheme will result in *Slight Beneficial* impacts in terms of Security.
- 4.5.8 Access to Services**
- 4.5.8.1 Access to Services reflects the ranges of opportunities individuals have for connecting with key activities and services, without which would result in isolation. Such activities and services might include access to jobs, healthcare, community facilities, education and transport interchanges.
- 4.5.8.2 The HCCTP scheme will improve accessibility in the following ways:
- The CLR will significantly improve access for all modes to Hereford railway station and to new redevelopment land in the ESG area (including a new housing development);
 - The CLR and its associated infrastructure will provide better access to and across the ESG regeneration area as a whole and will thus enable the regeneration of the ESG area by opening up land which is currently inaccessible and underutilised;
 - The CLR will significantly improve access for all modes to Hereford County Hospital which is located east of Commercial Road and is accessed via Stonebow Road;
 - The HCCTP public realm improvements and proposed Transport Hub will improve pedestrian, cyclist and public transport access to the retail, leisure and employment facilities in the Cattle Market, Maylord Centre and the traditional historic core of the city (city centre); and
 - The relocation of bus stops along Newmarket Street and Blueschool Street will provide improved public transport access to the Cattle Market and Maylord Shopping Centre areas, the ESG area, and city centre.
- 4.5.8.3 It is expected that the HCCTP scheme will result in *Moderate Beneficial* impacts in terms of Access to Services.

4.5.9 Affordability

- 4.5.9.1 Cost of travel can be a barrier to using the transport system for some groups of people. Affordability impacts may arise due to indirect impacts of a proposed transport scheme, where these groups suffer adverse impacts.
- 4.5.9.2 The measures provided as part of the HCCTP scheme in relation to walking and cycling modes, and improvements for public transport through the proposed Transport Hub and relocated bus stops, are expected to provide affordable transport options for a larger number of people.
- 4.5.9.3 Scheme delivery will require acquisition of the Merton Meadow at-grade car park with the result that vehicles will be required to park in other locations which are likely to have higher tariffs. Drivers who use that facility may experience an increase in travel costs.
- 4.5.9.4 Overall it is expected that both the HCCTP scheme will result in a *Neutral* impact in terms of Affordability.

4.5.10 Severance

- 4.5.10.1 In the context of this qualitative appraisal, severance is defined as the separation of residents from facilities and services within their community as a result of changes to the transport infrastructure or changes in traffic flows. Severance is a particular issue for non-motorised users, and particularly so for pedestrians.
- 4.5.10.2 The proposed scheme is expected to reduce severance as follows:
- The proposed HCCTP scheme is designed to improve NMU connectivity and permeability within the city centre through new signalised crossing points between the ESG regeneration area and the historic city core;
 - The public realm improvements associated with the scheme will reduce existing severance on Newmarket Street and on Blueschool Street and create a more pleasant environment for pedestrians and cyclists;
 - The design of the proposed Transport Hub will improve pedestrian and cyclist accessibility to rail services in Hereford, reducing the existing severance between the railway station and historic city core; and
 - The proposed CLR will reduce severance between the A49 Edgar Street corridor and the A465 Commercial Road corridor, and also Hereford railway station and Hereford County Hospital.
- 4.5.10.3 It is expected that the HCCTP scheme will result in *Moderate Beneficial* impacts in terms of Severance.

4.5.11 Option Values

- 4.5.11.1 Option values consider the value individuals place on having an alternative transport option available for use, regardless of whether or not they use the option.
- 4.5.11.2 Although the proposed HCCTP scheme does not involve the addition of a new mode of transport or additional public transport services, it does include the proposed integrated Transport Hub, the proposed CLR and the improved public realm between

the railway station, ESG area and the city centre. These improvements may encourage the use of different transport modes and routes, providing some people with a viable alternative travel option upon which they place some value and hence the scheme will result in a positive impact in terms of option values.

4.5.11.3 Specifically, the improvements to public transport infrastructure will increase the number of bus stops in the city centre area and will move bus stops closer to the retail and historic core. These measures are expected to increase the option value associated with bus travel to and from the city centre, and between the city centre and the railway station.

4.5.11.4 It is expected that the HCCTP scheme will result in *Slight Beneficial* impacts in terms of Option Values.

4.5.12 Summary of Value for Money (Social)

4.5.12.1 Table 4-11 provides a summary of the overall Social impacts for the proposed scheme.

Table 4-11 – Summary of Value for Money (Social) Impacts

Impacts	Benefit ('000s, 2010 prices, discounted)	Qualitative Score
Commuting and Other Users	Economic Efficiency £45,464 NMU Impacts £5,456	Large Beneficial
Reliability Impact on Commuting and Other Users	Qualitative assessment	Slight Beneficial
Physical Activity	Qualitative assessment	Moderate Beneficial
Journey Quality	Included in NMU Impacts above	Moderate Beneficial
Accidents	£2,319	Moderate Beneficial
Security	Qualitative assessment	Slight Beneficial
Access to Services	Qualitative assessment	Moderate Beneficial
Affordability	Qualitative assessment	Neutral
Severance	Qualitative assessment	Moderate Beneficial
Option Values	Qualitative assessment	Slight Beneficial
Total Environment Impact	£53,239	

4.6 EC6: Value for Money (Public Accounts)

- 4.6.1.1 For most transport projects, the primary output of the cost-benefit analysis is the benefit-cost ratio (BCR). This is derived from the comparison between the Present Value of Benefits (PVB) and Present Value of Costs (PVC) (Whole Life Cost).
- 4.6.1.2 The PVC is the impact on the Broad Transport Budget and includes costs and revenues which directly affect the public budget available for transport.
- 4.6.1.3 The PVB is the sum of the monetised benefits in terms of the TEE, Environment and Social sub-objectives, but also includes other cost impacts which do not directly affect the transport budget, such as operating costs and revenues for private sector transport providers, and impacts on wider government finances.

4.6.2 Impact on Public Accounts

- 4.6.2.1 In order to understand the Value for Money of a scheme, it is necessary to know the estimated delivery costs for the scheme, and its funding arrangements. The costs are discussed further in the Financial Case. As stated in Paragraphs 4.2.3.1 to 4.2.3.3 the base costs have been adjusted for risk and inflation and entered into TUBA, and TUBA has converted the costs to PVC, in 2010 prices discounted to 2010. The PVC is presented in Table 4-12.

Table 4-12: PVC ('000's, in 2010 prices, discounted to 2010)

Present Value of Costs (PVC) (Whole Life Cost) (=Broad Transport Budget)	£41,800
-----------------------------------------------------------------------------	----------------

- 4.6.2.2 The full breakdown of the Broad Transport Budget in terms of funding types and funding sources for the HCCTP scheme is shown in the summary Public Accounts Table, (Table 4-13, below). The full Public Accounts Tables are included in Appendix 11.

Table 4-13: Summary of Public Accounts Table, HCCTP Scheme ('000's, 2010 prices, discounted to 2010)

Source	Type	Total
Local Government Funding	Revenue	£0
	Operating Costs	£2,738
	Investment Costs	£25,087
	Developer and Other Contributions	£0
	Grant/ Subsidy Payments	£0
	Net Impact	£27,825
Central Government Funding: Transport	Revenue	£0
	Operating Costs	£0
	Investment Costs	£13,975
	Developer and Other Contributions	£0
	Grant/ Subsidy Payments	£0
	Net Impact	£13,975
Central Government Funding: Non-Transport	Indirect Tax Revenues	£1,427
Totals	Broad Transport Budget	£41,800
	Wider Public Finances	£1,427

4.6.3 Analysis of Monetised Costs and Benefits

4.6.3.1 The expected monetised economic and environmental impacts of the HCCTP scheme have been established and are described in EC2 to EC5. The WebTAG worksheets for Analysis of Monetised Costs and Benefits (AMCB table) and Transport Economic Efficiency (TEE Table) are included in Appendix 11.

4.6.3.2 The results of the monetised and qualitative assessments are brought together in the Appraisal Summary Table (AST). Table 4-14 provides a summary of the AMCB and AST tables. The full AST is included in Appendix 12.

4.6.3.3 Table 4-14 shows that as a standalone transport scheme, the HCCTP scheme will provide a PVB of £63.2 million over the 60 year appraisal period, in comparison with a PVC (whole life cycle) of £41.8 million; resulting in a BCR of 1.51.

4.6.3.4 In addition to the monetised benefits which result in the BCR of 1.51, there are further regeneration benefits due to 'unlocked' development in the ESG area. This includes benefits due to:

- Net private value of housing: The estimated uplift to land values (£000's per hectare) is estimated as a one-off benefit of £6.9 million; and

- Net external impact of housing development: The value of benefits in perpetuity is estimated as £140.5 million which is associated with the change in land use and the availability of more public space, better amenity and improved urban realm;

4.6.3.5 The net social value of housing and external impact of housing development (£147.4m) exceeds the transport-related external costs (£60.7m) due to this additional housing, therefore resulting in a net regeneration benefit of £86.6 million.

Table 4-14: Outline Appraisal Summary Table

Category	Impacts	Quantitative Benefits ('000's in 2010 prices discounted to 2010)	Qualitative Benefits
Economy	Business Users & Transport Providers	£11,100	Moderate Beneficial
	Reliability Impact on Business Users	Qualitative Assessment	Slight Beneficial
	Regeneration	£86,648, but not included in the PVB or BCR	Large Beneficial
	Wider Impacts	Not applicable	Not applicable
Environment	Noise	-£254	Slight Adverse
	Air Quality	-£161	Slight Adverse
	Greenhouse Gases	£734	Slight Beneficial
	Landscape	Qualitative Assessment	Moderate Beneficial
	Townscape	Qualitative Assessment	Moderate Beneficial
	Heritage of Historic Resources	Qualitative Assessment	Neutral
	Biodiversity	Qualitative Assessment	Slight Beneficial
	Water Environment	Qualitative Assessment	Neutral
Social	Commuting and Other Users	Economic Efficiency £45,464 NMU Benefits £5,456	Large Beneficial
	Reliability Impact on Commuting and Other Users	Qualitative Assessment	Slight Beneficial
	Physical activity	Qualitative Assessment	Moderate Beneficial
	Journey quality	Included in NMU Benefits above	Moderate Beneficial
	Accidents	£2,319	Moderate Beneficial

Category	Impacts	Quantitative Benefits ('000's in 2010 prices discounted to 2010)	Qualitative Benefits
	Security	Qualitative Assessment	Slight Beneficial
	Access to services	Qualitative Assessment	Moderate Beneficial
	Affordability	Qualitative Assessment	Neutral
	Severance	Qualitative Assessment	Moderate Beneficial
	Option and Non-Use Values	Qualitative Assessment	Slight Beneficial
Public Accounts	Wider Public Finances (Indirect Tax Revenues)	-£1,427	
	Broad Transport Budget	£41,800	
Overall Impacts	Present Value of Benefits (PVB)	£63,232	
	Net Present Value (NPV)	£21,433	
	Benefit-Cost Ratio (BCR)	1.51	

4.7 Economic Case Summary and Conclusions

- 4.7.1 As a standalone transport scheme, the proposed Hereford City Centre Transport Package has a BCR of 1.51. The majority of the scheme benefits are forecast to be delivered through improved journey times on the city centre road network as a result of the CLR, a key part of the proposed scheme. Other impacts which have contributed to the BCR include benefits to safety, greenhouse gas emissions and non-motorised user benefits, and small dis-benefits to noise and air quality, although the assessments of noise and air quality impacts were worst case assessments.
- 4.7.2 The proposed scheme is being promoted as a regeneration scheme, and will 'unlock' development in the ESG regeneration area. As part of the regeneration 800 residential units would be constructed in the ESG area, made possible by the construction of the CLR. The proposed scheme will result in a net regeneration benefit of £86.6 million.
- 4.7.3 In addition to the monetised benefits, the proposed scheme would provide benefits in terms of reliability, landscape, townscape, biodiversity, physical activity, journey quality, security, access to services, severance, and option values.
- 4.7.4 Overall the Economic Case has shown that the proposed HCCTP represents good value for money, as well as resulting in beneficial environmental and social impacts.

5 THE FINANCIAL CASE

5.1 FC1: Capital Costs

5.1.1 This section describes the details of the scheme costs along with the basis used to arrive at the cost estimates.

Base Cost Estimates (Q4/2014)

5.1.2 The estimate of base costs has been compiled using scheme drawings, including detailed designs for the CLR and outline designs for Public Realm elements for the scheme. The rates used are taken from Spon's Civil Engineering and Highway Works Price Book 2015. The estimate is based upon a price base of 4th Quarter of 2014.

Construction Works Estimates

5.1.3 The following are the basis underlying the construction works cost estimates:

- Items within the estimate have been based upon measured quantities taken from the scheme drawings;
- Rates and prices are inclusive of the main contractor's overheads and profit;
- All rates and prices are exclusive of VAT;
- An allowance of cost estimate uncertainty has been included at 15% for the Public Realm scheme (at outline design stage) and 12.5% for CLR (at detailed design stage) to allow for any variations with respect to tender prices;
- Contractor's preliminaries have been included at 20% of the estimated construction works cost;
- Traffic Management – An allowance has been used based on an 8% addition on the estimated total works for the CLR and 10% for the Public Realm elements of the package. A higher allowance has been made for the Public Realm elements given the works within the city centre network will require greater level of traffic management; and
- Risks associated with estimation of costs based on outline design have been included in the Risk Register and duly reflected in the risk adjusted costs as discussed in Sections 5.1.16 to 5.1.25.

5.1.4 The estimated costs are summarised in Table 5-1. For the build-up of cost estimates by individual series please refer Appendix 13.

Table 5-1: Details of Construction Costs (Q4/2014 in £'000s)

Description	Public Realm (including Transport Hub)	City Link Road	Total
Construction Sub Total(a)	£3,650	£9,404	£13,053
Cost Estimate Uncertainty(b)	£547	£1,175	£1,723
Construction cost to date towards enabling works (c)	£0	£615	£615
Total Construction Cost (A=a+b+c)	£4,197	£11,194	£15,391
Preliminaries (B)	£839	£2,116	£2,955
Traffic Management (C)	£420	£846	£1,266
Construction Total (D=A+B+C)	£5,456	£14,156	£19,613

Other Cost Heads

- 5.1.5 In addition to the detailed construction works estimate as summarised in Table 5-1, the following additional cost heads comprising the total cost of the scheme have been estimated. These are:

Land Purchase

- 5.1.6 Following the Public Inquiry, The County of Herefordshire District Council (Edgar Street Grid and Link Road) CPO 2013 associated with the CLR has been confirmed. The land cost for individual properties affected by the scheme has been prepared by the Property Services division of Herefordshire Council. This includes the estimated cost of purchase and compensation plus legal and surveyors fees.
- 5.1.7 Land costs for the scheme are estimated at £11,022,000, including £6,797,192 spent on land purchased to date. The land costs incurred thus far are close to actual costs as in Q4(2014). The remaining land costs associated with the scheme are programmed to occur in 2015/16.
- 5.1.8 Land costs form a part of Herefordshire Council's contribution towards the overall costs and has been committed in anticipation of the approval of this Business Case. However, the costs associated with land already purchased can be recovered by resale if the scheme does not go ahead for any unforeseeable reasons. Land purchase costs have therefore also been included in the overall costs.
- 5.1.9 Any risks involved with land cost estimates and items have been included in the Risk Register to reflect this (see Appendix 14).

Works for Statutory Undertakers

- 5.1.10 The estimate for the utility diversions, wherever possible and available, is based on the budget estimates provided by Statutory Undertakers affected. If these were not available an additional allowance based on the construction costs has been made.

- 5.1.11 This has been estimated at £1,222,000. Table 5-2 shows the Statutory Undertakers cost estimates for the Public Realm and the CLR elements separately.

Table 5-2: Details of Statutory Undertakers Costs (Q4/2014 in £'000s)

Description	Public Realm (including Transport Hub)	City Link Road	Total
Works for Statutory Undertakers	£472	£751	£1,222

- 5.1.12 The risks involved with utilities works have also been included in the Risk Register (see Appendix 14).

Professional Fees

- 5.1.13 This is broken down into two elements; namely preparation costs and site supervision costs. This has been estimated based on Herefordshire Council and its consultants/Contractors experience as designers and pricing for similar schemes.

- 5.1.14 For the HCCTP scheme, the professional fee is estimated to be £3,327,000 for preparation costs (including £2,693,000 spent up to and including 2014/15) and £949,000 for supervision costs.

- 5.1.15 The base cost estimates for the HCCTP scheme including construction works, land purchase, statutory utilities and other cost heads is estimated to be £36.1m and are summarised in Table 5-3.

Table 5-3: Summary of Scheme Costs (BaseQ4/2014 without Risk allowance in £'000s)

Description	Public Realm (including transport Hub) only	City Link Road only	Whole Scheme
	Estimate Amount	Estimate Amount	Estimate Amount
Construction Total (Table 5-1)	£5,456	£14,157	£19,613
Land Purchase	£0	£11,022	£11,022
Works for Statutory Undertakers (Table 5-2)	£472	£751	£1,222
Professional fees- preparation (including the fees up to and including spend to date)	£356	£2,972	£3,327
Professional Fees- Supervision (including QS, Comms and Admin)	£207	£742	£949
Scheme Total	£6,491	£29,643	£36,134

Risk Adjusted Cost Estimates (Q4/2014)

- 5.1.16 A systematic approach to cost risk into the final scheme costs estimates has been undertaken. This includes identifying, assessing, and responding to risks that occur during a project to support better decision making through improved understanding of the risks inherent in a proposal and their likely impact. This has been described in detail in Chapter 7 Sections 7.1.6 to 7.1.13 and summarised in this section.
- 5.1.17 In order to adjust the base cost for the risks associated with the cost of the scheme, a **Quantified Risk Assessment (QRA)** has been undertaken for this scheme. It is based on the DfT prescribed four step process including:
- a) Risk identification;
 - b) Assessing the impacts of risk to determine possible outcomes;
 - c) Estimating the likelihood of the possible outcomes occurring; and
 - d) Deriving the probability distribution and expected value of the costs of the scheme.
- 5.1.18 The first three steps have been incorporated into the overall process by developing a Risk Register (Appendix 14) which has then run through a Monte Carlo Assessment.
- 5.1.19 The risk register for the scheme has identified all potential risks under the main classification including design and appraisal, construction, funding, stakeholders, land and procurement. It also identifies the possible impact of the identified risk on the final cost of the scheme and/or the timescale for completion. The risk register has also identified the way the risk is proposed to be managed including who owns the identified risk and where possible, to who is the risk transferred. This is based on the professional experience of specialist consultants, who have relevant expertise in facilitating a risk identification exercise, in consultation with Herefordshire Council.
- 5.1.20 Having identified risks the risk register has assessed the impact of each risk, or combination of risks, should they be realised. This quantitative assessment is based on the cost outcomes of the risk considering both the upper and lower extremes of the possible range, taking into account any reasonable constraints. To assess this, empirical evidence is used wherever possible along with the professional experience of specialist consultants.
- 5.1.21 Having identified the risks and assessed the potential range of cost outcomes, the likelihood of occurrence for each of the possible outcomes was identified. This was based on experience of past events, taking account of any foreseeable changes or developments.
- 5.1.22 In line with Green Book [HMT, 2003] guidance, a risk mitigation plan has been identified. This details the response to the identified risks and involves a combination of tolerating, treating, transferring or terminating the activity giving rise to the risk.
- 5.1.23 Following the risk identification exercise, a Monte Carlo Quantitative Cost Risk Analysis (QCRA) model was constructed to give a full understanding of the risk exposure for both pre and post-risk mitigation situations for the project.
- 5.1.24 The mean of the results from QCRA for the pre-mitigation situation has been used to make an allowance of risk to the overall costs. Mean is the value in the middle of the range of results obtained from the QCRA and is estimated at £1,734,801 for the

scheme. It is this value which has been included in the estimates for risk and to derive the risk adjusted costs.

- 5.1.25 The risk adjusted costs has therefore been estimated at £37.9m. Total costs including the adjustment for risk is as summarised in Table 5-4.

Table 5-4 – Summary of Risk Adjusted Costs for the Full HCCTP (Full Scheme in £'000s)

Element	Estimate (£)
Construction Total (Table 5-1)	£19,613
Land Purchase	£11,022
Works for Statutory Undertakers (Table 5-2)	£1,222
Professional fees-preparation (including the fees up to and including spend to date)	£3,327
Professional Fees-Supervision (including QS, Comms and Admin)	£949
Risk (mean)	£1,735
Total	£37,869

Outturn Costs

Inflation

- 5.1.26 Full Inflation is estimated using the tender price indices (TPI) obtained from the Building Cost Information Service (BCIS). TPI measure the trend of contractors' pricing levels in accepted tenders for schemes let on a lump sum basis on bills of quantities, in other words the actual cost to the client. "All in TPI" covers new building work in the UK and includes all sectors such as public and private. It is normally expected that the TPI based inflation is generally higher than the prevalent market inflation for any given year.
- 5.1.27 To remove the impact of general price rises from the construction inflation the GDP Deflator from the WebTAG Databook was used to estimate the real cost inflation. This has been used to estimate the scheme outturn cost.

Cost Profile

- 5.1.28 The Risk Adjusted scheme cost estimated at Q4 2014 has been profiled by financial years and is presented in Table 5-5.

Table 5-5 - Scheme Cost Elements, at Q4 2014 cost base (£'000s)

Year	Professional Fees-Preparation	Professional Fees-Supervision (including QS, Comms and Admin)	Construction	Land	Statutory Undertakers	Risk	Total
2014/15	£2,693	£0	£615	£6,797	£0	£0	£10,105
2015/16	£319	£0	£3,000	£4,225	£375	£527	£8,447
2016/17	£316	£593	£8,433	£0	£375	£648	£10,365
2017/18	£0	£231	£4,291	£0	£472	£333	£5,326
2018/19	£0	£83	£2,183	£0	£0	£151	£2,417
2019/20	£0	£41	£1,091	£0	£0	£75	£1,208
Total	£3,327	£949	£19,613	£11,022	£1,222	£1,735	£37,869

5.1.29 The Outturn cost for the scheme has been estimated at £40.9m. The profile for the anticipated costs profile for the HCCTP scheme is presented in Table 5-6.

Table 5-6 - Cost Profile for HCCTP (Outturn Costs in £'000)

Year	Professional Fees-Preparation	Professional Fees-Supervision (including QS, Comms and Admin)	Construction	Land	Statutory Undertakers	Risk	Total
2014/15	£2,693	£0	£615	£6,797	£0	£0	£10,105
2015/16	£328	£0	£3,080	£4,338	£385	£542	£8,664
2016/17	£333	£625	£8,889	£0	£396	£683	£10,915
2017/18	£0	£252	£4,678	£0	£514	£363	£5,801
2018/19	£0	£94	£2,460	£0	£0	£170	£2,721
2019/20	£0	£48	£1,264	£0	£0	£1,312	£2,624
Total	£3,353	£1,019	£20,986	£11,135	£1,295	£3,070	£40,858

5.2 FC2: LTB, Herefordshire Council and Third Party Contribution

5.2.1 The cost profile has also been split by financial year into the funding requested from Marches LTB, and the contribution by Herefordshire Council (the promoting Authority). Table 5-7 gives the summary of the funding package.

Table 5-7 - HCCTP Funding Package (Outturn Costs in £'000)

Year	Up to and Including 2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	Total
LTB Funding	£0	£5,400	£7,000	£0	£0	£0	£12,400
Pre-committed LTB Funding	£0	£800	£2,800	£0	£0	£0	£3,600
HC Funding	£10,105	£2,473	£1,126	£5,807	£2,724	£2,624	£24,858
Total Scheme Cost	£10,105	£8,673	£10,926	£5,807	£2,724	£2,624	£40,858

5.2.2 The Marches LTB's contribution is £16million, the profile of which is consistent with that agreed for the Local Growth Fund for the years 2015/16 and 2016/17. Herefordshire Council will commit £14.8 to the HCCTP in addition to the spend to date of around £10m. Herefordshire Council will fund this through its traditional routes including LTP budgets and any prudential borrowings as appropriate.

5.2.3 The S151 officer supports the prudent cost estimates used in this business case. The Council's Medium Term Financial Strategy includes the financial impact of underwriting the delivery of these improvements. Third party contributions will be sought and secured where the opportunity arises. Close cost challenge, scrutiny and review will be completed before the approval of spend, alongside strict budget monitoring, ensuring the best value for money and most efficient use of resources is achieved through to project completion. The letter of confirmation is attached in Appendix 15.

5.3 FC3: Whole Life Costs and Maintenance Liabilities

An estimate of the whole life costs of maintaining the scheme has been estimated at £71,000 per annum at Q4 2014. This has been estimated in consultation with Herefordshire Council's asset management team and contractors, Balfour Beatty Living Places, and has been included in the TUBA assessment undertaken as part of the Economic Case in Chapter 4.

6 THE COMMERCIAL CASE

6.1 CC1: Income Generation

6.1.1 As set out in Chapter 4 - The Economic Case (Section 4.3.4), it is estimated that by unlocking development in the ESG area, the proposed HCCTP scheme will generate land value gain of around £6.9 million.

6.1.2 Significant development is underway or planned for the ESG redevelopment area. Development recently constructed includes 310,000 sq. ft. retail and leisure (3.7 hectares total). Additional planned development comprises of 9.7 hectares of housing (800 homes including 35% affordable), 4.7 hectares of Commercial, 4.5 hectares of Retail and Leisure, and 0.8 hectares of Public Realm. As presented in the SOBC, it is estimated that the full redevelopment (including the elements already constructed and the proposed developments) will generate 1,910 net additional jobs and result in £50.9m Gross Valued Added (GVA) into local economy.

6.1.3 The scheme will unlock the residential development of 800 dwellings and integrate the ESG area with Hereford city centre and railway station. The additional dwellings will provide additional revenue for the council through council tax receipts, of circa £1.0m per year.

6.2 CC2 Procurement Options and Strategy

Procurement Options

6.2.1 Herefordshire Council currently have a Public Realm Contract for which Balfour Beatty Living Places (BBLP) is the incumbent Contracting Provider. This Framework Contract is based on the Highway's England's Conditions of Contract for Managing Agent Contractor (Issue 8 Model 2009), which is in turn based on the NEC family of contracts. The Public Realm Contract is a framework for delivering maintenance and upgrading capital works as defined as the core services.

6.2.2 Under the Public Realm Contract BBLP are contracted to deliver Highway maintenance, construction and improvement works up to a value of £500k. In addition to this, BBLP are also contracted to provide professional services which includes the provision of design and supervision resources for a range of civil engineering projects, including highway schemes. The project team have been involved from an early stage to maximise the contribution of specialist expertise and avoid cost or time delays at the point of construction.

6.2.3 A range of procurement options for the construction of the HCCTP have been assessed. The assessment took full account of the delivery programme (see Chapter 7), the inter-dependency of the various elements of the HCCTP (CLR, Public Realm and Transport Hub) and the appropriate time scale for approvals, including from funding bodies and their advisors.

6.2.4 The assessment of procurement options examined their ability to allow Herefordshire Council to meet the following key objectives for the HCCTP:

- Efficient procurement timescales to allow commencement of construction during Autumn 2015;
- Most cost effective procurement route; and
- To deliver a completed scheme within budget.

6.2.5 The following procurement options were assessed:

- Public Realm Contract;
- Midland Highways Alliance;
- Constructing West Midland Framework;
- SCAPE Framework; and
- OJEU Procurement process.

6.2.6 Table 6-1 below, summarises the assessment of the remaining procurement options.

Table 6-1 - Procurement Option Assessment

Procurement Option	Advantages	Disadvantages	Timescale	Cost
Midland Highways Alliance	Established process. Infrastructure Contractors. NEC3 Form of Contract. Opportunity for Early Contractor Involvement	Potential delay in Herefordshire Council (HC) becoming member of MHA. No guarantee that agreement on Target Price will be reached	Timescales required are shorter than OJEU Process once HC have become member of Alliance. Approximate timescale is 121 days	Direct costs to HC for tender process lower than OJEU, but increased costs for Joining Fee, Annual membership and Contract Levy (0.35%) Comparative Costs would be £50,000 based on a £10m construction cost
SCAPE	HC have existing Access Agreement with SCAPE. Framework route specifically for infrastructure projects. NEC3 Form of Contract. Opportunity for Early Contractor Involvement	New Framework has not been tested. Only one Contractor appointed to Framework.	Timescales required are shorter than OJEU process. No time required for HC to join SCAPE. Similar timescales to MHA for actual contract award to be reached.	Direct costs to HC for tender process lower than OJEU. No Joining Fee or Annual membership. Contract Levy (0.5%) higher than MHA. Comparative Costs would be £50,000 based on a £10m construction cost
OJEU Competitive Tender Process	Fully compliant with EU procurement legislation. Clear audit trail to demonstrate award to most economically advantageous Tender. Ability to select list of tendering Contractors	Highest level of pre-tender administration required. Highest level of direct HC procurement costs. No guarantee received Tender prices will be within funding limits.	Procurement timescale is the longest of the possible options. Approximate timescale is 166 days.	Higher direct procurement costs due to the increased level of resources required to carry out tender process. (Approx. £50-£60k) No additional joining Fees or Contract Levies

Procurement Strategy

6.2.7 The assessment of options identified that it is not possible to award the construction of the CLR and some of the other elements of the HCCTP through the Public Realm Contract as these constitute a “Major Scheme”. It is therefore proposed to adopt a three phase approach to procure and deliver the HCCTP scheme. The three delivery phases from a perspective of procurement are as follows:

6.2.8 For the CLR:

- Phase 1: Enabling works, including Royal Mail yard relocation works; and
- Phase 2: CLR construction works.

6.2.9 For the Public Realm Scheme:

- Phase 3: Delivery of the Public Realm elements

6.2.10 Adopting a phased approach and procuring the Royal Mail Yard relocation works separately from the main ESG Link Road works has allowed the enabling works commence in 2015.

6.2.11 The contractor for the CLR construction works will be appointed by March 2016, enabling the CLR scheme to be delivered by July 2017. The public realm works will be procured by July 2017 and delivered by October 2019.

Phase 1- Enabling works, including Royal Mail yard relocation works

6.2.12 Phase 1 of the scheme will be procured independently from the main CLR construction works. The Royal Mail yard relocation works can be awarded through a Service Order under the existing Public Realm Contract. This will allow construction works to the Royal Mail Yard to commence in parallel to the procurement process being carried out for the main CLR construction works.

6.2.13 The advance works are progressing to programme, including on site works. The demolition and culvert enabling works have been procured (July 2015) and are expected to be completed by April 2016. The enabling works associated with the relocation of the Royal Mail yard will be procured by March 2016, with the works complete by the end of November 2016.

Phase 2 – CLR Construction works

6.2.14 Phase 2 involving construction of the CLR elements of the HCCTP scheme will be procured through OJEU competitive tender process. This procurement route will provide a wider choice of potential tenderers, as well as provide a clearly visible audit trail to demonstrate most economically advantageous tender.

6.2.15 The benefits of using the OJEU route are as follows:

- It is fully compliant with EU procurement legislation;
- It provides a clear audit trail to demonstrate award to most economically advantageous tender;
- It provides widest selection choice of potential contractors;

- Procurement costs are comparable with alternative framework procurement route options;
- It allows flexibility of choice of contract form and option; and
- Timescales to complete contract award are compatible with overall programme requirements.

- 6.2.16 The costs associated with pre-tender administration and direct Herefordshire Council procurement would be comparable with the joining fee, annual membership and contract levy costs required to use the other options considered including MHA or SCAPE frameworks.
- 6.2.17 The preparation of the CLR tender package will be completed during November 2015. The OJEU PIN notice was issued in October 2015, with the Invitation to Tender programmed for issue by end November 2015. There will be an 8 week tender period ending w/c 18th January 2016. This will be followed by a tender evaluation and contractor engagement and appointment process which is scheduled for completion by early March 2016, consistent with the planned commencement of the main works in April 2016.

Phase 3: Public Realm

- 6.2.18 The Public Realm elements of the HCCTP will be delivered in packages and is also proposed to be procured through Herefordshire Council's existing Public Realm Contract as this work is within scope of this contract.

Contract Management

- 6.2.19 The advance works are being delivered through Public Realm Contract by BBLP (and subcontractors) with the works on site being monitored by the BBLP Major Projects Team. A similar approach will be followed for the Public Realm works. The main CLR roadworks contractor will be managed on site on behalf of Herefordshire Council by BBLP Major Projects Team. A similar approach will be followed for the Public Realm works.
- 6.2.20 Contract overview is provided by the Construction Manager who reports to the Major Infrastructure Delivery Board (MIDB). The MIDB is responsible for the development and delivery of major schemes across Herefordshire (including the HCCTP). The Director for Economy Communities and Corporate has mandated the MIDB to act as the commissioning gateway and management mechanism for Major Commissions to BBLP (and others as appropriate). Further details are provided in the Management Case.
- 6.2.21 The contract timescales are set out in the updated programme, as discussed in the Management Case and its associated appendices.

Payment Mechanisms

- 6.2.22 The NEC Contract – Option C is to be used for the main roadworks contract. This will include an agreed activity schedule and a capped “pain:gain” mechanism. Payment will be on a monthly basis against completion of agreed activities.
- 6.2.23 The advance works are being delivered through the Public Realm contract based on target cost with payment on a similar basis to the main roadworks contract.

Risk Management Between Herefordshire Council and Contractor

- 6.2.24 The Risk Register, presented in Appendix 14, provides the risk ownerships for the scheme risks. These are owned by Herefordshire Council and/or its contractor BBLP and its consultants.

Herefordshire Council Procurement Officer Approval

- 6.2.25 The Procurement Strategy was considered by the Council's MIDB. The MIDB reviewed the procurement options and accepted the recommendation:
- To deliver the advance works and Royal Mail works through Council's Public Realm Contract;
 - To deliver the main CLR roadworks through the OJEU process to ensure a robust value for money procurement route (noting that the timescale for the OJEU process can be accommodated within the overall programme by delivering packages of advance works through the Council's Public Realm Contract in parallel to the OJEU procurement); and
 - To deliver Public Realm elements of the scheme through Herefordshire Council's existing Public Realm Contract.
- 6.2.26 Herefordshire Council's Commercial Team and the HCCTP Construction Manager will lead the procurement of the main roadworks contract. They have reviewed preparation of contract documentation and the proposed tender evaluation framework. They will be involved in the tender evaluation process and will present tender evaluation report to MIDB who will consider recommended preferred contractor prior to award of contract.

7 THE MANAGEMENT CASE

7.1 MC1: - Project Programme, Risks and Deliverability

Programme

7.1.1 A project plan has been developed for phased delivery of the HCCTP based upon the experience of Herefordshire Council and its Consultants/Contractors in delivery of previous transport schemes of similar scale and complexity. It allows for the inter-dependency of the various elements of the HCCTP (CLR, Public Realm and Transport Hub) and the associated time scale for approvals from funding bodies and their advisors, taking account of the time stated within the appropriate guidance.

7.1.2 Appendix 16 presents the programme for the phased delivery of the HCCTP. The following key milestones have been established for the delivery of the project:

- **Scheme Development, including Monitoring and Evaluation**
 - Pre-Scheme Data Collection – October / November 2014;
 - Submit Business Case: November 2015;
 - Post-scheme Evaluation (One year after): November 2020; and
 - Post-scheme Evaluation (Five years after): November 2024.
- **City Link Road:**
 - Discharge Pre-commencement Planning Conditions (Herefordshire Council): completed February 2015;
 - Complete Detailed Design and consultation: January 2016;
 - Demolition and Culvert Works (Advance works) – Start June 2015;
 - Contractor Procurement (appointment completed): March 2016;
 - Construction (Main scheme) – Start on Site: April 2016; and
 - Scheme Completion: July 2017.
- **Public Realm and Transport Hub:**
 - Outline Design: January 2014;
 - Complete Detailed Design and Consultation: May 2017;
 - Phased Contractor Procurement of different Scheme Packages: May 2017 to July 2017;
 - Construction – Start on Site: August 2017; and
 - Scheme Completion: – October 2019.

7.1.3 These milestones are managed by the HCCTP Project Sponsor and Project Manager with an overview from the Herefordshire Major Infrastructure Delivery Board (MIDB) to ensure that delivery of the project is both on time and to the agreed budget. The organisation and the governance of these aspects are covered in more detail in Section 7.3. If activities are observed to be ahead or behind schedule in comparison with the original delivery plan, this will be discussed and any necessary corrections to

the programme will be made and reported through the Governance procedures (Section 7.3).

7.1.4 The critical path is set out in the programme detailed in Appendix 16, and is established by the key milestones described in Section 7.1.2. The programme illustrates that the detailed design of the CLR and subsequent procurement of the contractor for the CLR construction form the key elements of the critical path. The construction of Public Realm scheme which commences post completion of CLR is also on the critical path.

7.1.5 This procurement process is underway having begun during 2015. The timescale for the OJEU process can be accommodated within the overall programme by delivering packages of advance works in parallel to the OJEU procurement through the Council's Public Realm Contract. Advance works are progressing to programme on site. The OJEU PIN notice has been issued and Invitation to Tender is scheduled for end November 2015 with a eight week tender period.

Risk Management

7.1.6 In order to adjust the base cost for the risks associated with the cost of the scheme, a quantified risk assessment has been undertaken. It is based on the WebTag Unit A1.2 prescribed four step process which includes:

- a) Risk identification;
- b) Assessing the impacts of risk to determine possible outcomes;
- c) Estimating the likelihood of the possible outcomes occurring; and
- d) Deriving the probability distribution and expected value of the costs of the scheme.

7.1.7 The first three steps have been incorporated into the overall process by developing a Risk Register which has then been subject to a Monte Carlo Quantitative Risk Cost Assessment (QCRA). The following sections discuss this process in greater detail.

Risk Register

7.1.8 The key element of the risk management process is the preparation of a Risk Register which gives an overview of risks facing a scheme at a particular stage of development. The Risk Register lists any identified risks that are likely to impact upon the delivery and operation of the scheme.

7.1.9 The Risk Register for the scheme has been developed through a series of risk workshops, with the most recent one held on 30th September 2015. A copy of the current Risk Register is provided in Appendix 14.

7.1.10 The risk workshops sought to identify all potential risks under the main classification of: Construction, Design and Appraisal, Funding, Key Stakeholders, Land and Procurement including the possible impact of the identified risk on the final cost of the scheme and/or the timescale for completion. These risks were captured in the Risk Register.

7.1.11 The Risk Register has also identified the way the risk is proposed to be managed including who owns the identified risk and, where possible, to whom the risk is transferred.

- 7.1.12 The Risk Register sets out the assessment of the impact of each risk, or combination of risks, should they be realised. This quantitative assessment is based on the cost outcomes of the risk, considering both the upper and lower extremes of the possible range, taking into account any reasonable constraints. The assessment uses empirical evidence wherever possible, along with the experience of specialist consultants.
- 7.1.13 Having identified the risks and assessed the potential range of cost outcomes, the likelihood of occurrence for each of the possible outcomes has been assessed. This was based on experience of past events, taking account of any foreseeable changes or developments.
- 7.1.14 In line with Green Book [HMT, 2003] guidance, a risk mitigation plan has been identified within the risk register. This details the response to the identified risks and involves a combination of tolerating, treating, transferring or terminating the activity giving rise to the risk.
- 7.1.15 As the risk register is a live document, it is reviewed regularly in the monthly Project Control Group (PCG) meetings, Herefordshire MIDB meetings and in periodic risk workshops facilitated by risk experts. The aim of this is to review the status of existing risks on an on-going basis as the scheme progresses through the life cycle of the project, to add any new risks that arise and remove any risks that are closed.
- 7.1.16 Upon appointment of the construction contractor a risk workshop will be held to review the Risk Register and identify any additional risks. The Risk Register will be updated to reflect changes to risk. The maintenance and updating of the Risk Register will form part of the construction contract. It will be a requirement that the Risk Register be reviewed at the monthly site progress meetings and updated as necessary.

Quantitative Cost Risk Analysis

- 7.1.17 Following the risk identification process a Monte Carlo QCRA model was constructed to give a full understanding of the risk exposure for the project for both the pre and post-risk mitigation situations.
- 7.1.18 QCRA is an analytical simulation technique used to determine the combined outcome of risk and uncertainty. Costs are uncertain and deterministic values, and thus will never be 100% correct. QCRA explicitly recognises the uncertainty that surrounds the input variables and models the situation.
- 7.1.19 In decision making, probabilistic outputs are very useful. This output is represented as a cumulative probability curve, which provides the full range of confidence levels in the potential cost impact taking into account the probability of occurrence and 3 point estimate impact values of each risk.
- 7.1.20 As discussed in Sections 7.1.8 to 7.1.13, to allow a QCRA to be undertaken, each of the identified risks were assessed in terms of their probability of occurrence and their impact on the project should they occur. The impact assessment for each risk was in the form of a 3-point estimate. That is the minimum, most likely and maximum impacts that each specific risk will have on the project cost, should it occur.
- 7.1.21 The QCRA was undertaken using Oracle Crystal Ball software. Once the software has been run the results are plotted in an S Curve graph from which the percentiles can be read off to produce the Probability Levels. For example the 80th percentile is

referred to as the P80 value. For this value (£2.42m) there is an estimated 80% chance that the contingency required for the project would fall at or below this amount.

- 7.1.22 The mean of the results from QCRA for the pre-mitigation situation has been used to make an allowance of risk to the overall costs. Mean is the value in the middle of the range of results obtained from the QCRA and is estimated at £1,734,801 for the scheme.
- 7.1.23 Figure 7-1 and Table 7-1 illustrate the analysis of the QCRA undertaken for the scheme. For the purposes of cost estimates, allowance for risk has been made using the P(mean) value for the pre-mitigation situation. The results for the post mitigation situation are presented in Appendix 14.

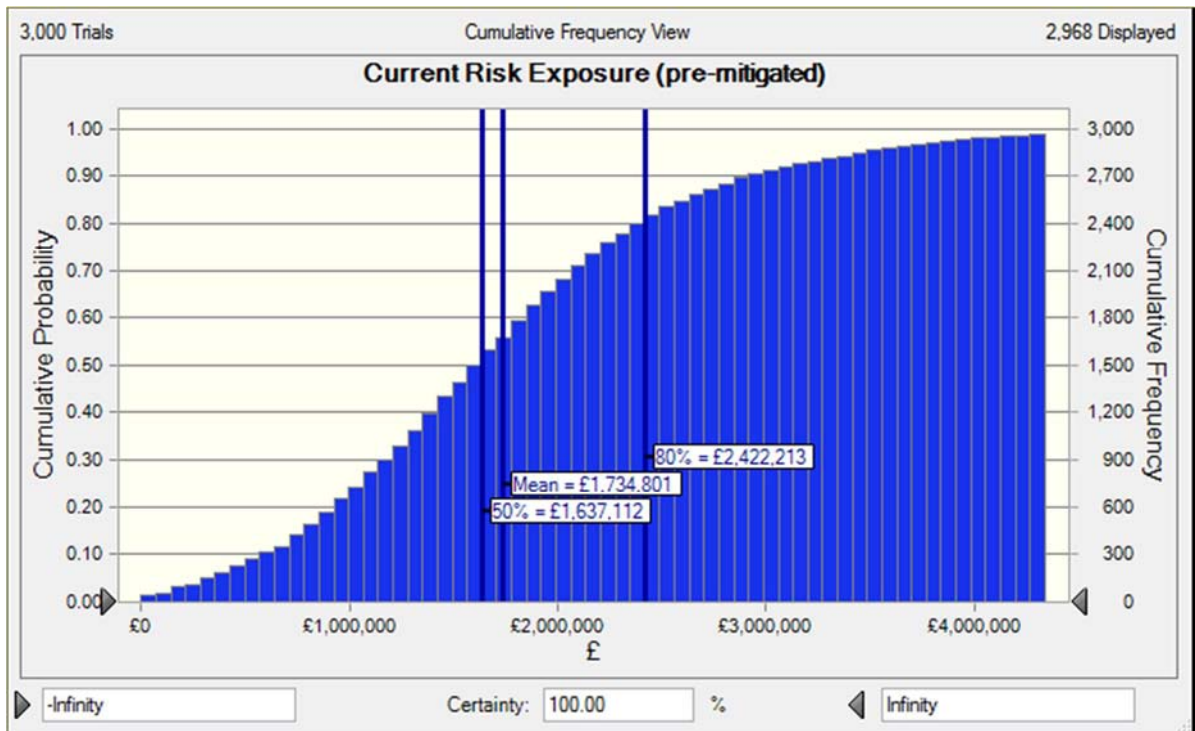
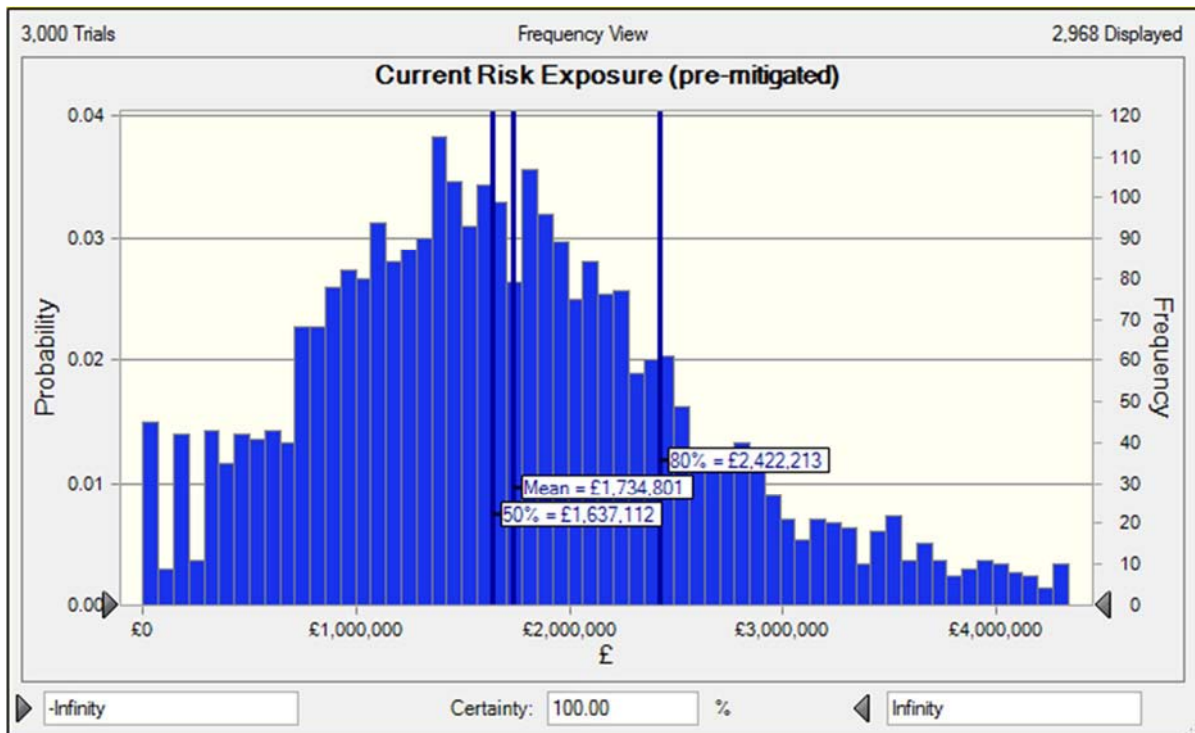


Figure 7-1 QCRA Analysis – Probability Distribution for the costs of the scheme for Pre-Mitigation Situation Frequency View and Cumulative Frequency view)

Table 7-1 – Distribution of Forecasts Values of Risk by Probabilities (Pre- Mitigation Situation)

Percentile	Forecast values
0%	£0
10%	£626,486
20%	£956,824
30%	£1,203,540
40%	£1,427,735
50%	£1,637,112
60%	£1,859,459
70%	£2,109,086
80%	£2,422,213
90%	£2,946,784
100%	£5,780,380
P(mean)	£1,734,801

7.1.24 Figure 7-2 shows the Key Risk Drivers that are strongly contributing to the results. From this analysis the main risks are:

- possibility of having to re-design the attenuation based on drainage consent requirements;
- Potential increase in cost increase resulting from detailed design of public realm schemes. Scheme costs for Public Realm are currently based on outline designs;
- Risk of delays due to possession of Royal Mail car park and an individual commercial business relocation;
- Unforeseen ground conditions and/or contamination resulting in remediation costs and delays; and
- Unforeseen strategic network statutory undertakers equipment encountered during construction stage could cause re-design and therefore impact on cost and schedule. Current design is based on GIS information

7.1.25 This has formed an input to the overall financial case, enabling the costs as presented in the Financial Case to be risk adjusted.

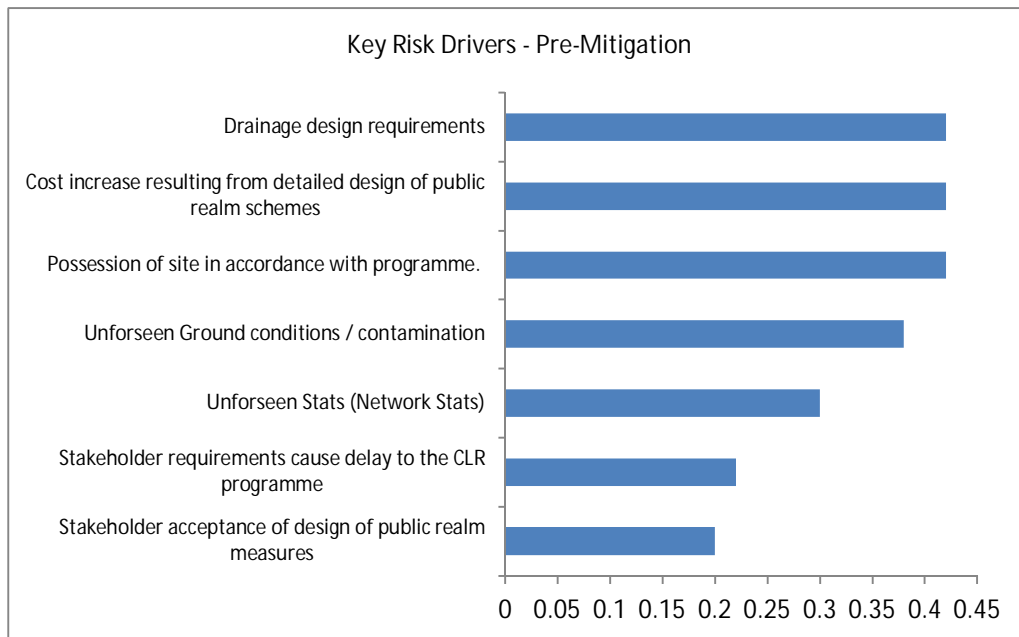


Figure 7-2 Risk Key Drivers (Pre Mitigation Situation)

Deliverability

7.1.26 The successful delivery of the scheme is a priority for Herefordshire Council and the Marches LEP. The scheme is aligned with agreed priorities, in particular in terms of supporting economic growth in Herefordshire.

7.1.27 Herefordshire Council has considerable experience of:

- Delivering major transport schemes on time and on budget;
- Successfully obtaining consents for major infrastructure schemes;
- Developing and maintaining good working relationship with key partners and stakeholders; and
- Internal resourcing and governance requirements for major schemes.

7.1.28 The Council has a track record of delivering transport and flood alleviation schemes including major schemes, examples of which are as below:

- Leominster Industrial Estate Access Road (£8m scheme opened 2005);
- Roman Road Improvements (£5m scheme opened 2006);
- Rotherwas Access Road (£12m scheme opened 2008);
- Widemarsh Street refurbishment (£1.5m scheme opened 2010);
- Yazor Brook Flood Alleviation Scheme (£4m scheme opened 2011); and
- Connect 2 Greenway & Bridge (£1.5m scheme opened 2013).

7.1.29 Herefordshire Council have employed appropriate expertise in developing and delivering the HCCTP. This will help to ensure that the package is designed and constructed using tried and tested methods.

- 7.1.30 The HCCTP is being developed utilising resources from a number of sources, including local authority and consultants, with inputs from key infrastructure providers including Highways England (previously the Highways Agency) and Network Rail. Herefordshire Council has established an integrated team comprising officers, consultancy services and contractors for delivery of this transport project. The project team have been involved from an early stage to maximise the contribution of specialist expertise and avoid cost or time delays at the point of construction.
- 7.1.31 The HCCTP consists of schemes which involve the use of tried and tested methods that improve the performance of urban transport networks, including new and improved highway infrastructure, improved walk, cycle and public transport infrastructure and public realm improvements. As such, the delivery risk has been effectively managed.
- 7.1.32 The HCCTP has been split into phases to aid delivery and to reflect the previously described interdependencies between the various components of the package. Principally, the CLR element of the HCCTP will be implemented first as the Public Realm and Transport Hub schemes are dependent upon completion of that scheme. The Public Realm and Transport Hub schemes will be delivered in phases to help reduce the impact of the works on the operation of the city centre transport network and to align with the funding profile for the project.

7.2 MC2 - Legal Powers and Consents

Legal Powers

- 7.2.1 Planning consent for the CLR was received in March 2010. Side Road Orders and Compulsory Purchase Orders were made in August 2013 (following resolution by Herefordshire Council cabinet).
- 7.2.2 A Public Inquiry to consider both the Compulsory Purchase Order (CPO) and Side Roads Order was held from 23 April to 1 May 2014 at Gardner Hall, the Royal National College for the Blind, Hereford.
- 7.2.3 Following the Public Inquiry, the CPO and associated Side Roads Order for the CLR scheme have been confirmed by the Secretary of State for Communities and Local Government and the Secretary of State for Transport. A copy of the DfT decision letter is provided in Appendix 17 and the confirmed CPO and Side Roads Orders can be found at:

[https://www.herefordshire.gov.uk/transport-and-highways/transport-schemes/edgar-street-grid-and-hereford-link-road?q=Edgar Street&type=suggestedpage](https://www.herefordshire.gov.uk/transport-and-highways/transport-schemes/edgar-street-grid-and-hereford-link-road?q=Edgar+Street&type=suggestedpage)
- 7.2.4 The CPO has been confirmed without modification and the Side Roads Order has been confirmed with only those modifications relating to it that were requested by the council at the Public Inquiry.
- 7.2.5 Notices relating to the confirmation of both orders have been served by Herefordshire Council and General Vesting declaration notices were served in May 2015 so that the CPO powers secured by Herefordshire Council can be exercised. The council will also take steps to implement the powers granted to it under the Side Roads Order, to make necessary changes to the highway network in the vicinity of the route of the road, including the stopping up of affected private means of access, and the creation of new means of access where required, to meet the programme for construction of the new road.

7.2.6 The proposals along Commercial Road, Blueschool Street and Newmarket Street will require Traffic Regulation Orders (TROs). The TROs will be prepared and consulted upon during Autumn and Winter 2016 enabling their implementation in early 2017.

7.2.7 The proposals along Commercial Road, Blueschool Street and Newmarket Street however do not require land acquisition. The majority of the land in question is public highway with the exception of a section of pavement along Commercial Road (northbound) which is under private ownership. However, given the scheme proposals include repaving with high quality material, this can be done using legal agreements with the property owners.

Environmental Consents

7.2.8 All consents associated with the CLR are either in place or near reaching agreement. There is an on-going discussion with English Heritage and Herefordshire Council's County Archaeologist regarding the consent for the crossing of a small section of the ancient city wall at Blueschool Street. Whilst no further environmental consents are expected to be required for the remaining elements of the HCCTP, this matter will be subject to on-going review during the detailed design and consultation process.

7.3 **MC3 - Governance**

Project Organisation and Responsibilities

7.3.1 The governance, project management and monitoring for the HCCTP is based on PRINCE2 principles, which also underpin Herefordshire Council's governance arrangements. The Project Organogram is presented in Figure 7-3.

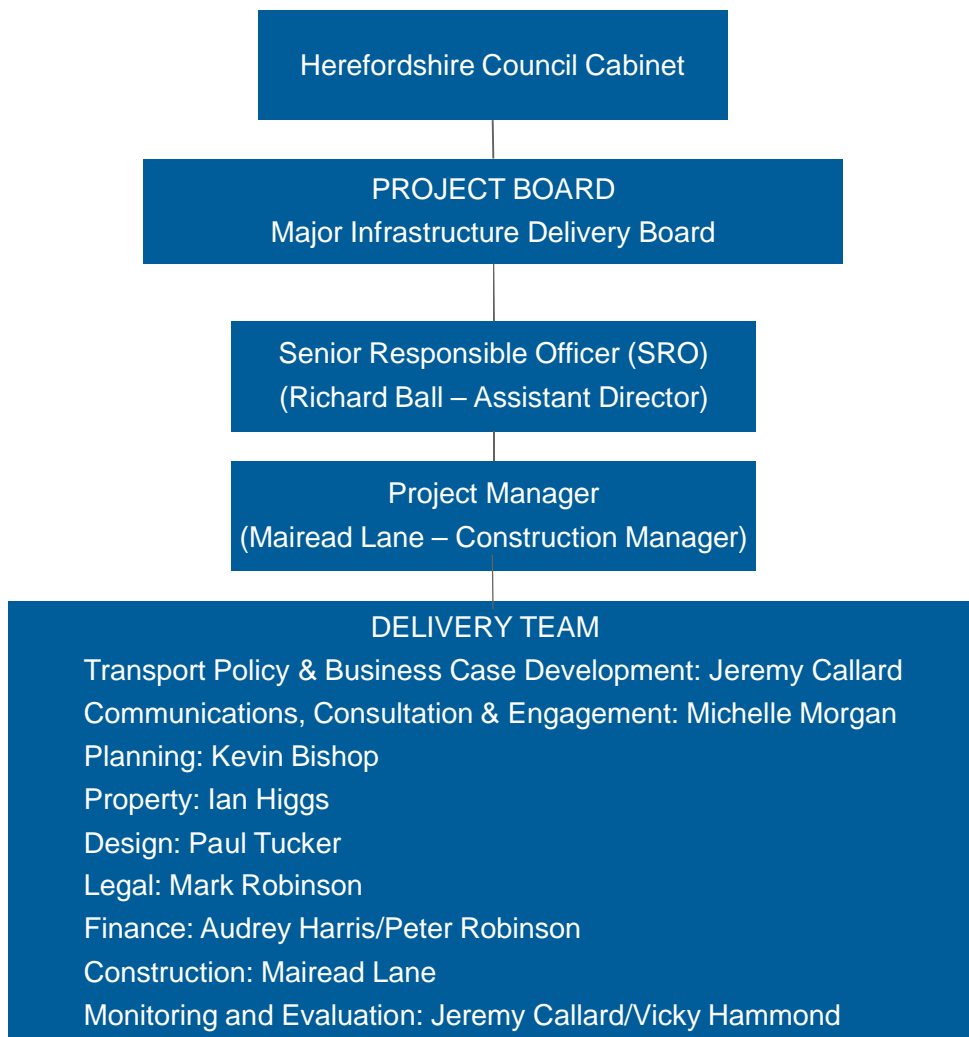


Figure 7-3 – Project Organogram

Herefordshire Council's Cabinet

7.3.2 Herefordshire Council's Cabinet has ultimate authority for the project. The Cabinet meets on a monthly basis. The cabinet is made up of between 3 and 10 councilors, appointed annually by the council. The membership of the Cabinet will be subject to change following the recent elections and as such is not detailed in this Business Case.

Major Infrastructure Delivery Board (MIDB)

- 7.3.3 The scheme is overseen by the Herefordshire Council MIDB to whom the HCCTP's Senior Responsible Owner (SRO) and Project Manager report on a monthly basis. The MIDB is responsible for the development and delivery of major schemes across Herefordshire (including the HCCTP).
- 7.3.4 The Director for Economy Communities and Corporate has mandated the MIDB to act as the commissioning gateway and management mechanism for Major Commissions to BBLP (and others as appropriate). The MIDB principally oversees the delivery of Highways projects (>£500,000) which have the involvement of BBLP (other schemes may be included by exception).
- 7.3.5 The functions of the MIDB are to act as the approving authority for major project briefs, including:
- Set Programme;
 - Set Budget;
 - Set Quality Acceptance Criteria;
 - Appoint Senior User representative;
 - Agree Senior Supplier representative;
 - Set Project Tolerances;
 - Set Key Performance Indicators and Monitor Performance;
 - Manage Delivery by Exception;
 - Dispute Resolution; and
 - Act as Decision Maker on Priorities and Resource Conflicts.
- 7.3.6 The MIDB reports to the following:
- Strategic Partnership Board; and
 - Joint Management Team/Directorate Management Teams as required.
- 7.3.7 The membership of the MIDB is:
- Herefordshire Council:
 - Richard Ball – Executive (Chair);
 - Mairead Lane – Project Assurance;
 - Nick Webster – Economic Development Representative;
 - Mark Robinson – Legal Representative;
 - Tony Furber – Finance Representative;
 - Ian Higgs – Property Representative;
 - Sean Rooney – Public Realm Representative;
 - Jeremy Callard – Policy Representative;
 - Richard Gabb – Housing & Growth Representative; and
 - Andrew Ashcroft – Planning Representative.

- BBLP & WSP|Parsons Brinckerhoff (WSP|PB):
 - Andy Williams – BBLP Contract Director.
 - Alasdair MacDonald – BBLP Design and Build Manager. and
 - Martyn Brooks – WSP|PB Sub-Consultant Framework Director.

7.3.8 The MIDB will ensure that, prior to any decision that makes a commitment which will impact on the Council's expenditure or income, a clear business need has been identified and that both a sound commissioning and commercial strategy is in place to ensure that the optimum value for money is delivered, supply risk is managed and service objectives are met. MIDB will also ensure regular and appropriate information is provided to the Cabinet, the lead Cabinet Member for major contracts, the Leadership Team and Directorates.

7.3.9 The MIDB will meet regularly throughout the life of the project to ensure Project Assurance objectives are met. The MIDB will also specifically meet at key milestones during the project, tying in with their role in procurement, design and financial approval at each stage of the project.

Senior Responsible Officer (SRO)

7.3.10 The nominated Senior Responsible Officer (SRO) for the project is Richard Ball, Assistant Director Place Based Commissioning, Herefordshire Council.

7.3.11 The role of SRO is to facilitate the successful delivery of the Project. This may take the form of helping to procure key resources for the project, or intervening to resolve disputes or issues with other areas of council activity.

7.3.12 The SRO will also lead the management and delivery teams and provides the interface with the MIDB and the wider council team. The SRO will approve appointment (as required) of external specialist teams.

7.3.13 The SRO is required to:

- Receive reports at MIDB on a monthly basis in relation to all items associated with budget and programme;
- Ensure the appropriate resources, project management and technical expertise are in place for the project;
- Make decisions and approve changes within agreed tolerances or seek authorisation if required;
- Monitor and evaluate project progress against milestones and assess outcomes; and
- Provide guidance, support and direction to the Project Manager and project team.

Project Manager

7.3.14 The Project Manager is Mairead Lane, Construction Manager, Herefordshire Council. She manages the project using PRINCE 2 methods within set tolerances as agreed by the MIDB. She leads the work of the Delivery Teams.

- 7.3.15 The role of the Project Manager is to:
- Lead and coordinate the project team and its work streams;
 - Procure consultants and contractors;
 - Prepare and report project budgets;
 - Manage project risks and issues;
 - Report to and receive feedback from the SRO; and
 - Produce periodic progress reports to relevant committees.
- 7.3.16 The management of the construction contract will be carried out by BBLP. The administration of the contract will be carried out by the local team who also prepared the contract documents, thereby ensuring continuity. This team has gained extensive experience in the management and administration of the construction contract through other similar schemes within the county.
- 7.3.17 Project dashboards are reported on a monthly basis to the MIDB. These dashboards include a RAG analysis of scheme programme and budget. They include key messages and highlight where management action is requested. The dashboards also include the risk register for discussion at the board meetings.

Assurance and Approval

- 7.3.18 Project governance is provided by the MIDB who act as the commissioning gateway and management mechanism for Major Commissions to BBLP. The MIDB acts as the approving authority for major project briefs. It oversees major project programmes and budgets. It agrees quality acceptance criteria and project tolerances. The MIDB will make appropriate strategic project decisions or will refer to cabinet member if necessary.
- 7.3.19 The Council's construction manager is the Council's lead / project manager for major infrastructure projects. Project delivery will be led by a combination of the Contractor procured through the OJEU process and by BBLP through the Council Public Realm contract. HC's Contractors are required to have an assurance gateway and approval process. For example BBLP's assurance gateway process includes the following requirements:
- The development of a design programme identifying key milestones and regular review of tasks progress and completion;
 - Project reviews by the Design/Construction Manager at all gateway hold points, these include:
 - Stage Gate 5a: Project Commissioning and Approval;
 - Stage Gate 5b: Design Approval;
 - Stage Gate 5c: Construction Mobilisation;
 - Stage Gate 6: Construction Completion;
 - Stage Gate 7: Project Completion Approval; and
 - Stage Gate 8: End of Defects Liability Period.

- Design and supporting calculations reviews and formal verification to ensure compliance with scope and client requirements, conformity to approved design standards and specific contract requirements; and
- On-going and regular review of design and delivery risk including adding new risks that arise and removing risks that are closed.

For the CLR elements of scheme development Stage Gate 5a and 5b have already been achieved, with the design approval being in place.

Delivery Teams

- 7.3.20 The Project Manager is supported by delivery teams covering all related disciplines. The team is drawn from Herefordshire Council and its Consultants and Contractors.
- 7.3.21 Herefordshire Council is closely working in partnership with BBLP, to develop and deliver the programme of works. The resources for delivering this scheme have been mapped within the resource planning.

7.4 **MC4 - Benefits Realisation**

Benefits Realisation Strategy

- 7.4.1 The implementation of the HCCTP will primarily provide benefits by enabling the delivery of the Edgar Street Grid (ESG) area regeneration programme. The ESG programme comprises of a series of projects, including the recently completed Hereford Old Market retail and leisure development and the Urban Village. The HCCTP and the delivery of associated road infrastructure are required to enable the full development of associated brownfield sites that are currently undevelopable due to access issues.
- 7.4.2 Significant development is underway or planned for the ESG redevelopment area. Development recently constructed includes 310,000 sq. ft. retail and leisure (3.7 hectares total). Additional planned development comprises of 9.7 hectares of housing (800 homes including 35% affordable), 4.7 hectares of Commercial, 4.5 hectares of Retail and Leisure, and 0.8 hectares of Public Realm. As presented in the SOBC, it is estimated that the full redevelopment (including the elements already constructed and the proposed developments) will generate 1,910 net additional jobs and result in £50.9m Gross Valued Added (GVA) into local economy. Of the 800 additional dwellings, 550 are forecast to be dependent upon the delivery of the HCCTP.
- 7.4.1 As set out in Chapter 4 - The Economic Case, (over 60 years and subject to discounting), the social value of housing and the external impact of housing development is estimated to be around £147.4m. This exceeds the transport-related dis-benefits (total £ 65.4 million) by around £82.0 million. This shows the economic impact of the scheme dependent new housing is more than sufficient to compensate for the transport dis-benefits associated with the new development.

Delivery of Benefits

- 7.4.2 The benefits are forecast to accrue following the completion of the CLR (in 2017/18) and the subsequent delivery of the Public Realm and Transport Hub elements of the HCCTP (in 2018/19). In terms of responsibility for the delivery of the benefits:

- Herefordshire Council and its contractors will be responsible for delivering and maintaining the transport infrastructure required to enable the forecasted benefits to be realised; and
- Herefordshire Council will continue to work closely with developers to deliver the planned redevelopment of the ESG which will lead to forecast employment growth and wider economic benefits.

7.5 MC5 - Monitoring and Evaluation Strategy

Monitoring and Evaluation Plan

7.5.1 A Monitoring and Evaluation Plan (MEP) has been prepared for the HCCTP (see Appendix 18). This follows the DfT's Monitoring and Evaluation of Local Authority Major Schemes' guidance. The HCCTP is classified as a project with an overall cost of less than £50 million and therefore the 'Standard Monitoring' assessment will be undertaken. This includes:

- The annual reporting of investment (inputs);
- The annual reporting of project delivery (outputs); and
- The monitoring of outcomes and impacts throughout the HCCTP delivery, leading to the production of 'One Year After' and 'Five Year After' reports.

7.5.2 The following measures (covering inputs, outputs, outcomes and impacts) will be monitored for the HCCTP:

- Scheme build;
- Scheme design;
- Costs;
- Scheme objectives;
- Travel demand;
- Travel times and reliability of travel times;
- Impacts on the economy; and
- Environmental impacts.

Scheme Build

7.5.3 The scheme build will be monitored and evaluated under the following headings:

- Programme/Project Plan;
- Stakeholder Management;
- Risk Management; and
- Scheme delivery and anticipated benefits.

Scheme Design

7.5.4 The scheme design will be monitored and evaluated under the following headings:

- Whether the scheme has reached the intended beneficiaries; and
- Whether a design change has been required to achieve forecast benefits.

Costs

7.5.5 The forecast outturn costs, as presented in the Financial Case (Chapter 5) and approved at the time of Business Case application, will be used as a baseline. The actual outturn costs will be evaluated and reported upon as part of the MEP. The following cost headings will be used:

- Construction;
- Professional design and supervision fee;
- Land acquisition;
- Statutory process; and
- Risk adjustment.

Scheme Objectives

7.5.6 The main strategic transport objectives, against which the HCCTP is to be appraised, comprises of its ability to:

- Improve access to the city centre and the ESG area thereby unlocking development land, supporting housing growth, enabling regeneration and supporting economic growth;
- Provide improved facilities for active travel, including public transport, that improve health outcomes by encouraging physical activity and that reduce the extent of car dominance in Hereford city centre; and
- Reduce emissions of carbon dioxide, through behaviour change and providing facilities for active travel including public transport.

7.5.7 Package performance against these objectives will be monitored to assess the extent to which forecasted benefits have been realised.

Accessibility

7.5.8 The impact of the HCCTP on transport access to the city centre and the ESG will be evaluated in terms of:

- Travel time data collected via journey time surveys for car, public transport, cycle and walk modes augmented by 'queue and delay' surveys on corridors of interest within the study area.

Impacts on the economy

7.5.9 The impacts of the HCCTP on the economy will be monitored using a range of metrics and indicators, including:

- Employment:

- Additional employment floor space by type;
- Total amount of employment space on Previously Developed Land; and
- Employment land availability (by type).
- Employment/ Prosperity: Number of jobs;
- City centre:
 - Total amount of completed city centre development (retail, office and leisure floor space); and
 - Retail performance.

Travel Demand

7.5.10 The impact of the HCCTP on travel demand will be evaluated in terms of:

- Public transport demand (bus and rail patronage);
- Pedestrian and cycle demand; and
- Road traffic flows.

Environmental Impacts

7.5.11 The impacts of the HCCTP on air quality, greenhouse gases and noise will be assessed using a combination of forecast and observed data on traffic flows and carbon emissions.

7.5.12 In summary, the MEP will:

- Provide accountability for the investment;
- Evidence future spending decisions;
- Help to identify the schemes which deliver cost-effective transport solutions;
- Enhance the operational effectiveness of existing schemes or future schemes; and
- Improve future initiatives based on learning.

8 NEXT STEPS

8.1.1 Following completion of this Business Case for the HCCTP scheme, the next steps of the project are expected to be as follows:

- The Business Case will be submitted to ITE for final review in November 2015, before being submitted for consideration by the Marches LEP board;
- It is expected that full approval for the scheme will be confirmed by the LEP board in November 2015;
- Procurement of main construction works for the CLR will be complete by March 2016. As part of the procurement process the tender prices will be available. The tender prices will be used to confirm the cost estimates that form the basis of the Business Case. At this stage the Business Case can be updated to reflect any changes in the costs between the estimated costs and tender prices;
- The construction of the CLR would be progressed with a programmed completion date of July 2017;
- Design, consultation and procurement for the Public Realm scheme (Phase 3) would continue until end of May 2017, with construction programmed to commence in August 2017; and
- The full scheme, including CLR and Public Realm will be delivered by October 2019.

APPENDIX 1 HCCTP SCHEME DRAWINGS

APPENDIX 2

HCCTP Communications Strategy

APPENDIX 3

Hereford Multi-Modal Transport Model Model Development and Validation Report

APPENDIX 4 TUBA Files

APPENDIX 5

Operational Junction Modelling Technical Note

APPENDIX 6

Economic Impact of Housing Development

APPENDIX 7

Noise Impact Assessment

APPENDIX 8

Air Quality Impact Assessment

APPENDIX 9

Non-Motorised User Impact Assessment

APPENDIX 10

COBALT Output Files

APPENDIX 11

WebTAG AMCB, Public Accounts & TEE Worksheets

APPENDIX 12

Appraisal Summary Table

APPENDIX 13

Cost Estimate

APPENDIX 14

Risk Register

APPENDIX 15

Section 151 Officer Confirmation Letter

APPENDIX 16

Delivery Programme

APPENDIX 17

CPO Decision Letter

APPENDIX 18

Monitoring & Evaluation Plan