

## **Iron Lane, Stechford**

Business Case (between £2.5m and £10m LGF sought)



# Business Case Checklist



Scheme: Iron Lane

Lead authority: Birmingham City Council

## STRATEGIC ASPECTS

All	Section / page
Have you appended a map?	Section 4
Are there clear SMART objectives in terms of outcomes and are dependencies, constraints and risks identified?	Section 8: A1
Have you included a SWOT analysis	Section 8: A2
Have you included supporting evidence of partnership bodies' willingness to participate in delivering the bid proposals?	N/A

## ECONOMIC ASPECTS

All	Section / page
Have you provided a completed <u>Appraisal Summary Table</u> ?	Appendix H
Have you provided a completed <u>Scheme Impacts Pro Forma</u> ? [ <i>Small projects only</i> ] -	Appendix F
Have you provided relevant supporting material?	N/A
Is there a reasonable range of options?	Section 9B
Is ruling out of potential promising options clearly justified?	Section 9B
Is distributional analysis needed, who benefits, who pays?	N/A
Are all costs and benefits quantified, if not is this justified?	Section 9E
Are there any decisive un-quantified cost/benefits and are they clearly explained?	Section 9F
Are results of each option presented clearly including do nothing/minimum option?	Section 9E
Are risks, constraints and dependencies identified and managed?	Section 8D and 8E
Is optimism bias properly included and aligned with risk?	Section 12D
Are wider impacts assessed e.g. sustainability, competition, regulatory impact?	N/A
Are <b>monitoring</b> and <b>evaluation</b> costs included?	N/A
Is there a Benefits register; benefits realisation (delivery) plan?	Section 13F
If PFI involved is tax properly treated and is risk transfer clearly achieved?	N/A
Is best VfM = max NPV and if not do un-quantified benefits justify the cost?	Section 9E

## COMMERCIAL ASPECTS

<b>Transport Projects Only</b>	<b>Section / page</b>
Have you attached a joint letter from the local authority's Section 151 Officer and Head of Procurement confirming that a procurement strategy is in place that is legally compliant and is likely to achieve the best value for money outcome?	N/A
<b>All</b>	
Is the proposal commercially feasible / deliverable?	Section 8E
What procurement is required; goods, services, land, buildings?	Section 8E
What is the procurement strategy?	Section 11G
What are the key contractual issues?	Section 11E
Are there clear contractual key milestones and delivery dates?	Section 11G

## FINANCIAL ASPECTS

<b>All</b>	<b>Section / page</b>
Have you enclosed a letter from an independent valuer to verify the market value of land if land is being included as part of the non-LGF contribution towards scheme costs?	N/A
Have you enclosed a letter confirming the commitment of external sources to contribute to the cost of the scheme?	N/A
Focus on affordability; is full budget funding secured and budgeted by all parties?	Section 12C
What are the impacts on income/expenditure a/c and on balance sheet if applicable?	Section 12C
Are potential cost over runs provided for are there any contingent liabilities?	Section 12D
Any guarantees?	N/A

## MANAGEMENT ASPECTS

<b>All</b>	<b>Section / page</b>
Has a letter been appended to demonstrate that arrangements are in place to secure the land to meet the construction milestones?	N/A
Has a Project Plan been appended to your bid?	Appendix M
Has a QRA been appended to your bid?	Appendix J
Has a Risk Management Strategy been appended to your bid?	Appendix K
Is the proposal practically deliverable and what are the delivery plans?	Section 8E and 11G
Are there clear delivery dates and detailed milestones?	Section 13 C3
Does the proposal require programme or project management techniques?	Section

	13 C3
Has a change management plan been included?	Section 13E
Is there a contract management plan?	Section 13H
Does the plan include clear arrangements for OGC Gateway peer reviews?	N/A
Is there a contingency plan with arrangements & provision for risk management?	N/A
Is there a benefit realisation table and plan?	Section 13F
Does the plan include monitoring arrangements (who when how and costs)	Section 13F
Does the plan include post implementation evaluation arrangements (including who when how and costs)?	Section 13F

### STATE AID COMPLAINACE

All	Section / page
Have you completed the State Aid form?	Appendix O
Have you provided evidence of being State Aid compliant?	N/A

### DECLARATION

All	Section / page
Has the SRO declaration been signed?	Section 15

### APPENDICES

All	Section / page
Economic Appraisals	Appendix G
Financial Appraisals	N/A
Benefits Register	Appendix N
Risk Register	Appendix B
Risk Potential Assessment (RPA)	N/A
Letter of commissioner/ Stakeholder Support	N/A
Draft OJEU notice	N/A
SOP/ Strategic Business Plans.	N/A

## ECONOMIC CASE CHECKLIST

Complete the standard templates / outputs (in addition to the Appraisal Summary Table):

Template / output	Provided Yes / No
<u>Transport Economic Efficiency table*</u>	Appendix G
<u>Public Accounts table*</u>	Appendix G
<u>Analysis of Monetised Costs and Benefits table*</u>	Appendix G
WITA/COBA output files (if used)	No

### Cost Benefit Analysis

Item	Section/ Page
A clear explanation of the underlying assumptions used in the Cost Benefit Analysis	Section 9E
Information on local factors used. For example the derivation of growth factors, M factors in COBA and annualisation factors in TUBA (to include full details of any calculations)	Section 9E
A diagram of the network (if COBA used)	N/A
Information on the number of junctions modelled (if COBA used), for both the do-minimum and the do-something	N/A
Details of assumptions about operating costs and commercial viability (e.g. public transport, park and ride, etc.)	N/A
Full appraisal inputs/outputs (when used, COBA and/or TUBA input and output files should be supplied)	Appendix G
Evidence that TUBA/COBA warning messages have been checked and found to be acceptable	Appendix G
Spatial (sectoral) analysis of TEE benefits	N/A
Details of the maintenance delay costs/savings	N/A
Details of the delays during construction	N/A

### Economic Case Assessment

Item	Section/ Page
Assessment of Environmental impacts, to include an environmental constraints map	Section 9F
Assessment of Safety impacts and the assumed accident rates presented (COBA output should be provided if an accident only COBA has been run)	N/A
Assessment of Economic impacts	Section 9E
Assessment of Accessibility impacts	Section 9F and Appendix I
Assessment of Integration impacts	N/A

Assessment of the Social and Distributional Impacts	Section 9F and Appendix I
A comprehensive Appraisal Summary Table	Appendix H
AST worksheets	N/A

#### Modelling

Item	Section/ Page
<b>An Existing Data and Traffic Surveys Report to include:</b>	
Details of the sources, locations (illustrated on a map), methods of collection, dates, days of week, durations, sample factors, estimation of accuracy, etc.	Appendix E Section 2.3
Details of any specialist surveys (e.g. stated preference).	N/A
Traffic and passenger flows; including daily, hourly and seasonal profiles, including details by vehicle class where appropriate	Appendix E Section 2.3
Journey times by mode, including variability if appropriate	Appendix E Section 3.3
Details of the pattern and scale of traffic delays and queues	Appendix E
Desire line diagrams for important parts of the network	N/A
Diagrams of existing traffic flows, both in the immediate corridor and other relevant corridors	Appendix E
<b>An Assignment Model Validation Report to include:</b>	
Description of the road traffic and public transport passenger assignment model development, including model network and zone plans, details of treatment of congestion on the road system and crowding on the public transport system	Appendix E Section 5.4
Description of the data used in model building and validation with a clear distinction made for any independent validation data	Appendix E Section 5.5
Evidence of the validity of the networks employed, including range checks, link length checks, and route choice evidence	Appendix E Section 3.3
Details of the segmentation used, including the rationale for that chosen	N/A
Validation of the trip matrices, including estimation of measurement and sample errors	Appendix E Section 2.6
Details of any 'matrix estimation' techniques used and evidence of the effect of the estimation process on the scale and pattern of the base travel matrices	Appendix E

Validation of the trip assignment, including comparisons of flows (on links and across screenlines/cordons) and, for road traffic models, turning movements at key junctions	Appendix E Section 3
Journey time validation, including, for road traffic models, checks on queue pattern and magnitudes of delays/queues	Appendix E Section 3
Detail of the assignment convergence	Appendix E Section 3
Present year validation if the model is more than 5 years old	Appendix E Section 3
A diagram of modelled traffic flows, both in the immediate corridor and other relevant corridors	N/A
A Demand Model Report to include:	
Where no Variable Demand Model has been developed evidence should be provided to support this decision (e.g. follow guidance in WebTAG Unit 3.10.1 Variable Demand Modelling - Preliminary Assessment Procedures)	N/A
Description of the demand model	N/A
Description of the data used in the model building and validation	N/A
Details of the segmentation used, including the rationale for that chosen. This should include justification for any segments remaining fixed	N/A
Evidence of model calibration and validation and details of any sensitivity tests	N/A
Details of any imported model components and rationale for their use	N/A
Validation of the supply model sensitivity in cases where the detailed assignment models do not iterate directly with the demand model	N/A
Details of the realism testing, including outturn elasticities of demand with respect to fuel cost and public transport fares	N/A
Details of the demand/supply convergence	N/A
A Forecasting Report to include:	
Description of the methods used in forecasting future traffic demand.	Appendix E Section 5
Description of the future year demand assumptions (e.g. land use and economic growth - for the do minimum, core and variant scenarios)	Appendix E Section 5
An uncertainty log providing a clear description of the planning status of local developments	Appendix E Section 5
Description of the future year transport supply assumptions (i.e. networks examined for the do minimum, core scenario and variant scenarios)	Appendix E Section 5
Description of the travel cost assumptions (e.g. fuel costs, PT fares, parking)	Appendix E Section 5
Comparison of the local forecast results to national forecasts, at an overall and sectoral level	Appendix E Section 5
Presentation of the forecast travel demand and conditions for the core scenario and variant scenarios including a diagram of forecast flows for the do-minimum and the scheme options for affected corridors	Appendix E Section 5

If the model includes very slow speeds or high junction delays evidence of their plausibility	Appendix E Section 6
An explanation of any forecasts of flows above capacity, especially for the dominant, and an explanation of how these are accounted for in the modelling/appraisal	N/A
Presentation of the sensitivity tests carried out (to include high and low demand tests).	N/A



# Local Growth Fund Business Case Proforma (£2.5m to £10m)

Greater Birmingham  
& Solihull  
Local Enterprise Partnership

## 1: SCHEME TITLE

Iron Lane, Stechford

Transport and Connectivity Scheme: Yes

Skills and Learning Scheme: No

Housing and Regeneration Scheme: No

Business Support Scheme: No

Another Type of Scheme?: No

## 2: CONTACT DETAILS AND SCHEME LOCATION

Name of Lead Contact: Philip Edwards

Email: [Philip.Edwards@birmingham.gov.uk](mailto:Philip.Edwards@birmingham.gov.uk)

Telephone: 0121 303 7409

District: Birmingham

Location of scheme: Stechford, Birmingham

## 3: HEADLINE DESCRIPTION

The proposed scheme will see the implementation of two new gyratory arrangements to increase junction capacity and reduce congestion at the junction of Iron Lane, Flaxley Road and Station Road in Stechford. Dedicated pedestrian/cycle crossing facilities will be provided to enhance 'active travel' and new street lighting will form part of the scheme to improve public safety and security. The scheme will enhance the local economy by:

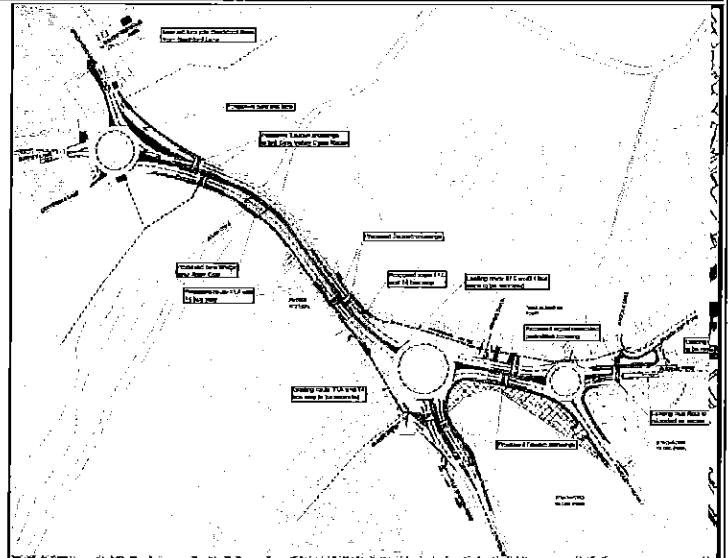
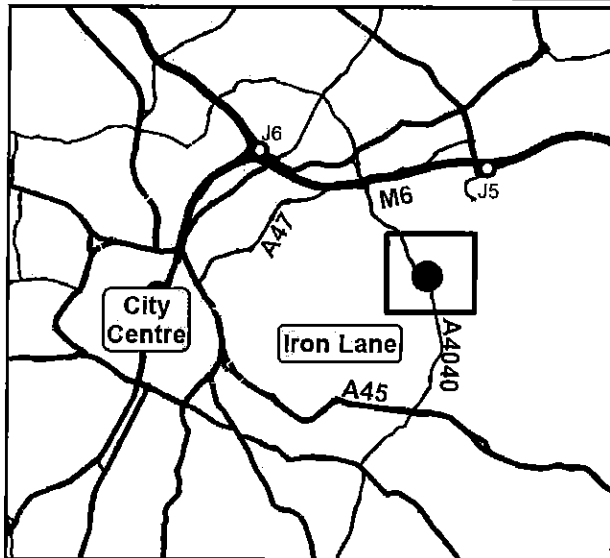
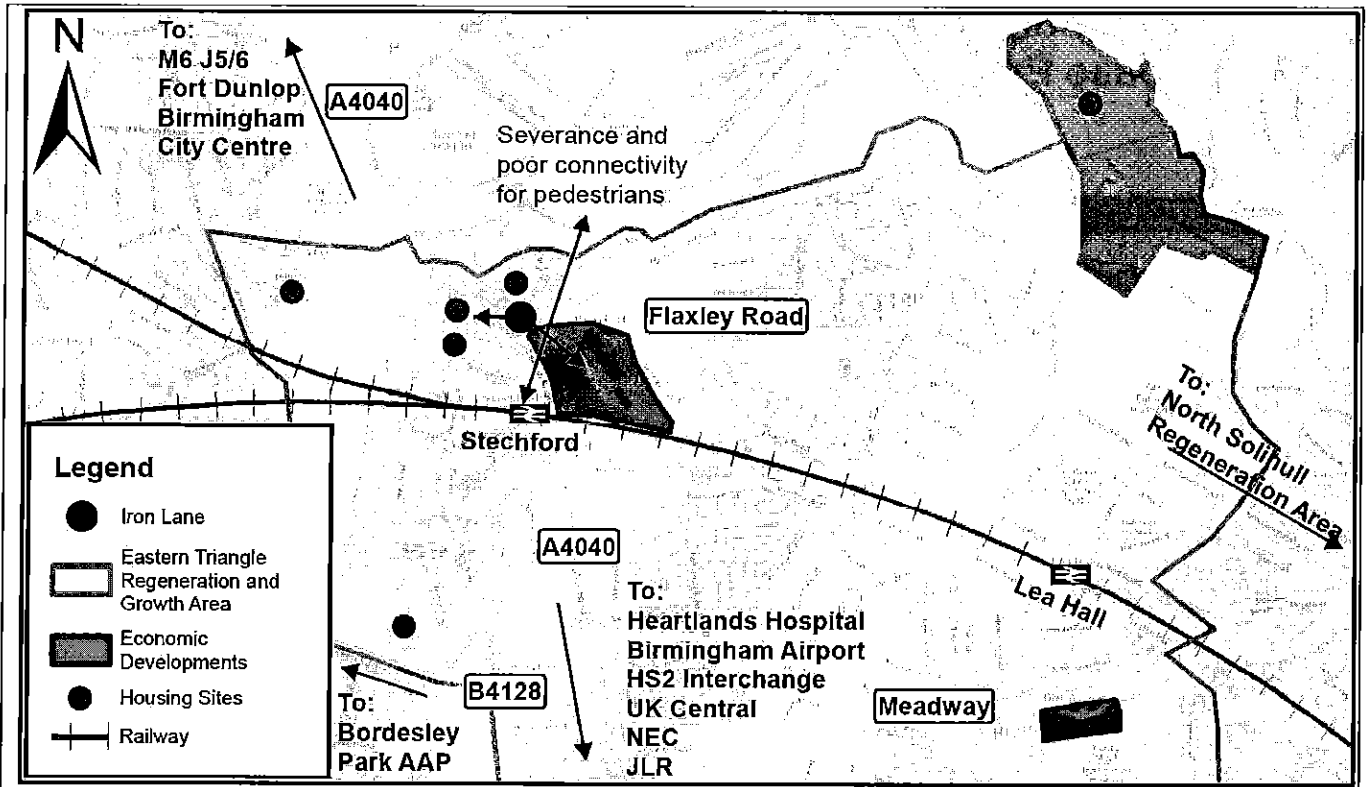
- Removing a major pinch point on the A4040 Outer Ring Road in East Birmingham, located 4 miles south east of the M6 Junction 6 (Spaghetti Junction).
- Providing access to a number of large urban employment sites outside of Birmingham City Centre and areas targeted for regeneration in the east of the City area.
- Reducing the high levels of congestion, traffic queues and unreliable journey times that affect buses, cars and commercial vehicles. This, as well as severance experienced by pedestrians, constrain economic stimulus and growth in the area.

## 4: GEOGRAPHICAL AREA

The Iron Lane / Flaxley Road / Station Road junction is located 4 miles south east of the M6 Junction 6 (Spaghetti Junction) and 4.5 miles east of Birmingham City Centre. It is a major junction on a key section of the A4040 Outer Ring Road, connecting east Birmingham with the M6, major employment sites, as well as leisure and community facilities. The outer ring road is served along the majority of its length by the number 11 bus route. Major developments in housing and retail are planned for the immediate area surrounding the junction.

OS Grid Reference: 412,912 287,764

Postcode: B33 9AU



Birmingham City Council

Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA

Have you appended a map?  Yes  No

## 5: PURPOSE

This business case has been completed to seek approval of Local Growth Fund allocation to the value of £7m in support of the Iron Lane transport scheme, which anticipates removing a major pinch point on the A4040 Outer Ring Road that will unlock economic stimulus and growth in the area.

## 7: THE STRATEGIC CONTEXT

### A: Introduction

This Full Business Case (FBC) seeks approval to invest £4.48m in a scheme to reduce the congestion and unreliable journey times in Stechford that is constraining economic growth in the area. The total cost of the scheme is £9.659m, with a Local Growth Fund contribution of 46.3%.

This FBC has been prepared using the agreed standards and format for business cases, as set out in the Green Book, from which guidance has been taken. WebTAG has also been used to derive the Economic Benefits of the scheme.

The approved format is the Five Case Model, which broadly comprises the following key components:

- The **strategic case**. This sets out the strategic context and the case for change, together with the supporting investment objectives for the scheme;
- The **economic case**. This demonstrates that the organisation has selected a preferred way forward, which best meets the existing and future needs of the service and is likely to optimise value for money (VFM);
- The **commercial case**. This outlines what any potential deal might look like;
- The **financial case**. This highlights likely funding and affordability issues and the potential balance sheet treatment of the scheme; and
- The **management case**. This demonstrates that the scheme is achievable and can be delivered successfully in accordance with accepted best practice.

The aim for the Iron Lane transport works is to reduce the high levels of congestion, reduce severance for pedestrians and cyclists and improve the access to a number of large urban employment sites outside of Birmingham City Centre.

### B: The Strategic Context

#### Organisational overview

The Greater Birmingham and Solihull LEP is ambitious in its aim to significantly improve transport infrastructure across the area during the SEP timeframe via the Local Growth Fund. In preparing the scheme Business Case, evidence to demonstrate a strong rationale for interventions was collected. In particular, Birmingham City Council understand that there must be clear solutions that have been built to mitigate market failures, support national and regional policy on growth, have been prioritised against alternative options and demonstrate clearly how they will address existing transport issues.

#### Business strategies

#### Fit with overarching Strategic Transport Objectives

<b>Access to International Gateways &amp; HS2</b>	<ul style="list-style-type: none"><li>• Improved access from the east Birmingham area to Birmingham Airport;</li><li>• Improved access from east Birmingham to the HS2 interchange station in Solihull.</li></ul>
<b>Freight &amp; Business Efficiency</b>	<ul style="list-style-type: none"><li>• Improved access to industrial premises near to Birmingham Airport, NEC, and Erdington.</li></ul>
<b>Access to Growth</b>	<ul style="list-style-type: none"><li>• Improved access to enable housing, employment and retail growth in east Birmingham and the Airport/NEC area.</li></ul>
<b>Access to Labour and</b>	<ul style="list-style-type: none"><li>• Improved access to labour markets in the east of the city to</li></ul>

**Skills**

support development at the Airport/NEC/Erdington area.

**Fit with overarching Strategic Transport Objectives**

<p><b>Local Transport Plan (LTP)</b></p>	<ul style="list-style-type: none"> <li>Fits with LTP targets and objectives to reduce congestion, improve road safety, increase bus patronage, improve air quality and enhance accessibility.</li> </ul>
<p><b>LEP Strategy for Growth/Strategic Spatial Planning Framework</b></p>	<ul style="list-style-type: none"> <li>The Stechford / Meadway area in east Birmingham is shown as a major area for expansion/growth in the Strategic Spatial Planning Framework, with nearby sites for 500+ and 251-500 new dwellings respectively, and also major retail development;</li> <li>The scheme will support the LEP Strategy for Growth in terms of improving digital and physical connectivity, delivering growth and building the number of successful businesses.</li> </ul>
<p><b>UDP/Local Plan/Core Strategy</b></p>	<ul style="list-style-type: none"> <li>Scheme supports new proposed sustainable urban neighbourhood at the Meadway in east Birmingham. Scheme included in Core Strategy infrastructure plan/CIL schedule.</li> </ul>
<p><b>Other relevant adopted plans/strategies</b></p>	<ul style="list-style-type: none"> <li>N/A</li> </ul>

**Birmingham City Context**

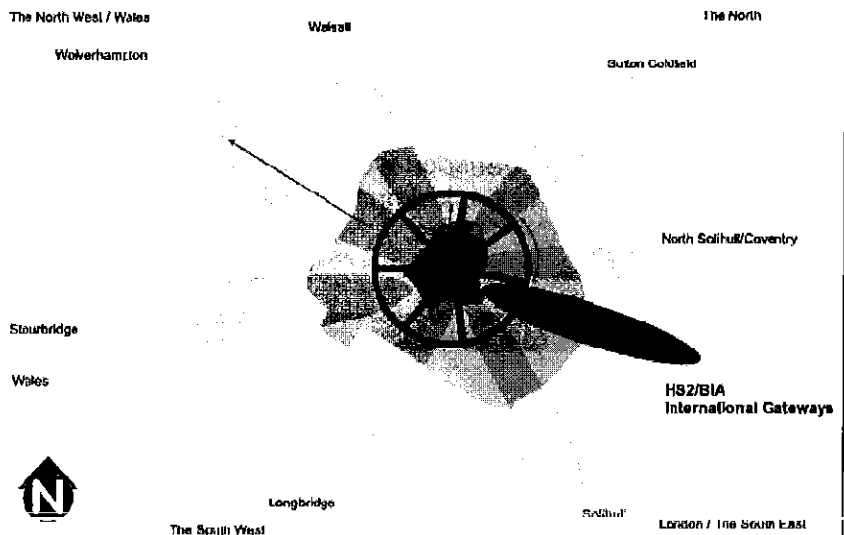
Birmingham is the second largest city in the UK with a population of just over 1 million and a GVA of £20 billion per annum. The city lies at the centre of the UK, easily accessible from all UK regions. It is a major international commercial centre that is an important asset not just to the surrounding metropolitan area and West Midlands region but to the UK as a whole.

Birmingham is an established transport, retail, events and conference hub. The city centre currently accounts for a third of Birmingham's economic output,

accommodates over 150,000 jobs, attracts more than £2 billion in shopping expenditure a year and is a major visitor centre. It has a large residential population of over 30,000 people and access to a workforce of over 2.11 million people of working age (16-64) within easy commutable distance, of which almost half a million are educated to degree level or higher. Its 3 universities and 2 university colleges also make it the largest centre of higher education in the UK outside of London.

Birmingham's history as a manufacturing and engineering centre encouraged exceptional levels of creativity and innovation in highly skilled trades, providing a diverse and resilient base for economic growth and prosperity.

The economy today is dominated by the service sector with tourism playing an increasingly integral role. Despite the decline of manufacturing in the city several significant industrial plants remain and development plans for the city, including the City Centre Enterprise Zone, look to build on the history of innovation to stimulate enterprise in new growth sectors including digital media, creative industries and ICT.



### **Birmingham as a Major Transport Hub**

Birmingham's central location, lying at the heart of the road and rail networks of the UK, ensures that it plays a vital role as a major transport hub for the West Midlands and United Kingdom. The city is served by the M5, M6, M40 and M42 motorways. The M6 connects road users directly to the city centre via the Tame Valley Viaduct and the best known motorway junction in the UK, Spaghetti junction.

Birmingham Airport, located six miles east of the city centre, connects the city to key business and leisure destinations whilst the city's main railway station, Birmingham New Street, is the busiest interchange in the UK outside London. It is located approximately 5 minute's walk away from the central business district and its principal routes link to all regions of the UK.

New Street Station is a gateway into Birmingham city centre. £600 million of planned investment (Gateway Project) has transformed the station, delivering a bright, modern transport hub for the city. The Gateway Project will generate investment and increase capacity to support greater visitor and commuter numbers. This will be capitalised upon to boost the City's profile and grow the economy.

### **Birmingham City Centre Enterprise Zone**

Birmingham City Centre Enterprise Zone is expected to deliver 40,000 new jobs, over the course of its lifetime. It will provide 1.3sqm of new floor space and contribute £2 billion to the economy in GVA per annum over the next 25 years.

The development of the EZ will generate employment both through the construction of new infrastructure and premises and in accommodating business activity within Birmingham's City Centre. Based upon labour market impact modelling, of the 7,231 jobs created by 2018 almost 61% will be managerial, professional or associate professional, with a further 15% being administrative. It is projected that 55% of labour will come from within the LEP area (Greater Birmingham and Solihull) highlighting the wider effects that the EZ designation will have in terms of employment opportunities.



As an economic entity it is imperative that the EZ is supported by fast and reliable connectivity into regional, national and international labour and product markets both in terms of physical and digital connectivity. There is a strong correlation between the ability of businesses to build a good quality image and reputation with the existence of high quality connections. Improving the quality of Birmingham's transport connections will play a vital role in maintaining a competitive edge over major cities in competing for private sector investment and development.

### **Iron Lane / Station Road Junction**

The junction of Iron Lane, Flaxley Road and Station Road in Stechford is a key junction on the A4040 Outer Ring Road in East Birmingham and is located 4 miles south east of the M6 Junction 6 (Spaghetti Junction). In its current state, the junction is of a poor standard with a partially signal controlled gyratory arrangement. It suffers severely from both morning and evening peak congestion due to a lack of junction capacity, which has a direct negative impact upon future development proposals. Lengthy queuing and delay for all vehicles and blocking of both upstream and downstream

junctions is a common occurrence at the junction.

The Iron Lane, Flaxley Road and Station Road junction is regarded as a strategic road link within Stechford and the East Birmingham area, with links to key economic employment centres including Fort Dunlop, Heartlands Hospital, Jaguar Land Rover, Blythe Valley, NEC and Birmingham Airport. Current delays at the junction result in increased journey times to the M6 and M42 motorways of up to 20 minutes, restricting access to / from the East Birmingham area to major national business centres outside the region.

Stechford lies within the former East Birmingham North Solihull Regeneration Zone where 8 out of 13 wards fall within the worst 10% of the Indices of Multiple Deprivation (IMD) nationally. Improved transport accessibility within Stechford and to and from the area would greatly improve much needed access to employment, education, health and other key services.

Station Road / Iron Lane acts as a key local route linking residents with jobs both in the city centre and outside the West Midlands. The number 14 and number 11 outer circle bus services suffer from consistent reliability issues at this junction, impacting the quality of bus services. The junction also suffers from poor pedestrian linkages and facilities in respect of desire lines, public transport interchange and access to local retail opportunities.

The junction was previously identified for significant improvement as part of the Outer Circle Showcase Local Transport Plan (LTP) major scheme; however, costs were prohibitive in the context of the overall package and available funding. Improvements to the Station Road / Iron Lane gyratory that will ease congestion, reduce journey times and increase reliability are essential if predicted increased levels of economic growth in Birmingham are to be realised and sustained.

## 8: THE CASE FOR CHANGE

### A: Business Needs

#### A1: Investment Objectives

##### Investment Objectives

These are directly related to the headline aspirations of this application.

1. Reducing the high levels of congestion, reduce *traffic queues* and *improve journey time reliability* that effect buses, cars and commercial vehicles.
2. Removing a major pinch point on the A4040 improving average *journey times\** for trips using Iron Lane.
3. Reduce severance for pedestrians and cyclists accessing the city centre, leading to an *increase in the number of trips made using active modes\**.
4. Improve access number of large urban employment sites outside of Birmingham city centre, resulting in an *increase in the number of O-D trips serving regeneration sites in the east of the City\**.

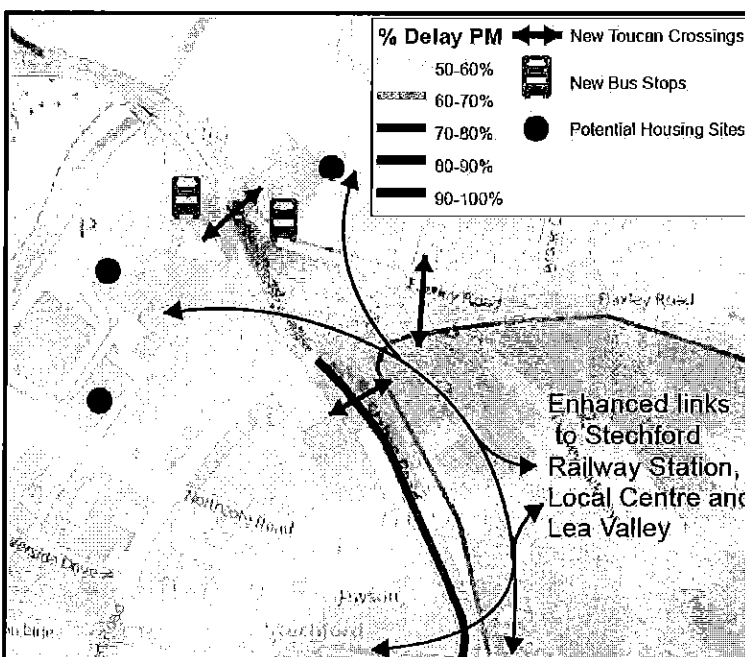
\*Metrics by which the SMART Investment Objectives will be measured.

These objectives are set out so that they can be measured over the lifetime of the scheme. They will be monitored using metrics such as public transport patronage and highway performance indicators, such as journey time and delays through the improved junctions.

#### A2: Existing Arrangements

There is a clear issue of widespread congestion on many parts of Birmingham's primary route network, which has resulted in the significant displacement of traffic onto alternative routes to employment centres on a daily basis. Station Road / Iron Lane is a key example of a primary route network that continues to suffer from high levels of congestion, increasing traffic queues, and unreliable journey times affecting buses, cars, commercial vehicles and pedestrians – all of which significantly deters sustainable economic growth.

Analysis on delay at the junction (see diagram) suggests that during the evening peak, average delay in the northbound direction consistently exceeds 60% (compared to an off-peak free flowing travel time), reaching 100% on approach to the junction. Delay in the southbound direction also exceeds 50% during the peak.



Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA

Evidence suggests that, due to the existing route layout, there is very little spare capacity. Improvements along the route, in parallel with existing schemes aimed at relieving congestion on the Ring Road and Stratford Road junctions, will provide much needed reductions in delay.

The Station Road / Iron Lane junction is surrounded by a number of major sites of investment and development that hold both regional and local importance including Heartlands Hospital, North Chelmsley Wood, National Exhibition Centre, Birmingham Airport, Fort Dunlop, Castle Bromwich and Jaguar Land Rover. Any expansion or increased development at these sites is likely

to have a significant detrimental impact upon the operation and working capacity of this already congested junction. Improvements are therefore essential to promote accessibility and remove barriers for labour trying to reach these sites, whilst also encouraging inward investment and development.

As part of Birmingham City Council's Outer Circle Showcase LTP major scheme, the Station Road / Iron Lane junction has previously been highlighted as a priority site for infrastructural upgrades to alleviate congestion issues. Due to limited funding and a large number of required improvements, a number of key junctions including Iron Lane remain to be developed.

### SWOT Analysis

In order to appreciate the rationale for the scheme, it is vital to understand existing transport conditions and future opportunities for transport infrastructure. The improvements at the Station Road / Iron Lane junctions should overcome existing issues with local transportation, in addition to providing improved access to growth sites. SWOT analysis is an analytical method which is used to identify and categorise significant internal (Strengths and Weaknesses) and external (Opportunities and Threats) factors faced by transport connectivity within the Greater Birmingham and Solihull LEP area.

The SWOT analysis provides the context for the scheme and why it is required. It highlights the fact that there are a number of weaknesses with the existing transport infrastructure along the route, and associated threats to delivery. However, the delivery of the improvements will overcome a number of weaknesses in relation to growth and accessibility. In addition, a well-managed procurement exercise and delivery phase, allied with a robust monitoring process will ensure that any threats associated with the delivery of the scheme can be mitigated or removed. The following SWOT analysis summary provides an insight into the findings.

		EXTERNAL	
P O S I T I V E		<ul style="list-style-type: none"> <li>Existing improvements under way or completed, including New Street Station rebuild, Midland Metro Extension, and Birmingham Airport Runway Extension;</li> <li>Central location in the UK with excellent transport links, supporting logistics businesses and nationally and regionally important facilities;</li> <li>HS2 in the longer term will improve the connectivity of the LEP with the rest of the UK and Europe;</li> <li>Significant planned growth around the Airport;</li> <li>Development of Enterprise Zone sites and the Enterprise belt creates significant levels of new jobs;</li> <li>Highest concentration of professionals outside of the capital;</li> <li>The West Midlands has a low carbon economic strategy ('Connecting to Success') to make the Metropolitan Area a Low Carbon Economic Area.</li> </ul>	<ul style="list-style-type: none"> <li>Internal connectivity problems along the LEP strategic routes restrict the ease of movement and doing business;</li> <li>Relatively weak, although improving, rapid transit network reduces accessibility and mobility and the attractiveness of alternate modes both internally and beyond the LEP area;</li> <li>High levels of road congestion discourage investment;</li> <li>High propensity for car based travel and lower than average use of cycling and walking compared to national averages;</li> <li>High levels of deprivation, with many wards of the LEP falling within the top 10% most deprived within the UK;</li> <li>Much of the LEPs growth plan compromises redevelopment of brownfield land, which suffers from poor connectivity and infrastructure.</li> </ul>
		<b>S W O T</b>	
	<ul style="list-style-type: none"> <li>Relieve congestion at pinch points along the key route between North Solihull and M6;</li> <li>Removing barriers to growth through accessibility and connectivity improvements (most notably to HS2, UKC, NEC and Birmingham International Airport);</li> <li>Improve social mobility by reducing severance across Station Road in areas with high levels of IMD;</li> <li>More facilities for pedestrians and cyclists to</li> </ul>	<ul style="list-style-type: none"> <li>Varying levels and sources of funding creates uncertainty in projects, affects scope and deliverability;</li> <li>Failure to invest adequately will cause a decline in network availability and reduce the attractiveness for inward investment;</li> <li>Failure to provide effective connectivity between centres and to national transport networks limits</li> </ul>	
			N E G A T I V E



ensure safe mobility through the gyratory junction;

- New investment and development could result from improved local connectivity and reduced congestion;
- Enabling growth through increased highway capacity and associated reduced congestion;
- Positive impacts on economy, environment and society.

contributions to productivity and economic recovery;

- Reduced support through delays to delivery.

INTERNAL

### **Impact if nothing is done**

- The junction will continue to suffer from high levels of congestion, increasing traffic queues, and unreliable journey times affecting buses, cars, commercial vehicles and pedestrians - halting the proposed economic stimulus the scheme will bring;
- If the Station Road / Iron Lane junction is not re-modelled, there will be a further negative impact upon job creation and economic development in this deprived area within the former East Birmingham North Solihull Regeneration Zone; and
- The value and impact of other improvements made on the Outer Circle Route will not be fully realised and will hinder the achievement of targets set out in the West Midlands Local Transport Plan, particularly those related to congestion, journey times to LTP centres, accessibility, bus patronage satisfaction and cycling.

### **A3: Project scope requirements**

The proposed scheme consists of:

- Widening of Station Road (between Burney Lane and Flaxley Road) to dual carriageway, including a new bridge structure over the River Cole.
- Modifications to Burney Lane / Stechford Lane / Station Road roundabout including new dedicated slip lane from Stechford Lane to Station Road.
- Replacement of the existing signal controlled gyratory system at Station Road / Flaxley Road / Iron Lane with two new roundabout junctions.
- New shared use cycle / footways.
- Three new Toucan crossings and relocation of an existing pedestrian crossing.
- Provision to allow for a left turn into Stechford Road from Stechford Lane.
- No exit from Albert Road onto Station Road, and creation of service roads to properties 51 to 61 Station Road and properties 16 to 30 Flaxley Road.
- Revised bus stop locations.
- New street lighting, forming part of the scheme to improve public safety and security.

A drawing of the scheme can be viewed in **Appendix A**.

The minimum scope for the project would be the proposed scheme, without landscaping and land acquisition for the storage of site materials. All of the infrastructure elements are desirable and essential for the project. There are specific elements of the scheme that have been discounted to ensure value for money, as they provide no significant benefits.

## **B: Main Benefits Criteria**

This section describes the main outcomes and benefits associated with the implementation of the potential scope in relation to business needs.

It is anticipated that several key benefits will be realised as a result of the Iron Lane scheme being completed, most notably:

- Increased patronage levels for public transport;
- Increased levels of active travel;
- Remove barriers to growth, job creation and economic development; and
- Increased cross-city connectivity.

A beneficial impact on social connectivity is also anticipated, providing better access to services, improved journey quality and enhanced physical activity. The anticipated strategic and operational benefits are as follows.

### **Increased patronage levels for public transport**

The proposed scheme will improve overall accessibility with new and upgraded bus stops being provided for users of the number 11 and 14 bus services and reduced levels of congestion will improve reliability of the services.

### **Increased levels of active travel**

The Station Road / Iron Lane junction project will provide new pedestrian and cycling facilities, which will strengthen desire lines between residences and local facilities in the area.

The scheme will encourage greater public transport use and thus increase levels of walking and cycling to reach bus stops.

### **Remove barriers to growth, job creation and economic development**

The Station Road / Iron Lane area is in close proximity to a number of employment centres with which there is limited or restricted access such as Heartlands Hospital, Birmingham Airport, Fort Dunlop and North Chelmsley Wood. Developing the junction would remove barriers for labour wanting to access these sites and would encourage inward investment.

The Station Road / Iron Lane improvements will allow labour within the region to access opportunities to and from the East Midlands via the strategic road network to key sites of employment such as the city centre, Jaguar Land Rover, Blythe Valley, NEC and Birmingham Airport. Developments to the primary and strategic road networks similar to the proposed Iron Station Road/Lane improvements are essential with increased levels of economic development predicted in Birmingham, access to additional labour is essential to sustain development, particularly in deprived areas such as the former East Birmingham North Solihull Regeneration Zone where Iron Lane is located.

The increased levels of accessibility in the area as a result of the scheme will reduce constraints upon future and current developments including the redevelopment of the large B&Q site off Station Road, the new Yew Tree Tesco superstore, the regeneration of the Swan shopping centre in Yardley, the development of the industrial area east of Bromford Gate, and the expansion of Fox and Goose shopping centre.

### **Increased Cross-city Connectivity**

Development of the Station Road / Iron Lane junction will significantly improve access to/from the East Birmingham area to the motorway network (M6 junctions 5 & 6, and M42 junction 6) providing access to the major business centres, ports and airports in the UK. Access to Birmingham International Airport will be

enhanced in support of increased passenger and worker access to the airport as a result of the Regional Growth Funded runway extension.

**How the benefits criteria address the Investment objectives:**

A beneficial impact on social connectivity is also anticipated, providing better access to services, improved journey quality and enhanced physical activity. The anticipated high-level strategic and operational benefits are as follows:

Quantitative	Qualitative
A. Improved access to key redevelopment and employment sites across east Birmingham.	B. Improved physical activity through take up of more active modes.
C. Easing congestion at the Iron Lane junction.	D. Reduces severance for cyclists and pedestrians.
E. Reduces congestion on key pinch points on the outer ring road, contributing to improved access to the M6.	F. Removes barrier to growth, supporting the redevelopment of the east Birmingham area.
G. Improves connectivity between significant development opportunities in Birmingham and its eastern suburbs.	H. Supports two key strategic enablers of the GBS LEP Strategy for Growth – ‘Improving physical and digital connectivity’ and ‘Optimising physical, cultural and environmental assets’.

**Investment objectives**

1. Reducing the high levels of congestion, reduce traffic queues and improve journey time reliability that affects buses, cars and commercial vehicles.
2. Removing a major pinch point on the A4040 improving average journey times for trips using Iron Lane.
3. Reduce severance for pedestrians and cyclists accessing the city centre, leading to an increase in the number of trips made using active modes.
4. Improve access to a number of large urban employment sites outside of Birmingham City Centre, resulting in an increase in the number of trips serving regeneration sites in the east of the City.

**Benefits criteria matrix**

The following matrix shows how the expected strategic and operational benefits address each of the investment objectives set out for the scheme.

		Strategic and Operational Benefits							
		A	B	C	D	E	F	G	H
Investment Objective	1	✓		✓		✓	✓	✓	✓
	2	✓		✓		✓	✓	✓	✓
	3	✓	✓		✓		✓	✓	✓
	4	✓	✓	✓	✓	✓	✓	✓	✓

## C: Main Risks

The main risks associated with the potential scope for this project are detailed in the Risk Register in **Appendix B**. Some of more pertinent risks, which are identified as having the potential to impact most severely on delivery, are outlined below along with outline mitigations measures.

- Budget Estimates, scope of works and duration inaccurate - *Early engagement with the stats companies to agree designs and diversion works required*
- Landowner does not wish to exchange land by negotiation – *continued communication with landowner*
- Costs exceed funding provision - *Option to be costed at early stage. If possible options to be adjusted and costs contained within available funding. Seek additional funding.*
- The delivery programme cannot be aligned to the funding deadlines - *Delivery options to be reviewed, DFT to be kept updated on project progress and early warning to be given if funding spend deadlines are unlikely to be achieved.*

It is recognised that the risks associated with project delivery would be reduced if:

- all parties are committed to making the proposals deliver, strong track record of collaboration, and delivery capacity and experience;
- partners are clearly working together to improve efficiency and effectiveness– for instance through joint teams, alignment or pooling of local, central and other funding and collaboration on local planning; and
- partners are ready to put resources into delivering the strategy.

Birmingham City Council will ensure that the above will be prioritised at an early stage to ensure a well delivered project.

## D: Constraints

### Physical Constraints

Whilst the scheme site is surrounded by varying land uses, the majority of the site is under BCC ownership. Where land is still required for construction of the scheme, there are land negotiations in place with the possibility of Compulsory Purchase Orders being undertaken if required. The time taken to complete Compulsory Purchase Orders has been factored in to the project programme, and as will constrain or delay the programme.

### Utilities Constraints

An 18 month construction period is proposed to allow for any statutory undertaker diversions, and as such will not constrain or delay the programme.

### Statutory Environmental Constraints

A bespoke environmental appraisal has been developed for the scheme, and is provided in **Appendix C**. The objective of the exercise was to assess and provide a high level environmental appraisal of the scheme in order to support an economic case.

In summary:

- Noise and vibration - Standing traffic will be reduced and as such noise levels will reduce;
- Air Quality - Activities associated with the construction of the scheme have the potential to generate dust. However, the scheme will increase traffic flow and reduce queue lengths, delays and congestion, thus having a positive effect on air quality;
- Landscape and townscape - Construction activities associated with the scheme are likely to give rise to slight adverse effects on landscape character, since the existing landscape character is already disturbed by industrial activity and traffic movements. There are not expected to be any

lasting effects on the landscape or visual amenity during the operation phase. There could be a potentially negative impact on landscape / visual amenity of the area, due to the installation of street lights at the gyratory location. However, this impact is predicted to be negligible;

- Biodiversity - It is currently unknown whether current proposals will have any impact on the identified sites. Some land take may be required and there could be a removal of vegetation and habitats;
- Heritage of historic resources - There will be no impact, during construction or operation, on listed buildings, scheduled monuments or archaeology;
- Water environment - During the site preparation and construction phases there is the potential for impacts on water quality, as a result of road runoff, from accidental spillages or leakages of oil and other fuels from machinery and storage areas. There will be no impact on flood risk.
- Physical fitness - The scheme will have a considerable positive impact on physical fitness through the implementation of improved segregated crossing facilities for pedestrians and cyclists; and
- Journey ambiance - The scheme includes a significant increase to highway capacity and improvements to ensure safe journeys by all modes. This will result in improved journey ambiance and reduced traveller stress.

The appraisal has been undertaken by giving consideration to the benefits and impacts of the scheme against the eight environmental themes outlined above; providing mitigation where required.

### **E: Dependencies**

The scheme is dependent on the demolition of a number of buildings. Notice has been served on the snooker hall and the premises have now been vacated. In case compulsory purchase orders are required for any other plots of land, the delivery of the programme has been planned to reflect the delay that a compulsory purchase order would cause, and as such have already been considered as a barrier to delivery or a cause of delay to the project. Statements of Reasons for CPO / SRO are being prepared.

The following table demonstrates that there are no existing significant dependencies or barriers to project delivery.

<b>Land ownership</b>	<ul style="list-style-type: none"> <li>• All in BCC ownership</li> </ul>
<b>Requirement for CPO</b>	<ul style="list-style-type: none"> <li>• None known</li> </ul>
<b>Land type (e.g. all highways, requires operational rail land, requires currently occupied residential / commercial)</b>	<ul style="list-style-type: none"> <li>• Mainly highway, with BCC owned commercial property to be demolished</li> </ul>
<b>Requirement for major statutory instruments (e.g. TWA, Side Road Orders etc)</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Requirement for planning consents</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Known environmental impacts (SSSIs, Heritage sites, Ancient Monuments, green belt / parks / allotments / playing fields etc)</b>	<ul style="list-style-type: none"> <li>• None</li> </ul>
<b>Other</b>	

## 9: THE ECONOMIC CASE

### A: Introduction and Critical Success Factors

In accordance with the Capital Investment Manual and requirements of HM Treasury's Green Book (A Guide to Investment Appraisal in the Public Sector), this section of the FBC documents the procurement process and provides evidence to show that we have selected the most economically advantageous offer, which best meets our service needs and optimises value for money.

**In relation to transport schemes** – The economic case essentially sets out to assess the benefits and disbenefits of a scheme(s) in terms of journey time savings, environmental benefits etc – all quantified using a robust assessment methodology or tool.

#### Critical success factors (CSFs)

These CSFs have been used alongside the investment objectives for the project to evaluate the long list of possible options.

**CSF1:** The scheme must support, enable and nurture economic development.

**CSF2:** The scheme must enable residents to access employment opportunities throughout the region.

**CSF3:** The scheme should deliver a favourable BCR and represent value for money.

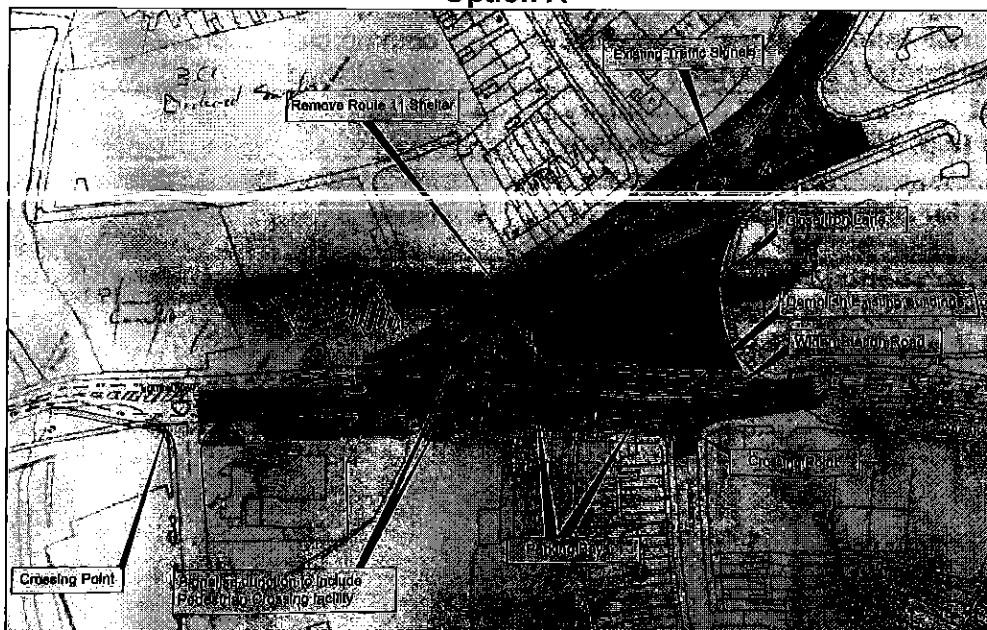
### B: Options Considered

#### Outer Circle Showcase

The junction was previously identified for significant improvement as part of the Outer Circle Showcase Local Transport Plan (LTP) major scheme. Options included:

- Option A; the removal of Iron Lane and provision of two way movements on Station Road and Flaxley Road
- Option B; Two way movements on Iron Lane and Flaxley Road
- Option C; A signalised junction on Iron Lane and Station Road

#### Option A



### Option B



### Option C

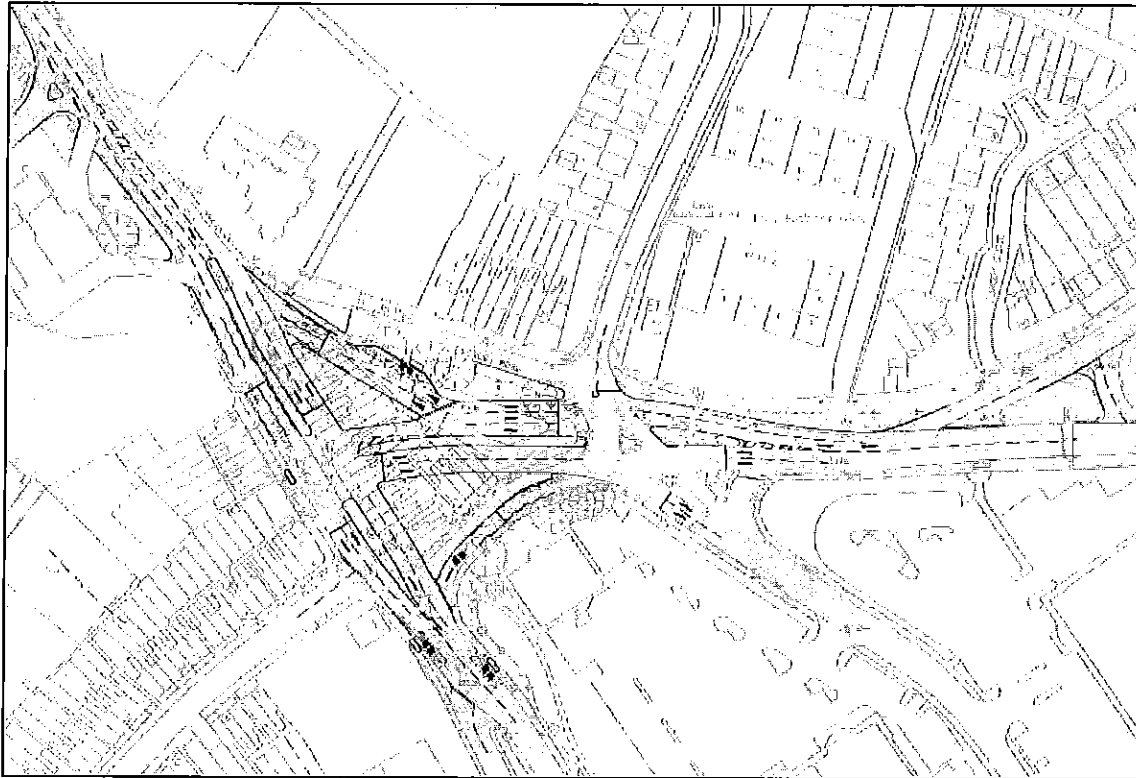


However, these options were discounted as costs were prohibitive in the context of the overall package and available funding. In addition, the options developed did not provide sufficient additional highway capacity, and retained a plot of land in the middle of the gyratory that would be difficult to develop.

#### Signal Controlled Option

A signal controlled arrangement was developed as shown in following drawing. However this option does not provide full accessibility or turning movements and as such does not fulfil the necessary objectives of the scheme.

## Signal Controlled Option



### Alternative Proposals

Two alternative proposals were developed in association with a proposed development to the north of the Iron Lane junction. The proposals included a roundabout on Station Road to provide access to the development site, and widening Station Road to provide two lanes in each direction.

However, the development proposals never materialised and as such highway works were not implemented.

### Do Nothing

A Do Nothing scenario as an option was discounted as it was not considered a long term solution capable of alleviating current and anticipated future congestion and flow levels.

## C: The Preferred Option

The following engineering scope represents the preferred option for each element of the scheme. The scheme drawing can be seen in **Appendix A**.

### Iron Lane/Station Road junction

- Two new gyratory arrangements to increase junction capacity and reduce congestion;
- Relocated and upgraded bus stops;
- Dedicated pedestrian/cycle crossing facilities; and
- New side roads to provide access to residential frontages currently accessed by Station Road and Flaxley Road.

### Station Road (between Iron Lane/Station Road junction and Stechford Lane/Station Road roundabout)

- Additional link capacity on Station Road by providing an extra lane in each direction;

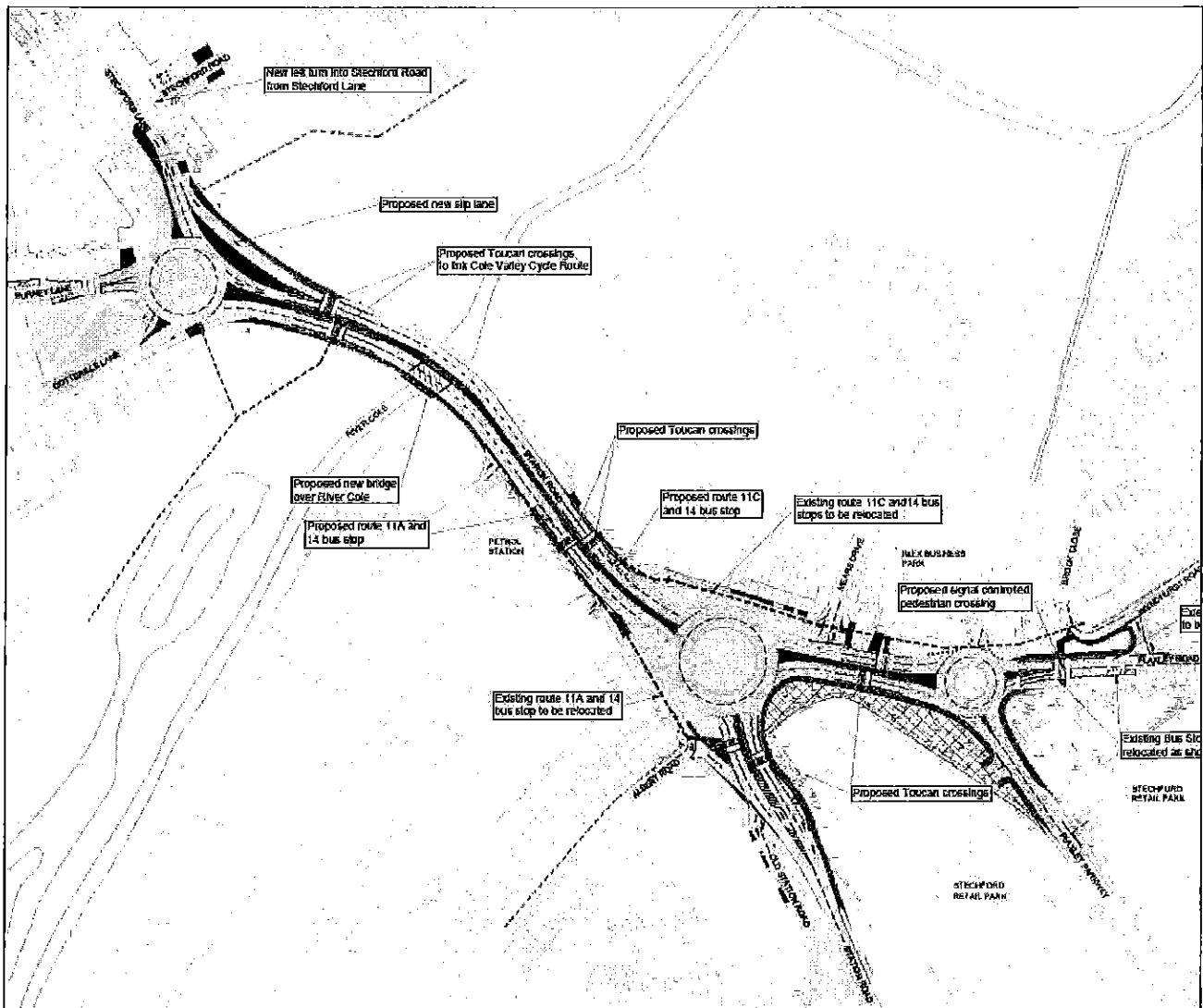


- New toucan crossing to link the Cole Valley Cycle Route;
- New toucan crossings at the southern end of the road;
- New bridge over the River Cole;
- New bus stops on both sides of the carriageway; and
- New street lighting, forming part of the scheme to improve public safety and security.

### Stechford Lane/Station Road Roundabout and Stechford Lane/Stechford Road Junction

- Permitted left turn into Stechford Road from Stechford Lane; and
- New slip lane from Stechford Lane to Station Road.

### Scheme Drawing



### Stechford Lane/Station Road Roundabout and Stechford Lane/Stechford Road Junction

The additional junction improvements at Burney Lane/Cotterills Lane/Station Road roundabout have been included in the scheme since the previous business case. This is to further improve the congestion and delay along this stretch of highway that will provide further economic benefits, whilst value engineering the design to ensure the delivery of an improved scheme at no additional cost.

### Consultation

BCC undertook public consultation between 1<sup>st</sup> and 21<sup>st</sup> June 2015 to seek views on the scheme. The feedback was considered and a modified layout has been developed. A summary of the modifications is as follows:

- Access from Albert Road to Station Road via the service road to be restricted to small / medium vehicles only. No access for HGV's.

- Advance signage on Albert Road to advise motorists that no access to Station Road via Albert Road for HGV's.
- Carriageway widening on Northcote Road to allow HGV's to access to / from Station Road.
- Extension of double yellow lines on Northcote Road near to the bend, as shown on the attached plan, to keep this section of the road clear of parked vehicles to enable access for HGV's.

All of the above modifications are minor and do not affect the operation of the proposed junctions.

These modifications have been presented during another public consultation held between 7<sup>th</sup> and 20<sup>th</sup> September 2015.

## **E: Economic Appraisal**

The following sections provide description and analysis of the economic impact of the scheme, including:

- Significant positive and negative impacts both locally and in the wider area;
- A short description of the modelling approach used to forecast the impact of the scheme; and
- Economic appraisal.

### **Local Impacts**

East Birmingham has been a focus for regeneration over the past decade and continues to experience significant regeneration. A range of initiatives have been in place in the area including the East Birmingham and North Solihull Regeneration Zone.

Improved connectivity between the city centre and Stechford will result in improved access to opportunity for those living in the inner-east of the City, which has some of the city-region's most disadvantaged communities. The dense urban fabric has undergone a process of remodelling, seeking to reduce journey times, improve journey reliability and connect areas of workforce demand in the city centre with areas of labour supply in the inner-east neighbourhoods. This process continues, with the Station Road / Iron Lane project forming part of the wider process with potential benefits for local residents and city centre businesses.

In addition, the scheme will provide direct access for several housing and business redevelopment locations, unlocking localised economic growth.

The Iron Lane improvements do not have a direct impact on job creation, although it will have an indirectly beneficial impact on businesses located in the vicinity of Iron Lane as well as businesses that rely on it for movement of workers, goods and services. Consequently, a beneficial impact can be identified for business in East Birmingham, the city centre and Birmingham Airport.

The economic case for the scheme has been based on economic efficiency, through reduced journey times. The key monetised costs and benefits, and the methodology behind them are outlined below, but to summarise:

- Present Value of Benefits      £20,477,000
- Present Value of Costs          £8,839,000
- **Benefit to Cost Ratio**          **2.32:1**

### Modelling Approach

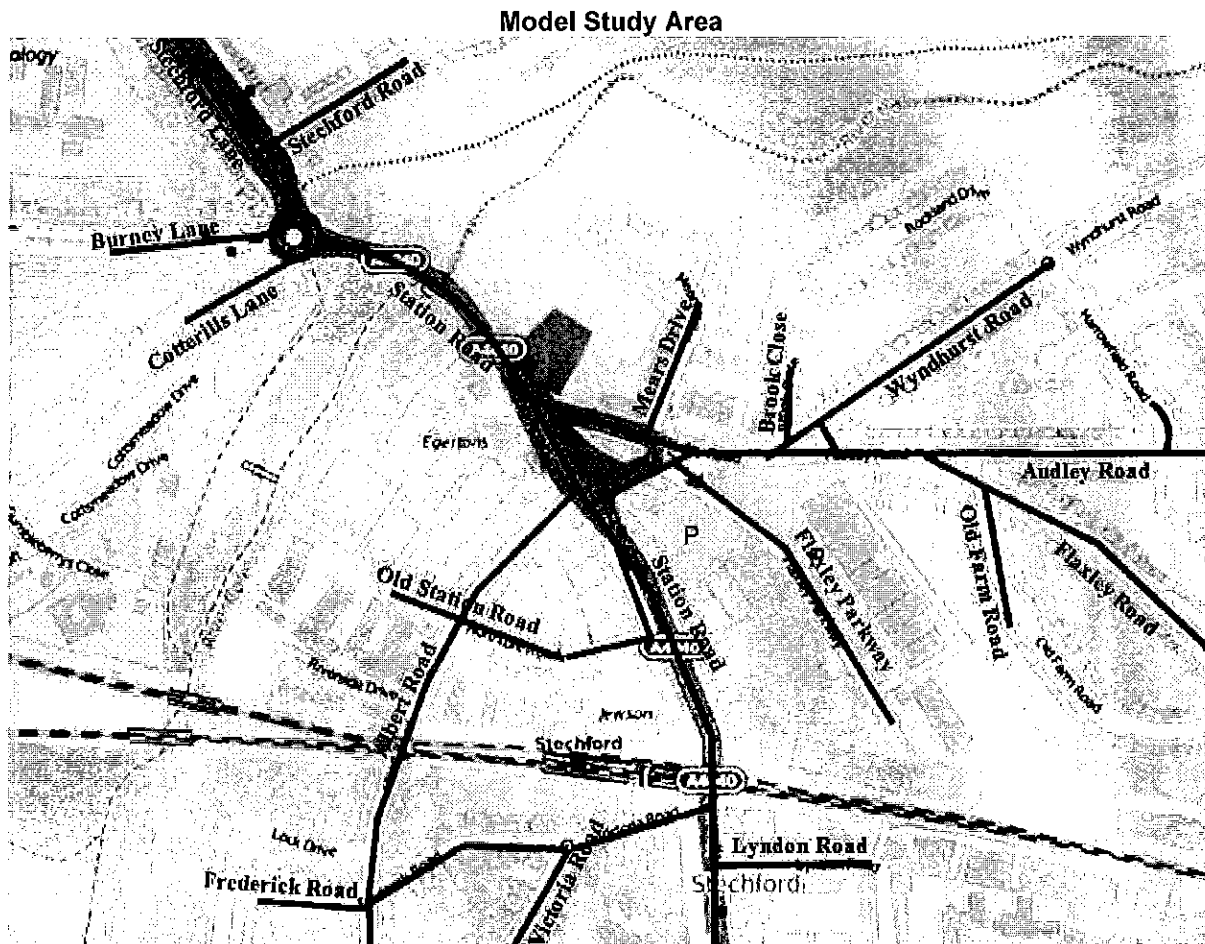
In order to complete the economic appraisal for the Iron Lane junction improvement scheme, VISSIM microsimulation models were built for the morning and evening peak periods. A Do-Minimum and Do-Something scenario model was built for the 2015 base year and 2021 and 2031 future years. The models were developed by applying growth factors to the baseline peak period traffic flows, derived from TEMPRO, in accordance with DfT guidelines.

Full modelling details are contained in the report in **Appendix E**.

### VISSIM Model

A validated 2004 base year VISSIM model was developed in 2006/2007, with A Do Something VISSIM model of potential scheme improvements developed by BCC. The 2004 Base year VISSIM model has been updated to represent a 2015 base year, taking into account recent changes to the local highway network, signal specifications and traffic flows.

The extents of the VISSIM model and wider study area are shown in the following figure.



Since the 2006/2007 VISSIM study the scheme has been amended and therefore, the most recent scheme design has been used in the forecast year modelling.

The current scheme differs from the former scheme with the following changes:

- A new left slip lane providing a connection between Stechford Lane and Station Road at Burney Lane roundabout has been added to the road network.
- The connection between Burney Lane roundabout and the new scheme roundabout have been changed to two lanes instead of one lane in both directions.
- Entry and exit arrangements at Wyndhurst Road / Flaxley Road junction have been changed.
- A new Toucan pedestrian crossings south of Burney Lane roundabout on Station Road has been added to the road network to link the Cole Valley cycle route.

The Stechford Road VISSIM local area models were run with four different random number seeds to reflect the stochastic nature of the model. The weighted average output was then used to inform the TUBA economic appraisal.

The Scheme Impacts Proforma contained in **Appendix F**, outlines the key performance indicators of the Do Minimum and Do Something scenarios.

### TUBA Evaluation

In order to forecast the impact of the scheme on a number of quantitative indicators, economic

appraisal software (TUBA) was used in accordance with the DfT's guidance in Unit 3.5 of WebTAG.

#### Input Data

The VISSIM model has provided outputs for the morning (07:45-08:45) and evening (16:45-17:45) peak hours.

#### Annualisation Factors

Peak Periods	Peak Time Period Factors	No. of peaked weekdays (Annualisation)	Peak Period Annualisation Factor
AM Peak 07:00-10:00	2.808	253	711
PM Peak 16:00-17:00	2.905		739

The following scheme and input data (with associated assumptions) were also used to calculate the benefits over a 60 year period:

- Benefits were based on traffic data from 2018 (opening year) to 2077, covering a 60 year period;
- Scheme construction to occur between 2017 and 2018;
- Traffic data split into 3 user classes (Car, LGV and HGV);
- Net Present Value is discounted to 2010, in 2010 prices.

#### Assumptions

It is normally expected that peak period annualisation factors are used to provide an assessment of the peak periods. However, it is expected that a reduction of 10% in flow would be experienced which would lead to a greater reduction in benefits due to less congestion. As such, solely the peak hours have been appraised, with an additional assessment including the peak periods undertaken as a sensitivity test, with the results outlined later in the section.

It has been assumed that the benefits associated with the time savings after 2031 stay the same. However it is possible that the Do Something scenario could become as congested as the Do Nothing scenario and the benefits at the point could be overestimated.

The economic appraisal is provided solely for the junctions included in the traffic modelling. It could be that the improvements at Iron Lane result in traffic reaching the further upstream junctions quicker, and as such cause a detrimental effect at these junctions.

The updated TUBA input and output files are provided in **Appendix G**.

#### Economic Appraisal

In summary, the scheme would provide the following economic benefits:

#### Economic Appraisal Results

	Benefits (£000's)
Economic Efficiency – Consumer Users	10,933
Economic Efficiency – Business Users	9,747
Accident Benefits	n/a
Greenhouse Gases	127
Net Present Value of Benefits (PVB)	20,477
Broad Transport Budget	8,839
Wider Public Finances	330
Net Present Value of Costs (PVC)	8,839
<i>Overall Impact</i>	
<b>Net Present Value (NPV)</b>	<b>11,638</b>

The results suggest that the scheme will have significant benefits for all users and will deliver a Benefit to Cost Ratio of **2.32**. These benefits can be associated with a number of key indicators, including reduced congestion and journey time, improved accessibility and unlocking growth throughout east Birmingham and north Solihull.

### Additional Assessment

#### *Without Contingency Cost*

The economic appraisal above includes a 10% contingency element within the scheme cost. As such, an appraisal has been undertaken without the contingency cost, and provides a Benefit Cost Ratio of 2.34. This is slightly better than the original assessment, and as such shows that the original BCR might be underestimated.

#### *Peak Period Assessment*

The Benefit Cost Ratio for this scheme has also been considered using the peak periods (0700-1000 and 1600-1900) instead of the peak hours.

To assess the peak periods, the peak hours have been factored to account for three hour peak periods, for the whole modelled year. Six local Automated Traffic Counts (ATC) were analysed to provide the factor for the peak time periods. An average factor for each peak was calculated, and used as the peak period annualisation factor as set out in the Annualisation Factor table above.

With this additional assessment, the Benefit Cost Ratio increased to **6.68**, showing that the benefits of the scheme could be greater than originally calculated.

### Wider Impacts

Birmingham is the second largest city in the UK and, accordingly, has the largest professional population outside of the capital. A prevalence of associated developments, such as office and city centre residential accommodation is therefore evident within the city and highlights both the potential for economic benefit and impact and also the importance of maintaining effective connectivity within the region.

In total, Birmingham city has approximately 441,500 jobs (as measured by occupations in 2014 shown in the table below). The main concentrations are Professional occupations (90,500), Associate, professional and technical (56,500) and Administrative and secretarial (47,900). These occupations are also predominantly city-centre occupations and provide an overview of the role of the city centre as a base of knowledge and professional sectors. As these sectors grow they attract workers from a wide hinterland who commute to work in the city centre by various modes but transport connectivity and reliability is essential in ensuring a supply of skilled workers to satisfy continued demand in the city centre. The scheme will provide multi-modal accessibility improvements to Stechford Railway Station, allowing the localised workforce to access Birmingham City Centre and Solihull.

### Employment by Occupation

(April 2014 – March 2015)

	Birmingham City (numbers)	Birmingham (%)	West Midlands (%)	Great Britain (%)
1 Managers, directors and senior officials	30,000	6.8	7.3	10.3
2 Professional occupations	90,500	20.4	17.8	19.7
3 Associate professional & technical	56,600	12.8	12.7	14.1
4 Administrative & secretarial	47,900	10.8	11.3	10.6
5 Skilled trades occupations	36,500	8.2	10.2	10.7
6 Caring, leisure and Other Service occupations	48,700	11.0	10.0	9.2

7 Sales and customer service occs	38,600	8.7	8.5	7.8
8 Process plant & machine operatives	38,800	8.7	9.0	6.3
9 Elementary occupations	53,900	12.1	12.4	10.9
<i>Source: ONS annual population survey</i>				
<i>Notes: Numbers and % are for those of 16+ % is a proportion of all persons in employment</i>				

Tourism is also an important business sector for Birmingham and the city centre, both areas proving a popular destination supporting a tourism industry contributing significantly to the local economy (2010: £4.6million to local economy through tourism). Transportation and connectivity is a key asset to Birmingham in terms of the tourism industry, with existing road and rail networks assisting in maintaining this aspect of the economy by ensuring access both in and around the city for local, intra-regional, inter-regional, national and international visitors. Improvements to connectivity therefore have significant potential to have a positive impact on this sector of the economy, potentially improving tourist access to the city and encouraging visitation effects of increased volume of visitors, longer dwell time and increased spend in the city centre.

In terms of passenger numbers, Birmingham Airport is used by over 9 million passengers annually and the second largest regional airport in the UK, after Manchester. The airport has noted growth in passenger numbers year on year, particularly during peak seasons. As well as hosting a large number of passengers each year, the airport also employs almost 500 staff directly within the airport, whilst around 150 companies located within the airport site account for more than 7,000 employees in total. The Station Road / Iron Lane improvements have synergy with the Airport's growth as it provides improved connectivity for workers at the airport and visitors to the city arriving by air.

An Appraisal Summary Table (**Appendix H**), including the impacts on the economy, the local environment and society has been provided to support the economic appraisal of the scheme.

## E1: Estimating Benefits

The benefits of the scheme are derived from outputs from the modelling exercise described above. The modelling exercise provided an average delay per vehicle and the number of vehicles using the network for the Do Minimum Infrastructure and Do Something Infrastructure scenarios. These metrics allowed the derivation of total delay on the network under both scenarios. Therefore, the delay benefits attributable to the infrastructure proposals are equivalent to the difference between total network delay between the two scenarios. The following table presents the peak hour network performance in terms of delay, for the Do Minimum and Do Something scenarios.

### Total Network Performance

Parameter	AM			
	2021 Do-Nothing	2021 Do-Something	2031 Do-Nothing	2031 Do-Something
Average delay time per vehicle [s], All Vehicles	148	96.54	181.24	177.64
Average delay time per vehicle [s], Bus	179.5	116.68	223.89	200.92
Total travel time [h], All Vehicle Types	298.81	246.79	349.8	354.79
Total travel time [h], Bus	4.42	3.97	5.05	4.97
Average speed [mph], All Vehicle Types	7.43	9.81	6.44	6.86
Total Network Delay (h)	340	243	420	441
Parameter	PM			
	2021 Do-Nothing	2021 Do-Something	2031 Do-Nothing	2031 Do-Something
Average delay time per vehicle [s], All Vehicles	112.04	78.19	174.45	96.02
Average delay time per vehicle [s], Bus	225.4	144.88	324.08	159.58

Total travel time [h], All Vehicle Types	286.38	236.49	380.51	278.3
Total travel time [h], Bus	5.04	4.34	6.44	4.55
Average speed [mph], All Vehicle Types	8.74	10.74	6.6	9.85
Total Network delay (h)	281	199	433	259

The total delay time saved is 179 hours per day for the combined peaks in 2021 and 153 hours in 2031. This is annualised to 45,287 hours in 2021 and 38,654 hours in 2031 using weekdays alone.

The non-quantifiable benefits of the scheme have been assessed in the Appraisal Summary Table in **Appendix H**, This is supported by the Environmental Assessment in **Appendix C** and Social and Distributional Impacts Assessment in **Appendix I**.

## E2: Estimating Costs

A detailed cost estimate has been carried out for the scheme and has been based on the following;

- Design fees
- C3 and C4 statutory undertaker cost estimates
- Construction staff costs
- Quantity Surveyor costs
- Projects team and estimated land acquisition costs
- Accommodation works costs

## E3: Net Present Cost Findings

It is proposed that the scheme capital costs to deliver the scheme include a 10% contingency.

## E5: Option Appraisal Conclusions

### Benefit to Cost Ratio

The Benefit to Cost Ratio (BCR) that has been calculated for the highway elements is considered to be significant. This includes the following;

- Journey time benefits only calculated for the peak hours;
- Accident benefits have not been quantified (anticipated to bring about a reduction in accident occurrence);

In summary, the highway elements of the scheme would provide the following economic benefits:

<b>Economic Benefits</b>	
	<b>Benefits (£000's)</b>
Economic Efficiency: Consumer Users (Commuting and Other)	10,933
Economic Efficiency: Business Users and Providers	9,747
Wider Public Finances (Indirect Taxation Revenues)	330
Present Value of Benefits (PVB)	20,477
Present Value of Costs (PVC)	8,839
<b>Overall Impacts</b>	
<b>Net Present Value (NPV)</b>	<b>11,638</b>
<b>Benefit to Cost Ratio (BCR)</b>	<b>2.32</b>

As suggested by the economic impact results, the scheme will have significant benefits for all users and will deliver a Benefit to Cost Ratio of **6.76**. These benefits relate directly to journey time savings.

An Appraisal Summary Table (Appendix H), including the impacts on economic, environmental, social and financial indicators. Where possible, the impact of the scheme has been quantified following analysis.

## F: Qualitative Benefits Appraisal

The Appraisal Summary Table, which appears as **Appendix H**, summarises the social and environmental impacts of the Iron Lane scheme. The majority of the qualitative impacts that have been assessed demonstrate the scheme to either have a neutral or beneficial impact.

### Environmental Impacts

On the whole, an assessment of the potential qualitative environmental impacts of the scheme demonstrates that it will have a neutral impact. The scheme is expected to be moderately beneficial to the local landscape and townscape. The proposed scheme includes landscaping of the junction and improved surface treatments to improve the local environment. The distribution of noise impacts is likely to change with a reduction in congestion, but increased speed through the junction. Overall the scheme will not affect noise levels in either a positive or negative way, returning to current levels after construction is complete. The scheme is intended to reduce congestion, which will likely benefit local air quality with a reduction in stationary traffic.

### Social Impacts

Implementing the preferred scheme at Iron Lane is anticipated to have a beneficial impact on a number of social factors. Accessibility will increase for residents of the Eastside to the M42 and M6 via A4040 Outer Circle to key employment locations. Journey times for commuters and other road users are expected to be reduced, accompanied by improvements in journey time reliability. Separation of local access to housing and longer distance traffic moving through the junction is likely to deliver access improvements and contribute to a reduction of accidents. A significant social benefit will be the improvement in access to key services, for all modes, reducing severance and accompanied by signage to local services.

## F2: Qualitative Benefits Criteria

The benefits criteria for each investment objective are as follows:

Qualitative Benefits Criteria	
Investment Objectives	Qualitative Benefits
Reducing the high levels of congestion, reduce traffic queues and improve journey time reliability	<ul style="list-style-type: none"> <li>• Improvement in journey time reliability.</li> <li>• Reduction in journey time.</li> <li>• Air quality benefits associated with reduced congestion</li> </ul>
Removing a major pinch point on the A4040 improving average journey times for trips using Iron Lane.	<ul style="list-style-type: none"> <li>• Improvement in journey time reliability.</li> <li>• Reduction in journey time.</li> <li>• Better access to key services</li> </ul>
Reduce severance for pedestrians and cyclists, leading to an increase in the number of trips made using active modes.	<ul style="list-style-type: none"> <li>• Reduction in journey time.</li> <li>• Better access to key services</li> <li>• Improvement in physical activity.</li> <li>• Journey quality improvements for active modes.</li> </ul>
Improve the access to urban employment sites outside of Birmingham City Centre.	<ul style="list-style-type: none"> <li>• Better access to key services</li> <li>• Increase accessibility for residents of the Eastside to the M42 and M6</li> </ul>



## **G2: Risk Scores**

A comprehensive list of risks with an associated score for impact and probability has been provided in Risk Registers for each element of the scheme in **Appendix B**.

## **10: PREFERRED OPTION**

The preferred option remains as per **Section 9C**.

## 11: THE COMMERCIAL CONSIDERATIONS

### A: Introduction and Required Services

#### Procurement Overview and Strategic Approach

Birmingham City Council has appropriate procurement procedures in place for the delivery of their projects, ensuring best value for money. Contracts will be awarded under existing Framework Agreements enabling projects to proceed efficiently from scheme development, and procurement through to implementation.

Birmingham City Council will engage in early contractor discussions around the outline design and potential options for how the scheme can be delivered. Following the tendering process, BCC will hand over the detailed design and build contract to the contractor.

The design and build approach can cost more than a strict build contract; however, it allows BCC to transfer significant risks to the contractor. The combination of BCC officers working with a contractor team from an early stage also ensures that the best possible team, with good capacity is formed to deliver the project.

The procurement for appointment of the contractor, supervisory and contract administration function will be undertaken in accordance with the City Council's standing orders and procurement processes.

### B: Potential for Risk Transfer

The general principle is to ensure that risks should be passed to 'the party best able to manage them', subject to value for money (VFM).

BCC Infrastructure Projects has agreed to apportion service risks in the design, build and operational phases as shown in the table below.

**Risk Transfer Matrix**

Risk Category	Potential allocation		
	Public	Private	Shared
1. Design risk			✓
2. Construction and development risk			✓
3. Transition and implementation risk			✓
4. Availability and performance risk			✓
5. Operating risk		✓	
6. Variability of revenue risks	✓		
7. Termination risks	✓		
8. Technology and obsolescence risks			✓
9. Control risks			✓
10. Residual value risks			✓
11. Financing risks	✓		
12. Legislative risks	✓		
13. Other project risks			✓

### C: Agreed charging mechanisms

The payment mechanism to the service providers will be stated in the respective contracts.

External Professional Services support – payments will be made to each organisation following receipt of invoice on completion of the works task to the satisfaction of the Project Manager.

Main Contractor – the contractor will submit an ‘Application for Payment’ to the Project Manager, this is normally done monthly providing the minimum payment sum (as stated in the contract) has been reached. The Project Manager and the appointed Quantity Surveyor will check the ‘Application for Payment’ accurately covers the completed works and if necessary make any deductions including deduction of retention sums. Payment will be made on the sum recommended by the Project Manager.

Statutory Undertakers – Local Authorities are eligible for an 18% discount on the cost of statutory undertakers works if 75% of the cost estimate is paid up front. The City Council will take advantage of this discount and place a works order for 82% of the cost estimate. 75% of the cost estimate will be paid on receipt of invoice and then the balance of the works cost on completion of the statutory undertakers works on receipt of a final invoice.

**D: Agreed Contract Lengths**

The contract length for the project is estimated at **78 weeks**.

**E: Key contractual clauses**

**Birmingham City Council**

The main works contractor will be appointed under the Highways and Infrastructure Works Framework Agreement approved by Birmingham City Council’s Cabinet Member for Commissioning, Contracting and Improvement jointly with the Deputy Chief Executive on the 21<sup>st</sup> August 2014. The framework agreement is based on the New Engineering Contract (NEC) 3 published by the Institution of Civil Engineers.

The key contract clauses are detailed below:

**(i) Limitation of Liability**

The Contractor’s liability to the Employer for the Employer’s indirect or consequential loss is limited to £20,000,000 in aggregate for each 12 month period. For any one event, the Contractor’s liability to the Employer for loss of or damage to the Employer’s property is limited to £10,000,000 in aggregate for each 12 month period. The Contractor’s liability for Defects due to his design which are not listed on the Defects Certificate is limited to £10,000,000 in aggregate for each 12 month period. The Contractor’s total liability to the Employer for all matters arising under or in connection with this contract, other than the excluded matters, is limited to £10,000,000. The end of liability date is 12 years after the Completion of the whole of the works.

**(ii) Insurance**

Insurance against	Which party provides	Minimum amount of cover or minimum level of indemnity
Loss of or damage howsoever arising to the <i>works</i> , temporary works (i.e. other works erected or constructed for the purpose of making possible the erection or installation of the permanent <i>works</i> ) or any site materials from the <i>starting date</i> until the date of Completion or up to and including the date of determination of the employment of the <i>Contractor</i> under clause 90 (whether or not the validity of that determination is contested), whichever is the earlier; and loss of or damage to the <i>works</i> becoming apparent before the Defects Certificate and consequent upon any act or omission of the <i>Contractor</i> , his servants or agents or as the case may be,	<i>Contractor</i>	The full reinstatement value of the <i>works</i> , temporary <i>works</i> and any site materials.

of any Subcontractor, his servants or agents occurring prior to the date of Completion or whilst arising out of any operation carried out by or on behalf of the <i>Contractor</i> for the purpose of complying with his obligations under this contract. The insurance will be provided in joint names of the <i>Contractor</i> and the <i>Employer</i> .		
All sums for which the insured shall become legally liable to pay as damages in respect of death of or injury or illness or disease to third parties and/ or loss of or damage to third party property obstruction loss of amenities trespass nuisance or any like cause arising out of or in connection with this contract.	<i>Contractor</i>	£20,000,000 in aggregate for each 12 month period
Liability for death of or bodily injury or illness sustained by employees of the <i>Contractor</i> arising out of or in the course of their employment in connection with this contract.	<i>Contractor</i>	The greater of the amount required by the applicable law and the amount stated in the Contract Data for any one event
Any expense, liability, loss claim or proceedings which the <i>Employer</i> may incur or sustain by reason of injury, loss or damage to any property other than the <i>works</i> , site materials or existing property of the <i>Employer</i> caused by collapse, subsidence, heave, vibration, weakening or removal of support or lowering of ground water arising out of or in the course of the carrying out of the <i>works</i> .	<i>Contractor</i>	£10,000,000 in aggregate for each 12 month period
<b>Professional Indemnity Insurance</b>		
Negligence omission or default in respect of design of the <i>works</i> for which the <i>Contractor</i> is responsible.	<i>Contractor</i>	£10,000,000 in aggregate for each 12 month period
Loss or damage to constructional plant, tools, equipment, temporary buildings (including contents therein) belonging to or the responsibility of the <i>Contractor</i> .	<i>Contractor</i>	The replacement cost

In addition to the above insurances the *Contractor* is liable for and indemnifies the *Employer* against any cost expense liability loss claim or proceedings whatsoever arising under any statute or at common law in respect of:

- (a) personal injury to or the death of any person whomsoever arising out of or caused by the carrying out of the *works*; and
- (b) any injury or damage to property real or personal (other than the *works*) including but without limitation the property of the *Employer* arising out of or caused by the carrying out of the *works*.

**(iii) Birmingham Business Charter for Social Responsibility**

The appointed contractor is required to sign the Employer's Business Charter for Social Responsibility ("the Charter) and meet the standards required by the Charter throughout the duration of the Contract. In fulfilling its obligations under the Charter, the Contractor is required to develop and implement, an action plan, approved by the City Council. The Contractor's action plan will include sufficient detail as to how the principles of the Charter will be implemented during the duration of the Contract. The Charter Principles are set out below:

- (i) Local Employment;
- (ii) Buy Birmingham First;
- (iii) Partners in Communities;
- (iv) Good Employer;
- (v) Green and Sustainable;
- (vi) Ethical Procurement.

**(i) Local Employment**

Charter signatories will create employment and training opportunities for local people especially in target areas:

- Commit to create employment and training opportunities for local residents, including people with disabilities and support people into work and work experience placements;
- Adopt an approved Jobs and Skills policy and apply this policy at every stage of the procurement process. BCC's Policy Toolkit for Jobs and Skills provides an example of an approved policy approach.
- Seek opportunities to work with schools to help to ensure that the young people of Birmingham are equipped with the right skills to match the requirements of the labour market;
- Support the local economy and create much needed jobs and apprenticeships by adopting procurement strategies that remove barriers to local businesses.

#### (ii) Buy Birmingham First

Charter Signatories will take account of the social and economic impacts of buying locally when commissioning and contracting, thereby reducing unemployment and raising the skill level of the local workforce.

- Support the local economy by choosing suppliers close to the point of service delivery where possible;
- Use Find it in Birmingham as the primary method of sourcing suppliers for contracts in Birmingham, increasing the accessibility of opportunities to local businesses throughout the Supply Chain;
- Encourage their suppliers to endorse the principle of 'Buy Birmingham First' throughout their supply chains.
- Commit to purchasing from pre-qualified businesses on the Find it in Birmingham website where possible.

#### (iii) Partners in Communities

Charter signatories will play an active role in the local community and community support organisations, especially in those areas and communities with the greatest need.

- Build capacity by supporting community organisations with resources and expertise in areas with the greatest need, for example mentoring and working with youth organisations and services;
- Make a local impact by improving local facilities and areas, for example staff volunteering schemes;
- Provide support to third sector organisations and work with third sector organisations to deliver services and contracts;
- Work with schools and colleges, offering work experience and business awareness to students, especially those from disadvantaged areas or communities;
- Support the Birmingham Baccalaureate as it is developed;
- Make accessible all sub-contracting opportunities to a diverse supply base including the third sector and local suppliers and provide mentoring and support to assist these organisations to tender for and deliver these supply opportunities where necessary.

#### (iv) Good Employer

Charter signatories will support staff development and welfare and adopt the Birmingham Living Wage within their own organisation and within their supply chain.

- Ensure that employees are given a fair reward for their labours and help foster a loyal and motivated workforce by paying the Birmingham Living Wage;
- Recognise employees' rights of freedom of association and collective bargaining, including not using blacklists in recruitment processes;
- Provide a safe and hygienic working environment;
- Comply with working hours legislation and industry standards;

- Not discriminate in respect of recruitment, compensation, access to training, promotion, termination of employment or retirement based upon race, caste, national origin, religion, age, disability (including learning disability), mental health issues, gender, marital status, sexual orientation, union membership or political affiliation;
- Comply with employment and social security legislation;
- Not employ harassment or intimidation;
- Have and comply with a whistle blowing policy.

(v) Green and Sustainable

Charter signatories will commit to protecting the environment, minimising waste and energy consumption and using other resources efficiently. These commitments will also apply to their supply chain.

- Eliminate unnecessary waste by adopting the “reduce, reuse, recycle” philosophy;
- Be a good neighbour, minimise local impacts (noise, air, quality), improve green areas (e.g. biodiversity, visual attractiveness);
- Reduce Carbon footprint – be aware of main impacts on carbon emissions including the indirect impact of operations and logistics.
- Measure carbon emissions and ensure a plan is being implemented using carbon measurement tools. Specific targets to be included in major contracts;
- Protect the environment and minimise adverse impacts and instill this approach throughout suppliers’ supply chains.

(vi) Ethical Procurement

Charter signatories will commit to employing the highest ethical standards in their own operations and those within their supply chain.

- Work to the highest standards of business integrity and ethical conduct;
- Pay their fair share of taxes;
- Ensure the well-being and protection of work forces which must be supported by robust systems and procedures;
- Support the principles of the Universal Declaration of Human Rights;
- Support the Fundamental International Labour Organisation Conventions;
- Not engage in or support the use of child labour;
- Adopt best practice when procuring goods and services e.g. procure low energy products and avoid the use of rainforest timber from unmanaged sources;
- Pay suppliers no later than the terms stated in the primary contract.

**F: Personnel implications (including TUPE)**

TUPE – Transfer of Undertakings (Protection of Employment) Regulations 1981 – will not apply to this investment as outlined above.

**G: Procurement strategy and implementation timescales**

The procurement for appointment of the contractor, supervisory and contract administration function will be undertaken in accordance with the City Council’s standing orders and procurement processes.

Birmingham City Council will engage in early contractor discussions around the outline design and potential options for how the scheme can be delivered. Following the tendering process BCC will hand over the detailed design and build contract to the contractor.

The implementation milestones agreed for the scheme with the BCC are as follows.

### Implementation Milestones

Milestone Activity	Date
Completion of Detailed Design	December 2015
Procure contractor	January 2017
Place Order with Statutory Undertakers	September 2016 – January 2017
Start of Works (including Statutory Undertakers diversions)	January 2017
Completion of Works	September 2018

#### H: FRS 5 accountancy treatment

Each project and its assets will be considered by the Section 151 (Local Government Act 1972) officer of the organisation and treatment confirmed, this may be in conjunction with the organisation's external auditor where appropriate.

## 12: FUNDING AND AFFORDABILITY

### A: Introduction

The purpose of this section is to set out the indicative financial implications of the preferred option. This section should also contain the funding profile for programmes projects and respective work-stream spend profiles.

### B: Capital and Revenue Costs

The costs of the project over its intended life span is set out in the following table.

Summary of Financial Appraisal

£ 000s	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	Total
	£	£	£	£	£	£	£
Land		50	200				250
Works (stats, acc works)			1674	5364	894	177	8109
Site Supervision			206	661	110	23	1000
Development Costs	30	210	60				
<b>Total</b>	<b>30</b>	<b>260</b>	<b>2140</b>	<b>6025</b>	<b>1004</b>	<b>200</b>	<b>9659</b>

The scheme cost outlined in the previous business case totalled £9,704,000. However, since the submission of the case the scope of the scheme has increased and the costs have been refined.

### C: How Scheme will be Funded

The funding stream for the project over its intended life span is set out in the following table.

Summary of Scheme Funding

£000s	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	Total
Source:	£	£	£	£	£	£	£	£
LGF funding sought			290	3296	3414			7000
LA contribution					1775	484	200	2459
ITB contribution	30			170				200
<b>Total</b>	<b>30</b>		<b>290</b>	<b>3466</b>	<b>5189</b>	<b>484</b>	<b>200</b>	<b>9659</b>

### D: Overall Affordability

The proposed cost of the project is **£9,659,000** over the **2 years** of the expected lifetime of the contract.

Birmingham City Council has identified a number of risks associated with the delivery of the scheme, within the following areas:

- Political Risk;
- Management Risk;
- Delivery Risk;
- Stakeholder Risk;
- Structural Risk;
- Funding Risk; and
- Environmental Risk.



A Quantified Risk Assessment can be found at **Appendix J**. The vast majority of risks identified relate to either delay to scheme delivery or increased costs, and provides the following P50 values:

- **9.9** weeks delay to the existing programme; and
- **£263k** additional costs incurred by the end of the project.

The project cost includes a contingency element; 10% of the construction cost, which provides a relevant level of contingency based on the stage at which the project has already been developed. It is therefore envisaged that some of the additional costs associated with the risk elements are held within this contingency.

Robust project and risk management procedures will be implemented by Birmingham City Council to minimise the likelihood and scale of cost overruns, as detailed in **Appendix K**. However, if cost overruns occur due to unforeseen circumstances, these will be funded by the City Council.

The Quantified Risk Assessment (**Appendix J**) details the financial implications of each risk occurring. The following table demonstrates a selection of key financial risks associated with the delivery of the scheme, the associated consequences and mitigation where required:

#### Key Risks

Risk	Risk Event	Consequences	Mitigation
Operational Risk	Operating costs vary from budget, performance standards slip or the service cannot be provided.	Additional revenue would be required in the longer term.	1. Develop detailed operation schedules; 2. Identify service performance standards before additional services are contracted.
Inflation Risk	Actual inflation differs from assumed inflation rates.	Additional costs required to deliver completed scheme.	1. Develop robust financial forecasts; 2. Adjust forecasts to account for any predicted rate change.
Contributions	Failure to secure necessary contributions from partners.	Lower than expected funding, with further importance placed upon the LGF fund.	1. Ensure funding from diverse range of sources; 2. Continued engagement with partners.
Costing	Project costs are underestimated	Costs overrun.	1. Detailed design and robust costing; 2. Contingency fund implemented.
Residual Value Risk	Uncertainty of the value of physical assets at the end of the contract.	Long term reduction in asset value.	Identify value of junction upgrades and possible depreciation at initial design stage.

Birmingham City Council understands that the level of investment from the Local Growth Fund will be capped at £6.48 million for this scheme, and any cost overruns will be sourced through the city council funded element of the project.

## 13: THE MANAGEMENT ARRANGEMENTS

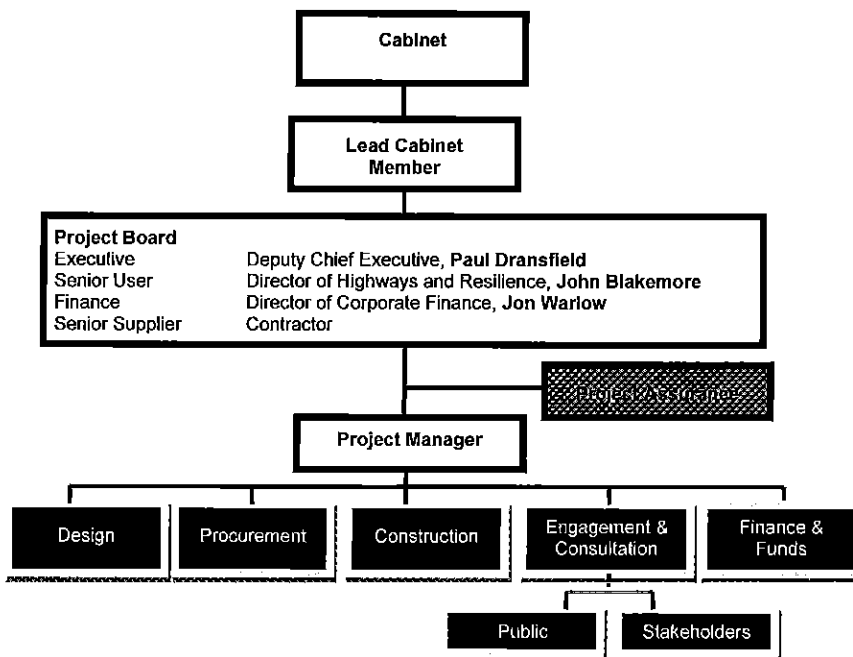
### A: Introduction

This section of this Business Case addresses the 'achievability' of the scheme. Its purpose is to set out the actions that will be required to ensure the successful delivery of the scheme in accordance with best practice.

### B: Programme Management Arrangements

Birmingham's Local Growth Fund schemes will be managed at a senior level by a Project Board consisting of the Executive, Senior User, Finance and Contractor. For the Station Road / Iron Lane Improvements, the Executive will be Paul Dransfield (Deputy Chief Executive) and the Senior User will be John Blakemore (Director of Highways and Resilience). Finance will be represented by John Warlow (Director of Corporate Finance). These three Birmingham City Council Directors will be joined by a senior member of the contractor's team.

The Project Board will meet with predefined regularity and together they will be responsible for project control. They will make decisions within the scope of Cabinet approval and make appropriate decisions on any minor scope alterations. Any exceptional decisions, including decisions outside of the approved scope of the scheme, will be referred to the relevant Cabinet Member and if necessary the full Cabinet.



The Project Manager, Brian Palmer, will manage the project, tracking progress against scope, time and budget. They will give direction to officers across the authority with a specific role in delivering the project, meeting with each area regularly to ensure any risks or issues are identified and providing challenge where needed. They will also report to the Board on a regular basis, escalating any issues for discussion or decisions outside of their remit.

Members of the project team will work together to deliver the project, ensuring a joined up approach. The engagement and consultation section of the project team will engage with key stakeholders as well as conduct public consultation. This will be used to inform decision making across the project.

Two well established officer groups within the authority, the Transport Delivery Group (TDG) and Transport & Street Services Group (TSSG), will provide project assurance. They will scrutinise delivery, finances and procedures, providing challenge to the Project Manager and Project Board and recommendations for improvements where appropriate.

## C: Project Management Arrangements

The project will be managed in accordance with the City Council's Standing Orders, Financial Regulations and Governance Arrangements as set out in The Constitution. The project management arrangements will be in accordance with the Quality Management System which complies with the requirements of ISO 9001:2008. The Infrastructure Projects team within the Transportation Services section of the Development Directorate will take the project management lead, and Infrastructure Projects holds Certificate Number: FS 506677 with the BSI for the:

### C1: Project Reporting Structure

The reporting organisation and the reporting structure for the project area can be seen in **Appendix L**.

### C2: Project Roles and Responsibilities

Role	Key Areas of Responsibility / Activity	Progress Review
Tier 1 - Project Board	<p>High level strategy</p> <p>Monitoring progress against programme</p> <p>Strategic decision-making</p> <p>Setting forward work programme</p> <p>Provision of instructions for corrective/mitigating actions</p>	<p>Review of key issues and decisions as raised by Project Board</p> <p>Monthly Board meetings where Programme Management reports are reviewed and relevant actions agreed</p>
Tier 2 - Programme Management	<p>Day-to-day programme management</p> <p>Meeting project objectives</p> <p>Key link between the Project Board and Project Delivery Team</p> <p>Main point of contact for external stakeholders and partners</p>	<p>Bi-monthly progress meetings</p> <p>Preparation of progress reports to the Project Board</p> <p>Senior Responsible Officer attendance at Project Board</p>
Tier 3 - Project Delivery Team & Theme Leads	<p>Day-to-day project delivery across the areas of design, construction, finance, approvals and engagement</p> <p>Public consultation exercises</p> <p>Main point of contact for contractors</p>	<p>Preparation and submission of monthly progress reports to the Programme Management</p> <p>Regular Progress meetings</p>

### C3: Project Plan

This is set out in the Table below.

Refer to **Appendix M** for the initial project plan. The plan includes tasks and associated timeframes covering the following key elements:

- Land preparation;
- Full Business Case development;
- Tendering process;
- Contractor appointment;
- Detailed Design;

- Construction; and
- Post Scheme Evaluation.

**Project milestones**

<b>Milestone Activity</b>	<b>Date</b>
Complete demolitions	May 2016
Tender Acceptance Report	July 2016
Appoint DAB contractor	November 16
Main works start	Jan 2017
Opening date	October 2018

**D: Use of Special Advisors**

Special advisers have been used in a timely and cost-effective manner in accordance with the Treasury Guidance: Use of Special Advisors.

**Specialist advisors**

<b>Specialist Area</b>	<b>Adviser</b>
Designer	Atkins/ AECOM
Business Case	AECOM
Maintenance	Amey
Other	Hyder (ecology, RSAs)

**E: Arrangements for Change Management**

The arrangement for Change Management are set out in the Quality Management System, operated by Infrastructure Projects (the Project Management lead) which complies with the requirements of ISO 9001:2008. The quality control form is provided below:

**QF019: Record of Changes to Commission**

**Infrastructure Projects**

**Version 3**

Commission : \_\_\_\_\_

Commission No : \_\_\_\_\_

**Any change to Milestones, Programme, Finances or change in Key Personnel must be logged and agreed and the correct paperwork completed to reconcile the information**

	<b>Change and Reason for Change</b>	<b>Initiated By &amp; Date</b>	<b>Agreed By Project Director &amp; Date</b>
<b>1</b>			
<b>2</b>			
<b>3</b>			
<b>4</b>			
<b>5</b>			
<b>6</b>			
<b>7</b>			
<b>8</b>			
<b>9</b>			

## F: Arrangements for Benefits Realisation

The purpose of benefit evaluation is to determine whether the package of measures to implement two new gyratory arrangements at the junction of Iron lane, Flaxley Road and Station Road, Stechford has been successful in achieving its intended goals. It will also assist in understanding the scheme's impacts to enable meaningful feedback to take place. A monitoring plan should be developed to clearly define the scope, context and rationale for the monitoring of the Iron Lane scheme. It will set out objectives, presenting input, output and outcome monitoring, highlighting indicators to be used.

### Scheme Objectives

Scheme objectives help to define the scope of the monitoring and evaluation required. The application identifies the following objectives for the evaluation of the Iron Lane scheme.

Objectives	
1	Remove barriers to growth, job creation and economic development
2	Reduce severance and social exclusion
3	Increase patronage levels for public transport
4	Increase levels of active travel
5	Cater for the increased transport demand which will accompany economic development

### Logic Map

Based upon the objectives of the Iron Lane junction scheme, a logic map has been prepared in support of this application and is shown in **Appendix N**. Logic mapping assists in the clarification of what is being delivered, the anticipated outcomes and the opportunities for monitoring. The process therefore plays a crucial role in the development of a Monitoring Plan.

The logic map outlines the objectives for the schemes and links inputs/outputs with the outcomes that can be derived from the scheme. It is anticipated that the logic map will be reviewed and updated as baseline monitoring is developed.

### Inputs, Outputs and Outcomes

The logic map has been used to identify and illustrate the contribution of the improvements measures to the overall objectives derived for the schemes. They can also be used to develop indication sets, focused around the delivery of the scheme and an understanding of available data sets.

### Scheme Inputs

The Department for Transport's (DfT) Monitoring and Evaluation Framework, published in December 2012, presented the following definition of Inputs:

*"Inputs are the resources which are invested in implementing the project. This includes the Department's and local contribution funding, but also human resources such as the time invested, skills required and other inputs, such as equipment, technology and research."*

Historically the collection and reporting of inputs within transportation monitoring has focused on the first two elements of the above, namely the financial (funding) investment and the human resources used. In the logic map, inputs are shown as the financial investment. From the strategic case standpoint, labour and other associated inputs have not been shown on the logic map.

### Scheme Outputs

In the context of the DfT requirements, outputs should be monitored for each scheme element as a mechanism to enable the analysis of project delivery. Outcome reporting also enables project teams to quantify precisely what has been delivered and thereby identify lessons learned and best practice. The outputs are shown to the left of centre on the logic map.

### Scheme Outcomes

A critical decision to be made in developing a robust yet proportional Monitoring Plan is the extent of outcome monitoring. The logic map prepared highlights a range of first, second and third order outcomes considered likely to result from investment. Another way of considering first, second and third order changes is to present them as scheme specific, network and wider area outcomes.

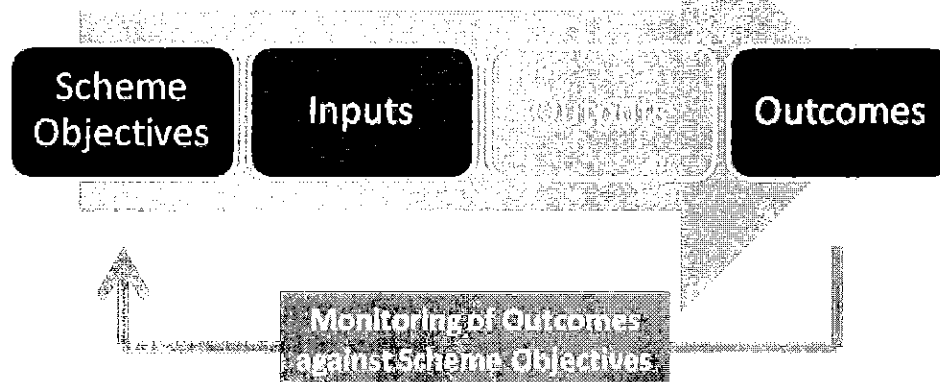
The derivation of simple key indicators for each scheme objective aims to capture the impacts fully, but without waste. The use of **SMART (Specific, Measurable, Achievable, Realistic and Time scaled)** indicators, where appropriate, will enable Birmingham City Council to draw accurate comparisons over time.

### Scheme Benefits

The likely benefits of the scheme are set out in the below table, including additional detail regarding the responsible owner, anticipated outcomes and indicative timescales associated with each benefit.

Benefit	Who will benefit?	Enablers required to realise benefit	Outcome displayed if benefits realised	Baseline measure	Who is responsible?	When will it occur?
Remove barrier to access key employment sites	Road users, commuters, businesses, local residents.	Completion of junction improvements.	Reliable access to employment sites without congestion, delays or queues.	Current data on delays, queues, traffic flow and DoS.	Birmingham City Council (BCC)	On scheme completion – 2018
Improved public transport services	Road users, commuters, businesses, local residents.	Completion of junction improvements.	Increase in number of people using public transport services. Improved bus journey time reliability.	Current bus delay and punctuality records.	BCC	On scheme completion – 2018
New pedestrian and cycle facilities	Local residents and bus service users.	Completion of footpaths and bus stops.	Increased use of active modes.	Evidence of traffic levels and junction design deterring people from walking and cycling.	BCC	On scheme completion – 2018
Increased junction safety	Road users and pedestrians	Completion of junction improvements	Reduction in number of accidents at Ring Road junctions	Accident records and road safety statistics.	BCC	On scheme completion – 2018
Extension of asset lifespan	Local residents, road users, commuters, businesses, BCC.	Completion of junction improvements.	Reduction in levels and cost of maintenance.	Current maintenance cost levels.	BCC	On scheme completion – 2018

It is important that the measurement of change can be related back to the scheme objectives and beyond that, to the overall vision for the scheme – a contributor to the wider Birmingham Development Plan.



Monitoring and data collection is intended to be synchronised with wider Council data collection where possible, to be undertaken at regular intervals, associated with LTP and wider planning exercises.

Evaluation is envisaged as being a formal process, with a medium to long term aspiration to unlock growth, ensuring the potential local and regional benefits of the Iron Lane scheme are fully realised in a timely manner. As part of the evaluation of the impact of the package, three phases are intended:

1. Data collection;
2. Evaluation of collected data for technical assessment; and
3. Benefit realisation.

The following key indicators will assist in evaluating the scheme outputs against its overarching objectives:

Scheme Outcome	Indicator
Increased Junction Capacity	- Average delay and queue length at the Iron Lane junction
Reduced delay and improved journey times	- Journey times through local network
Improved journey times for bus trips	- Bus journey times through local network
Improved access to bus stops	- % of local population within 400m of a bus stop
Improved and safer pedestrian facilities	- NO <sub>2</sub> levels at existing monitoring sites - Accident numbers - Pedestrian numbers
Improved and safer cycling facilities	- NO <sub>2</sub> levels at existing monitoring sites - Accident numbers - Cyclist numbers
<b>Reduced severance caused by previous junction design</b>	- Number of pedestrians and cyclists crossing the Iron Lane junction
Journey ambience improvements	- Journey times through local network (all modes)
<b>Caters for increased transport demand</b>	- The degree of saturation at the Iron Lane junction
More reliable bus services	- Bus reliability studies
More attractive bus routes	- Bus satisfaction studies
<b>Increased bus patronage</b>	- Bus ticket sale figures
Reduction in the number of accidents involving pedestrians and cyclists	- Accident numbers
More attractive walking and cycling routes	- Local area satisfaction studies
<b>Increased levels of active travel</b>	- Active travel mode share (walking, cycling)
Improved air quality	- AQMA site data
Reduction in CO <sub>2</sub> emissions	- CO <sub>2</sub> levels at monitoring sites

Improved accessibility to key employment sites	<ul style="list-style-type: none"> <li>- Accessibility studies</li> <li>- Travel surveys</li> <li>- Employment rate</li> <li>- Indices of Multiple Deprivation</li> </ul>
Increased attractiveness for business and social enterprise ventures	<ul style="list-style-type: none"> <li>- Development area utilised by businesses</li> </ul>
<b>Remove barriers to growth, job creation and economic development</b>	<ul style="list-style-type: none"> <li>- Development area utilised by businesses</li> <li>- Employment rate</li> <li>- GVA of Stechford and Birmingham</li> <li>- Indices of Multiple Deprivation</li> </ul>
Improved accessibility to skills/employment/services	<ul style="list-style-type: none"> <li>- Accessibility studies</li> <li>- Employment rate</li> <li>- Indices of Multiple Deprivation</li> </ul>
<b>Reduced severance and social exclusion</b>	<ul style="list-style-type: none"> <li>- % of local population within 400m of a bus stop</li> <li>- Employment rate</li> <li>- GVA of Stechford and Birmingham</li> <li>- Indices of Multiple Deprivation</li> </ul>
Reduced unemployment among population	<ul style="list-style-type: none"> <li>- Employment rate</li> <li>- GVA of Stechford and Birmingham</li> <li>- Indices of Multiple Deprivation</li> </ul>

The main conclusions will inform the benefit realisation. There is a close relationship between evaluation and realisation tasks. While the former is a series of activities which may be carried out by third party observers, the latter has been integrated into scheme development from inception and will be reflected in the design and management of the project.

#### **G: Arrangements for Risk Assessment**

The strategy, framework and plan for dealing with the management of risk are set out in Birmingham City Council's Risk Management Policy, Strategy and Methodology. The Risk Management process has five key stages to it:

1. Risk / Opportunity Identification
2. Risk / Opportunity Analysis
3. Risk / Opportunity Prioritisation
4. Management of Risks / Opportunities
5. Monitoring of Progress and Reviewing Risk Registers

The Project Manager, with support from the project team, including specialist support, contractors and statutory undertakers, will lead the Risk Assessment process.

With respect to construction health and safety there is a legal requirement to comply with the Construction (Design and Management) Regulation 2007. New regulations are to come into force April 2015. The project will be delivered in accordance with the 2007 and 2015 Regulations.

#### **H: Arrangements for Contract Management**

Overall contract management will be undertaken by the City Council's in-house Infrastructure Projects Team which has extensive experience of delivering complex capital highway schemes on the ground. The team operates a Quality Management System (QMS) which complies with the requirements of ISO 9001:2008, and the implementation of all highway works will be managed with reference to the QMS system.

#### **I: Arrangements for Post Project Evaluation**

The Birmingham City Council Constitution (Volume B – Supporting Documents to the Constitution) sets out the governance gateway procedure for all projects which includes PIR. The PIR reviews



actual project performance against budget, milestones, outputs/outcomes etc. approved at Full Business Case stage. The PIR is timed to take place 12 months after completion of the construction works. The PIR process also covers Project evaluation review (PER).

### **J: Gateway Review Arrangements**

The project will be reviewed at the following three key Gateway stages:

- GBSLEP Full Business Case
- Birmingham City Council Full Business Case
- Birmingham City Council Contract Award

The project progress is reviewed monthly by Birmingham City Council Officers through Project Boards.

### **K: Contingency Plans**

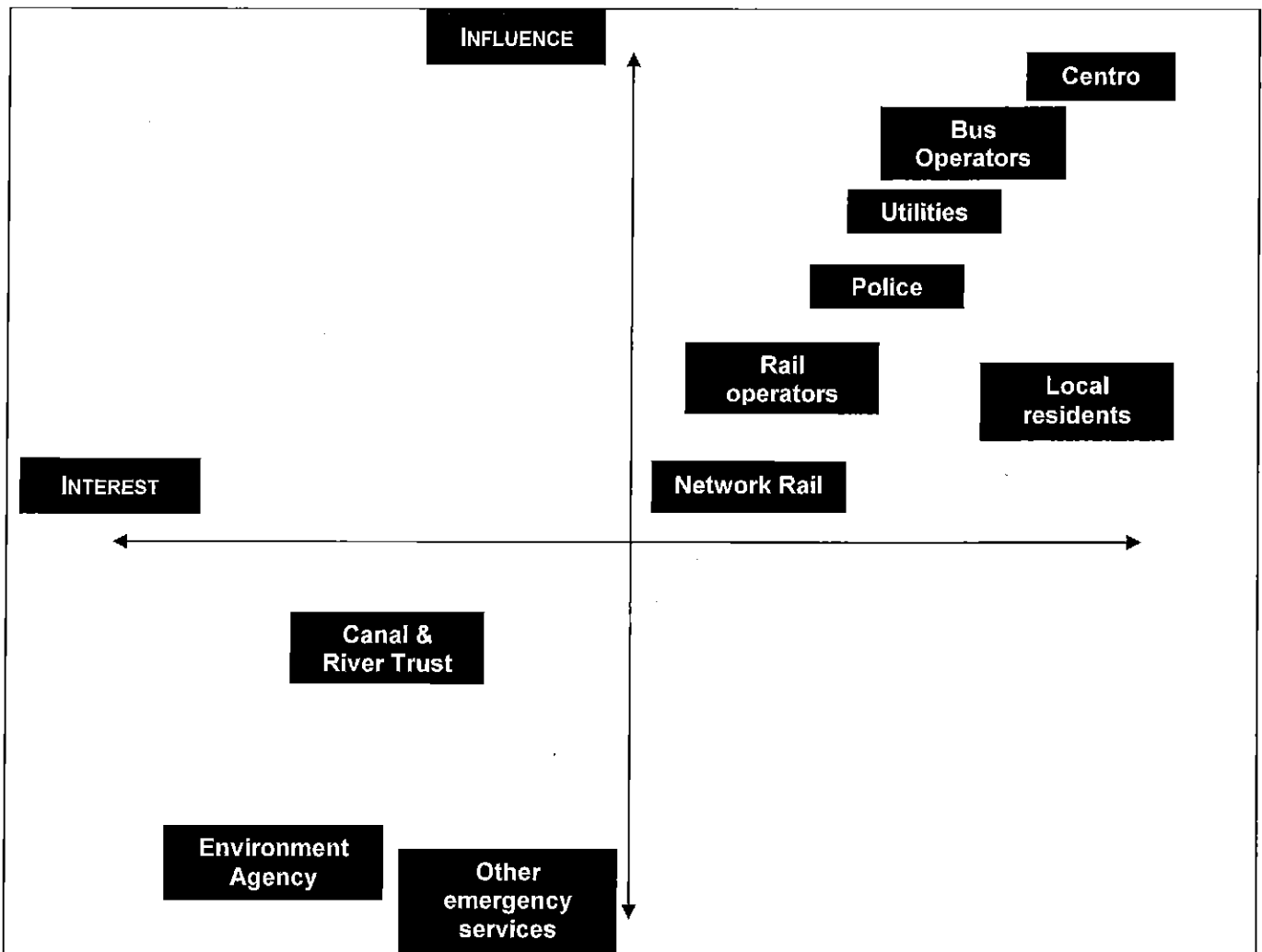
In the event that this project fails, the following arrangements are in place to support the continued delivery of the required outputs:

- Carry out Post Implementation Review.
- Identify where improvements / changes are required to be made.
- Put in place a delivery strategy to implement the identified improvements / changes.
- Seek approval and funding.

The Risk Assessment process will record delivery risks throughout the life of the project with associated mitigation measures. Therefore in terms of delivery risk the Risk Assessment process is essentially the control document that would flag up the requirement for a contingency plan and against which task.

### **STAKEHOLDER MANAGEMENT**

The following diagram and table illustrate Birmingham City Council's analysis of key stakeholders. The diagram indicates each stakeholder's level of interest and influence over the scheme. The table then ranks those stakeholders in order of importance and details their interest in the scheme alongside BCC's strategy for engagement.



Importance rank	Stakeholder	Influence	Interest	Strategy
1	Centro	High	Interface of the improvements with public transport	Consult on scheme designs and hold regular update meetings to keep informed of work progress.
2	Bus operators	High	Impact on their services of proposed junction alterations and traffic management arrangements whilst works take place	Consult on scheme designs and hold regular update meetings to keep informed of work progress.
3	Utilities	High	Proposed scheme will require the protection and/or movement of some infrastructure.	Consult on scheme designs. Initiate regular update meetings to ensure any risks or issues are identified and resolved. Commission a stat undertakers assessment.
4	Landowners	High	Changes to surrounding land and any potential impacts on their land.	Consult on designs and keep informed.

7	Local Residents	Med-high	Traffic management arrangements whilst works take place, impacts of junction improvements and potential changes to bus routes	Consult on designs. Hold public meeting. Keep informed through local media and website.
6	Police	Med-high	Proposed junction alterations and traffic management arrangements whilst works take place	Keep informed of project works and schedule.
9	Network Rail	Medium	Any potential impact on their services	Keep informed.
10	Canal & River Trust	Low	Any potential impacts on local waterways	Consult on designs and keep informed.
11	Environment Agency	Low	Any potential impacts on surrounding land and waterways	Keep informed.
12	Other emergency services	Med-low	Proposed junction alterations and traffic management arrangements whilst works take place	Keep informed.

#### 14: STATE AID COMPLIANCE

The Iron Lane scheme will deliver general interest public works through the delivery of an improved junction for equal and unrestricted use by all existing and future users. All works and land acquisition is within the highway boundary.

It is considered, therefore that the project is compliant with State Aid Rules. For full details, see **Appendix O**.

#### 14: STATUTORY POWERS AND CONSENTS

The Council in carrying out transportation, highway and infrastructure related work will do so under the relevant primary legislation comprising the Highways Act 1980; Road Traffic Regulation Act 1984; Traffic Management Act 2004; and Transport Act 2000; Local Government (Miscellaneous Provisions) Act 1976; Countryside and Rights of Way Act 2000 and other related regulations, instructions, directives and general guidance.

Procurement will be undertaken in accordance with standing orders and financial regulations. Grants will be provided in accordance with Section 31 of the Local Government Act 2003.

### 15: SENIOR RESPONSIBLE OWNER DECLARATION

As Senior Responsible Owner for the Iron Lane Scheme I hereby submit this request for Local Growth Fund allocation on behalf of Birmingham City Council and confirm that I have the necessary authority to do so.

Name: Anne Shaw

Signed:



Position: Asst Div - Transportation and Connectivity.

### 16: APPENDICES

- Appendix A – Preferred Scheme Drawing
- Appendix B – Risk Register
- Appendix C – Environmental Impact Assessment
- Appendix D – Short List Scheme Option Drawings
- Appendix E – VISSIM Modelling Report
- Appendix F – Scheme Impact Pro Forma
- Appendix G – Economic Appraisal: TUBA Inputs and Outputs
- Appendix H – Appraisal Summary Table
- Appendix I – Social and Distributional Impacts Assessment
- Appendix J – Quantified Risk Assessment
- Appendix K - Risk Management Strategy
- Appendix L - Project Reporting Structure
- Appendix M – Project Plan
- Appendix N – Logic Map
- Appendix O – State Aid Form