Birmingham City Council
Transportation Strategy

Dudley Road Traffic Management Improvements

Birmingham, West Midlands

Major Scheme Business

Option Assessment Report

May 2010

Birmingham City Council
Transportation Strategy
1 Lancaster Circus
Birmingham
West Midlands
B4 7DQ

Atkins
The Axis, 10th West,
10 Holliday Street
Birmingham
B1 1TF
UK

Dudley Road Traffic Management Major Scheme Business Case

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List of Acronyms Used

The following is a list of all acronyms used within this document.

ASR	Appraisal Specification Report
BCC	Birmingham City Council
BWB	British Waterways Board
DaSTS	Delivering a Sustainable Transport System
DCLG	Department of Communities and Local Government
Defra	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
HMRA	Housing Market Renewal Area
IIL	Impact Investment Location
IMD	Indices of Multiple Deprivation
LDF	Local Development Framework
LTP	Local Transport Plan
MBC	Metropolitan Borough Council
MSBC	Major Scheme Business Case
MUA	Major Urban Areas
OAR	Option Assessment Report
ODPM	Office of the Deputy Prime Minister
PT	Public Transport
RFA	Regional Funding Advice
RHS	Regional Housing Strategy
RPG	Regional Planning Guidance
RSS	Regional Spatial Strategy
RTS	Regional Transport Strategy
SAAP	Smethwick Area Action Plan
UDP	Unitary Development Plan
WMES	West Midlands Economic Strategy

1. Introduction

Background

1.1 Birmingham City Council's Growth Agenda aims to increase Birmingham's population by up to 100,000 by 2026. The Icknield Port Loop/Birmingham Sandwell Western Corridor Impact Investment Location (IIL), of which Ladyport forms a part of, will be one of the areas where growth will be focused.

1.2 Ladyport, currently a working title with the potential to change in future, is the area to the immediate north west of Birmingham City Centre that has been identified to achieve sustainable transformational change. Within Ladyport, significant sites have been identified with major redevelopment potential for a wide variety of uses.

1.3 The Draft Ladyport Framework, currently being developed, aims to deliver around 6000 new homes and up to 3000 new jobs within the area. The provision of significant highway infrastructure is therefore key to help facilitate this large scale mixed use development (employment and housing) planned within the Ladyport area. The A457 Dudley Road Traffic Management Scheme therefore forms a vital part of the transportation and regeneration development proposals for the Ladyport area.

1.4 The A457 Dudley Road Traffic Management Scheme also has the very important role of addressing the congestion, bus reliability and safety problems that exist along the A457 Dudley Road. Route Management Strategy Study undertaken by Birmingham City Council (BCC), the A457 Dudley Road was the worst performing of the ten main radial routes leading to Birmingham City Centre, in an assessment that included journey times, public transport services, accident history, pedestrian and cyclist facilities.

1.5 It was against this background that BCC originally submitted a Major Scheme Business Case (MSBC) in July 2004 (then known as an Annex E submission) under the previous Local Transport Plan (LTP) major scheme process. The MSBC submission was not fully considered by the Department for Transport (DfT) at that time due to new regional prioritisation procedures associated with the Regional Funding Advice (RFA) introduced by the Government in 2005.

1.6 Subsequently, the West Midlands RFA 2009-19 programme has identified the Dudley Road Traffic Management Scheme as a prioritised scheme to be completed within the next 5 years and £16.2 million has been allocated to the Scheme in the regions spending priorities in the RFA2 spending period. As a result, BCC's Cabinet approved funding to prepare a new MSBC with the intention to submit to the DfT in summer 2010, and achieve programme entry status as soon as possible after this.

1.7 In advance of the full MSBC submission and as suggested in the WebTag Draft Guidance "For Consultation TAG Unit 2.1.1 - The Steps in the Process – Overview" (currently under consultation) BCC proposes to take this scheme forward using the three stage process as follows:

- **Stage 1: Option Development -** This involves identifying the need for intervention and developing options to address a clear set of locally developed objectives. These objectives are sifted and assessed against the WebTag criteria to identify the better performing options for further appraisal in Stage 2. This stage also involves clarifying with DfT the methodology and the scope of further appraisal to be undertaken in Stage 2;
- **Stage 2: Further Appraisal –** This involves a more detailed appraisal of a small number of better performing options sifted through Stage 1 with the aim of making an informed decision about whether or not to proceed with an intervention; and

- **Stage 3: Implementation, Monitoring and Evaluation -** The final stage of the process involves developing a detailed implementation programme and undertaking post-implementation monitoring and evaluation to determine whether the intended outcomes and objectives have been delivered.

1.8 With the intention of an early engagement with DfT, and as suggested by the guidance, this Option Assessment Report (OAR) has been prepared. In addition to this, an Appraisal Specification Report (ASR) is also being submitted to DfT. The aim of these reports is to get an agreement between the DfT and BCC on:

- **the need for the scheme;**
- **the potential scheme options that are deemed feasible to be taken forward for further appraisal in Stage 2;** and
- the overall methodology to be used to appraise the potential schemes in Stage 2.

1.9 This OAR aims to set out the process of identifying and developing options for improvements to A457 Dudley Road within the West Midlands, to the west of Birmingham City Centre. As suggested by the guidance this report aims to:

- establish view(s) on the current and future conditions;
- establish the need for an intervention;
- identify a set of locally developed objectives, framed within the context of the Government's goals and challenges for transport;
- define the geographic scope of intervention i.e., the corridor or area requiring intervention;
- discuss a broad range of discrete options;
- report the initial sift and the options that have not been considered viable, along with the rationale for it; and
- present better performing options to be taken forward for further appraisal in Stage 2.

1.10 It may be noted that at the time this OAR is produced (February 2010), the WebTag Draft Guidance Unit 2.1.2 is still being consulted on. Whilst BCC has made every effort to follow the guidance to produce this OAR, there are elements within the Guidance, where the most logical way forward had to be adopted to minimise any abortive work or to overcome any such elements where there was a level of ambiguity.

The Scheme Area

1.11 The A457 Dudley Road is a part of the region's Strategic Route Network and is one of three key roads which provide strategic links providing connectivity between Birmingham City Centre, Sandwell and the Black Country to the west.

1.12 To the west of Birmingham, the A457 Dudley Road, the A41 Soho Road and the A456 Hagley Road all provide local access as well as links to the wider strategic highway network. The location of each of these routes in relation to the City Centre is shown in Figure 1.1.

1.13 The Birmingham Unitary Development Plan 2005 proposed to downgrade A41 Soho Road from the Strategic Highway Network and to change the role of Soho Road to a traditional "High Street", to build on its unique niche as a centre serving the local communities. In addition to this it proposed to designate the A457 Dudley Road as the major radial route between Birmingham and the Black Country.

1.14 The Dudley Road A457 corridor being designated as the major link between the Black Country and the City, it was agreed to undertake any transportation proposals within the corridor in the

context of the Dudley Road / A457 Planning and Transportation Studies, and the Dudley Road Local Action Plan.

1.15 The transportation proposals within the corridor were broken into a two phase approach, either side of the junction of Dudley Road/City Road. Phase 1 of the improvements has been completed through some minor improvements schemes on the A457 Dudley Road, west of City Road and through some traffic calming on residential streets, adjacent to the main route. The downgrading of the A41 Soho Road has also been completed by road space reallocation.

1.16 Phase 2 of the scheme involves a 1.6km section of the A457 Dudley Road, between City Road and Ladywood Middleway as shown in Figure 1.2. Phase 2 of this scheme is designated as the current MSBC, for which BCC is seeking programme entry.

1.17 Surrounding the route, an Influence Area has been defined to encompass all areas which are impacted by the network conditions on the A457 Dudley Road. The Area covers parts of Birmingham and Sandwell and includes Birmingham City Centre, Winson Green and Smethwick. The Area is inhabited by approximately 75,000 people with 59.9% of people aged 17 – 60 (Census Data, 2001).

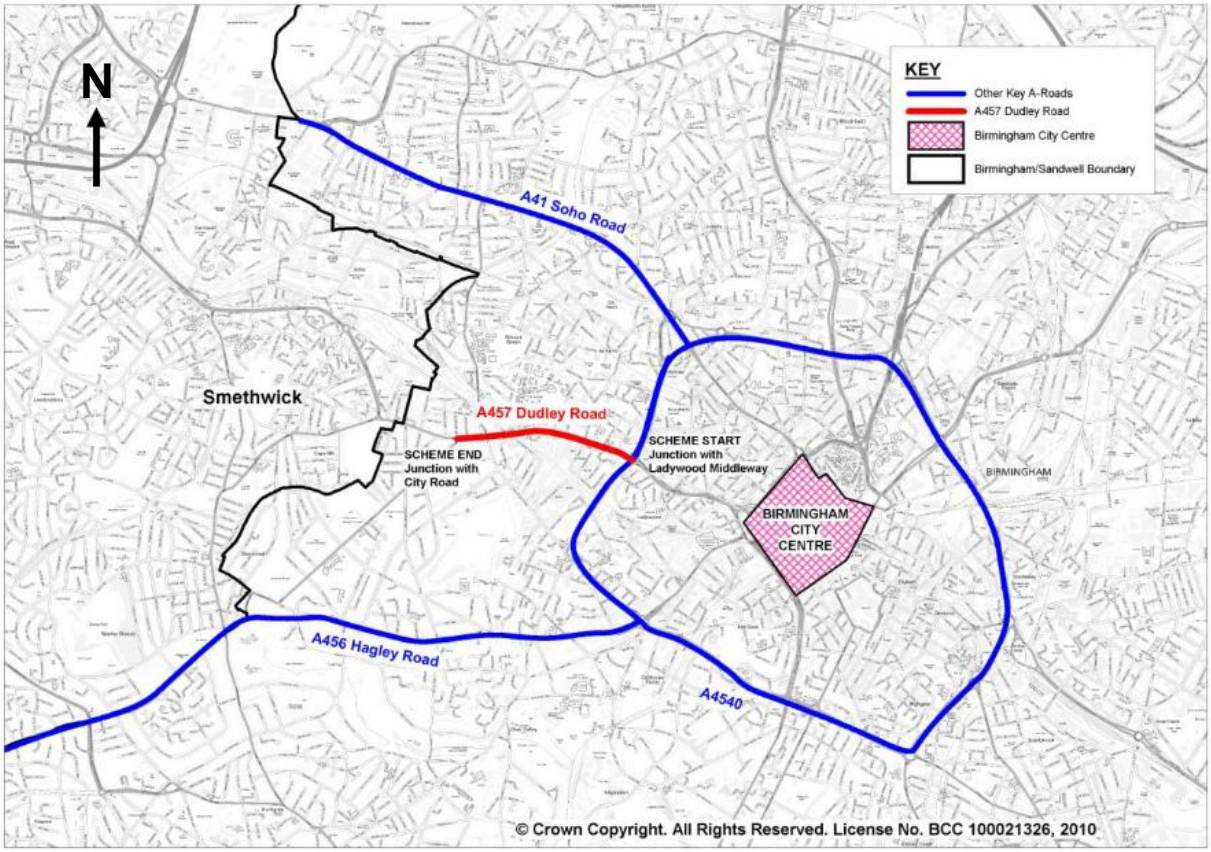


Figure 1.1 – Route location in relation to Birmingham City Centre

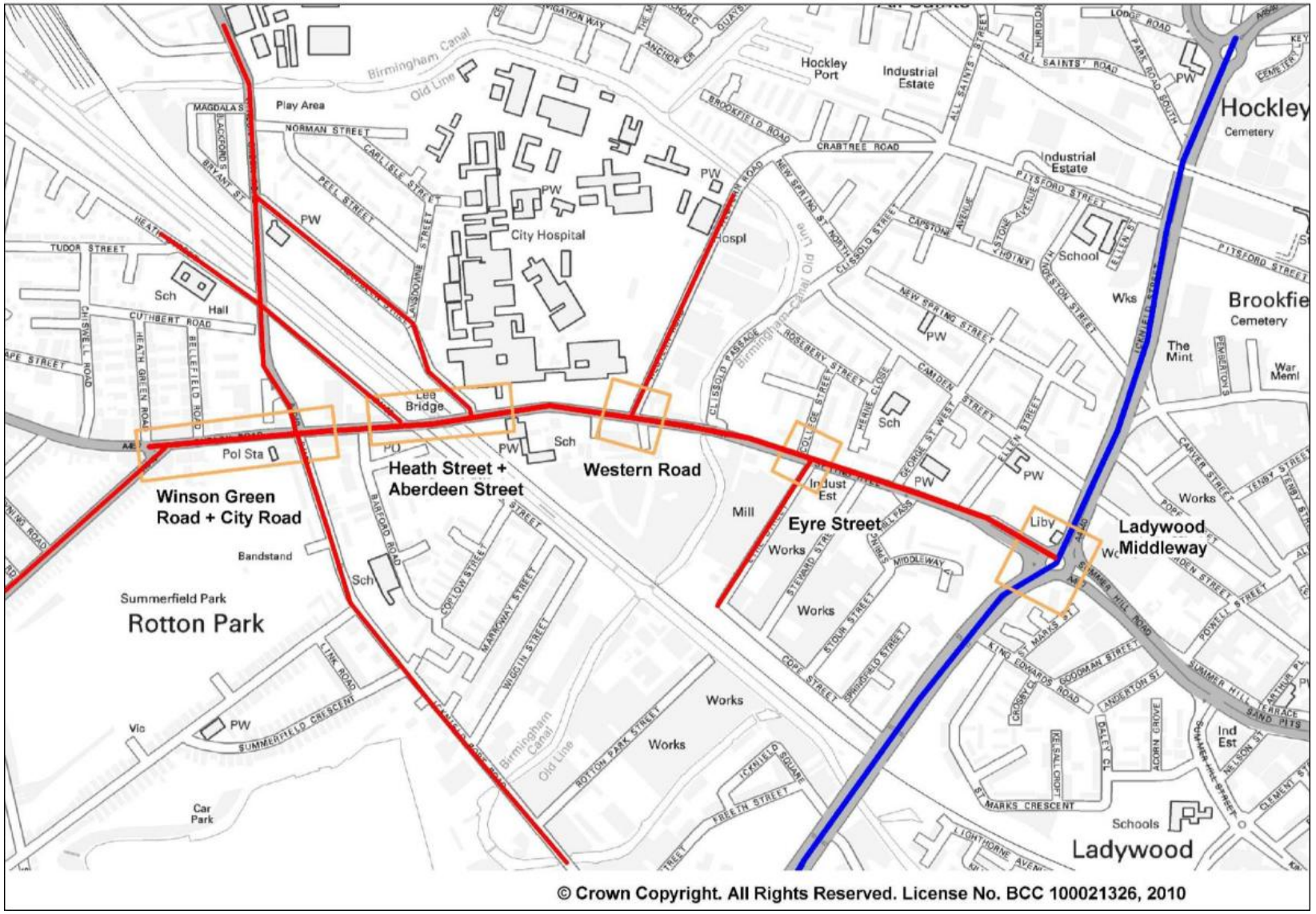


Figure 1.2 - Key junctions within the extents of the scheme

1.18 An Indices of Multiple Deprivation analysis (IMD) 2007 has been undertaken for the Area and is shown in Figure 1.3. The IMD is a deprivation index at a small area level created by the British Department for Communities and Local Government (DCLG) to provide a broad assessment of the profile of an area. The IMD is calculated by aggregating seven individual domain indices (income deprivation, employment deprivation, health deprivation and disability, educational skill and training deprivation, barriers to housing and services, living environment deprivation, and crime).

1.19 The analysis has been undertaken for the lower Layer Super Output Areas (LSOAs) which make up the wards within the Area. The IMD analysis includes LSOAs in the wards of Ladywood and Soho in Birmingham and Smethwick and Soho & Victoria in Sandwell.

1.20 The IMD analysis shows that much of the area within the Ladyport Development area is significantly deprived. The area is amongst the most deprived parts of the West Midlands Region.

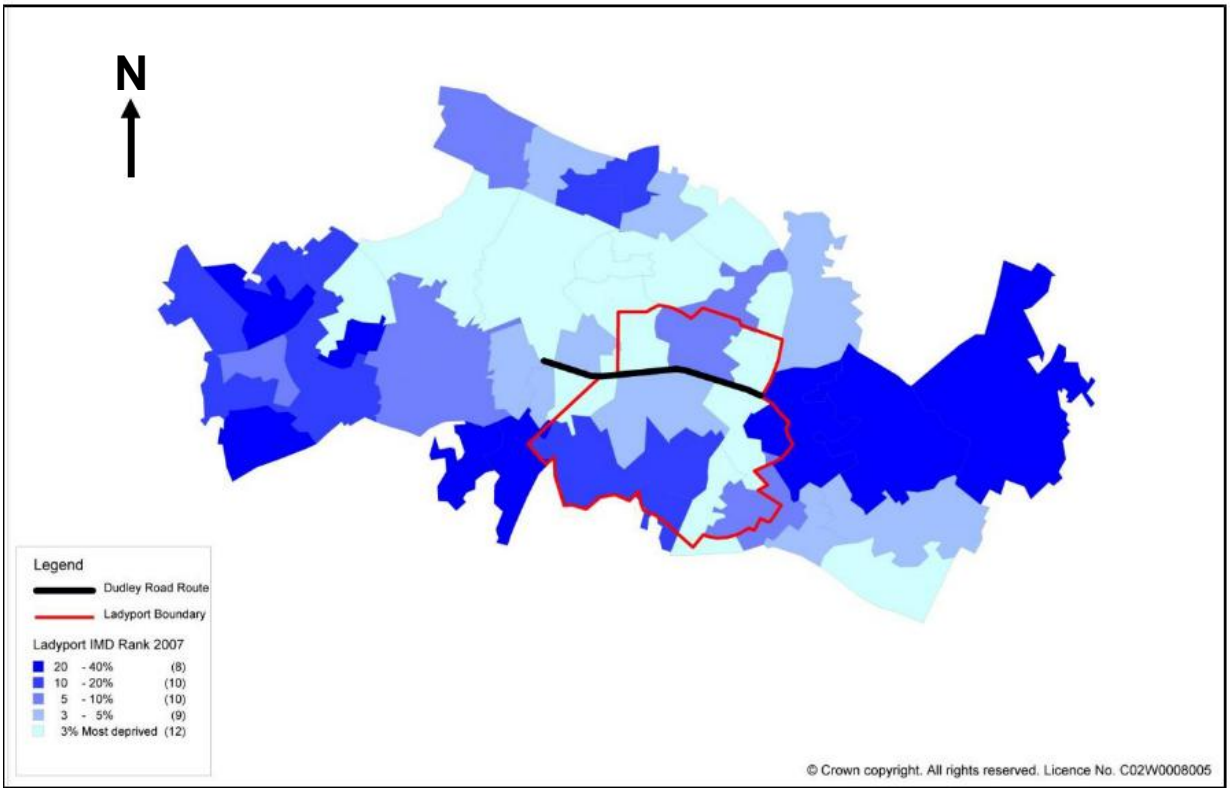


Figure 1.3 – Analysis of IMD (2007) for the Influence Area

The Report Structure

1.21 Following this chapter, the report is structured into chapters which discuss the following:

- **Chapter 2 – Understanding the Current Situation**, which gives a background into the existing network conditions along Dudley Road including the context of the scheme in local and national policy, the current travel demands and the key opportunities and constraints affecting the route;
- **Chapter 3 – Understanding the Future Situation**, which gives details on the potential impact of future changes to land-use, the transport system and travel demand in the areas close to the route, and factors which would change the demand placed on the A457 Dudley Road;
- **Chapter 4 – Establishing the Need for Intervention**, outlines the key issues that exist along the route. This is presented in terms of the areas where the existing network is not performing to standard and places where the future situation is likely to change the network conditions to a point where some form of intervention is required;
- **Chapter 5 – Identifying Objectives**, sets out the strategic and specific scheme objectives that are to underpin the scheme option development;
- **Chapter 6 – Define Geographic Scope of Intervention**, identifies the section of the A457 Dudley Road to be considered for the scheme design options;
- **Chapter 7 – Generating Options**, explains the methodology used to develop possible options for the route and lists all possible interventions and approaches considered;
- **Chapter 8 – Initial Sifting**, presents an analysis of each of the options generating and identifies those scheme which are the most suitable, deliverable and offer the best value for money to be considered further;
- **Chapter 9 – Development and Assessment of Potential Options**, details each of the four most appropriate scheme options and considers the principles and constraints for each of these. This section also includes the Option Assessment Framework which compares each option against a set of appraisal criteria;
- **Chapter 10 – Proposed Options by Further Appraisal,** in Stage 2 sets out the vision for the preferred and Lower Cost Options identified by the sifting process; and
- **Chapter 11 – What Next?** This chapter identifies the process following the submission of this Option Assessment Report.

2. Understanding the Current Situation

Current Transport and Other Policies

2.1 It is important to understand the wider transport and planning policies affecting the area. This along with the understanding of current and future transport issues is vital to develop the scheme objectives. This section outlines the policy context that may have implications for the travel market to which the Dudley Road Traffic Management Scheme relates to. This is discussed in three categories namely:

- National policy;
- Regional policy; and
- Local policy.

National Policy

Delivering a Sustainable Transport System (2008)

2.2 The **Delivering a Sustainable Transport System: Main Report (DaSTS)** outlines the Government's five broad key goals for transport. The report explains how the government is putting into action the long-term approach as set out in 'Towards a Sustainable Transport System' (2008).

2.3 The goals are designed to take full account of the wider impact of transport on climate change, health, quality of life and the natural environment. The goals for the transport system are:

- To **support** national **economic** competitiveness and **growth**, by delivering reliable and efficient transport networks;
- To reduce transport's emissions of carbon dioxide and other greenhouse gases, with the desired outcome of **tackling climate change**;
- To **contribute to better safety security and health** and longer life-expectancy by reducing the risk of death, injury or illness arising from transport and by promoting travel modes that are beneficial to health;
- To **promote** greater **equality of opportunity** for all citizens, with the desired outcome of achieving a fairer society; and
- To **improve quality of life** for transport users and non-transport users, and to promote a **healthy natural environment**.

Delivering Sustainable Low Carbon Travel: An Essential Guide for Local Authorities (2009)

2.4 The **Delivering Sustainable Low Carbon Travel: An Essential Guide for Local Authorities** document, as issued by DfT in November 2009, underlines the need for sustainable travel initiatives to play a key role in decarbonising transport whilst still delivering economic growth and an improved quality of life and health.

2.5 Sustainable travel is about understanding the local area and providing for its transport needs through a package of measures which promote attractive sustainable transport alternatives such as walking, cycling, public transport and sustainable car use.

2.6 The sustainable travel approach has three priorities:

- creating positive choices for travellers;

- a holistic package of measures, which 'lock-in' the benefits; and
- local application tailored to local circumstances.

2.7 The document underlines how the successful implementation of sustainable travel initiatives is based on certain key elements such as clear strategic direction, political support and good stakeholder management.

The Eddington Transport Study (2006)

2.8 **The Eddington Transport Study: The Case for Action** highlights problems of the congested urban environment. It states that "delays and unreliability on the network have direct costs to people and businesses".

2.9 The report also states that the "Government should prioritise on those parts of the system where networks are critical to supporting economic growth, and are clear signals that these networks are not performing".

The Stern Review on the Economics of Climate Change (2006)

2.10 **The Stern Review on the Economics of Climate Change** examines the evidence on the economic impacts of climate change and explores the economics of stabilising greenhouse gases in the atmosphere. The review considers the complex policy challenges involved in managing the transition to a low-carbon economy and in ensuring that societies can adapt to the consequences of climate change.

2.11 Realistic and appropriate methods of reducing greenhouse gases are also suggested in the Stern Review. Transport, in particular private cars, adds significantly to greenhouse gases and hence its growth needs to be checked to minimise the greenhouse gases. However to attract people out of their cars it is vital to provide them with high quality alternatives.

2.12 The Stern Review also suggests that the following methods can be used to reduce emissions these being:

- increased energy efficiency; and
- changes in demand through adoption of clean power, heat and transport technologies.

Regional Policy

Regional Spatial Strategy (2008)

2.13 The West Midlands **Regional Spatial Strategy (RSS)** was first issued as Regional Planning Guidance (RPG) in June 2004. At that time a number of issues were identified for further work. These issues were subsequently divided into three blocks of work, with each one forming a partial revision to the RSS;

- Phase 1 – the Black Country;
- Phase 2 – including housing and employment; and
- Phase 3 – including environment issues.

2.14 A revision of the RSS has been reviewed which incorporates the amendments as a result of the Phase 1 review.

2.15 The vision of the West Midlands RSS is stated as:

> *"The overall vision for the West Midlands is one of an economically successful, outward looking and adaptable Region, which is rich in culture and environment, where all people, working together, are able to meet their aspirations and needs without prejudicing the quality of life of future generations."*

2.16 The RSS has identified a series of challenges in achieving this vision. These include urban renaissance, where Major Urban Areas (MUAs) need to be developed to meet their own economic and social needs. Diversifying and modernising the Region's economy is also highlighted where development and opportunities for growth are linked to meeting needs and that they help to reduce social exclusion.

2.17 Modernising the transport infrastructure of the West Midlands is also identified by the RSS as a key component to supporting its vision of sustainable development of the Region.

Regional Transport Strategy (2008)

2.18 The **Regional Transport Strategy (RTS)** supports the RSS and highlights that concentrating development and investment in the Major Urban Areas (MUAs) will require accessibility and mobility in these areas to be maintained and, in some areas, significantly enhanced.

2.19 In addition to this, it recommends that the need for travel will need to be reduced, travel choices expanded, congestion tackled, safety improved and the environment protected.

Regional Housing Strategy (2005)

2.20 In 2005, the West Midlands Regional Housing Board issued its second **Regional Housing Strategy (RHS)**. The purpose of the RHS is to reinforce and apply the principles of urban and rural renaissance, first set out and confirmed in the RSS and enshrined in the West Midlands Economic Strategy (WMES), to the Region's housing markets.

2.21 In summary the core aims of the RHS are:

- to create mixed, balanced and inclusive communities;
- to assist in the delivery of RSS policies of Urban and Rural renaissance;
- to influence the future development of new housing provision to facilitate and enhance the economic development of the region;
- to address the variety of needs across a range of specific sectors of housing circumstances;
- to work towards the success of the two Office of the Deputy Prime Minister (ODPM) sponsored Housing Market Renewal Area (HMRA) Pathfinders in Birmingham / Sandwell and North Staffordshire / Stoke and the Regionally identified housing restructuring areas of East Birmingham / North Solihull and North Black Country / South Telford;
- to see that Government's Decent Homes standards are met in the municipal, social sectors, and for those in vulnerable circumstances in the private sector;
- to achieve social and other affordable housing; and
- to achieve sustainable access to minimise environmental resource consumption and traffic and improve the quality of the environment.

2.22 The scheme area includes one of the ODPM sponsored Housing Market Renewal Area (HMRA) Pathfinders in Birmingham / Sandwell, called as **Urban Living**. This is discussed in detail in section 2.26 to 2.28 of this report.

Birmingham and Solihull Growth Point

2.23 Birmingham and Solihull are at the heart of the country's second city region *(http://www.communities.gov.uk/housing)*. To accommodate steady growth over recent years, the need to increase the rate of house building and to provide a wider choice of quality housing has been emphasised. This has helped to meet the diverse needs of the existing residents and those of the substantial number of households that are projected to form over the next decade.

2.24 Birmingham's plans are focused on the revitalisation of local centres to allow more people to live in vibrant urban neighbourhoods with good access to jobs and services. In Solihull, growth will be focused on the North Solihull regeneration area.

2.25 In supporting **Birmingham and Solihull** as a New **Growth Point**, the Government has entered into a long-term partnership with Birmingham City Council and Solihull Metropolitan Borough Council. The ambitions for Birmingham and Solihull include:

- a minimum of 40,000 new homes by 2016;
- renewal of areas currently dominated by social rented housing to deliver quality housing in a wider variety of tenures;
- a programme to strengthen local centres through development, initially in East Birmingham and North Solihull;
- a detailed and co-ordinated scheme to ensure sustainable building practice (including energy efficiency and on-site generation) is adopted across East Birmingham and North Solihull thereby delivering better homes with less impact on the environment and a stimulus to the local economy and jobs;
- important studies (including master planning, option appraisal, financial and market testing, design guidance and an open space strategy) that will guide development in South West Birmingham and complement similar work already underway in North Solihull; and
- delivery within Birmingham of complementary refurbished and new build homes planned as part of the Urban Living Housing Market Renewal Pathfinder area (which also covers part of Sandwell Metropolitan Borough Council's area).

Urban Living

2.26 As mentioned in section 2.21, the success of the ODPM sponsored, HMRA pathfinders is one of the core aims of RHS. **Urban Living** is one of nine Housing Market Renewal Pathfinder areas in the UK, set up and funded by the Department of Communities and Local Government (DCLG). The Pathfinder covers substantial areas within Birmingham City Council and Sandwell Metropolitan Borough Council, which are the two local authority partners. Within Urban Living, the western growth corridor (which includes Dudley Road and the surrounding areas) is one of nine key areas of focus.

2.27 The vision for Urban Living is:

> *"Urban Living will create a vibrant and sustainable housing market characterised by a thriving economy, cohesive communities and an appropriate range of high quality neighbourhoods."*

2.28 To achieve the vision, there are 5 key objectives that have been defined as:

- *Growth* - Ensure that the majority of household growth can be accommodated and retained in the Urban Living area;
- *Connectivity* – Re-balance the housing market and ensure that complementary economic and social programmes connect with the regeneration of defined local commercial centres;
- *Choice* - Promote and provide a range of high quality and affordable housing choices that lead to the development of mixed communities;
- *Quality* - Transform the quality of housing and neighbourhoods throughout the Urban Living area; and
- *Image* - Make the Urban Living area a safe, convenient and popular place to live, work and invest.

West Midlands' Regional Funding Advice to Government (2009)

2.29 The **Regional Funding Advice (RFA) 2009-19** sets out 20 Impact Investment Locations (IIL) that have been identified as key high priority sites for funding across the West Midlands region. The Impact Investment Locations are all sites where investment in transport, housing and economic development is seen to provide significant short and longer term positive impacts. Delivery of these projects will also help to deliver the RSS and its associated policies.

2.30 Projects in these locations will demonstrate local-level integration between the different strategic priorities, providing the greatest benefit from the funds invested. Each of the key projects listed are rigorously and independently tested for their 'deliverability'. All the projects in each Location are identified as being priority projects.

2.31 One of the 20 locations identified is the 'Icknield Port Loop/Birmingham Sandwell Western Corridor'. As mentioned in sections 1.1 to 1.3, Ladyport forms a part of this IIL and is committed to deliver around 6000 new homes and up to 3000 new jobs.

2.32 The regions spending priorities, as set out in the RFA 2009-19 document, identifies £16.2 million has been allocated for the Dudley Road Traffic Management Scheme to be completed within the next 5 years.

West Midlands Economic Strategy (2008)

2.33 The **West Midlands Economic Strategy (WMES)** sets out what the region needs to do to improve economic performance by building on strengths and addressing the market failures that holds back the region's economy.

2.34 The RES has a vision for the region *'to be a global centre where people and businesses choose to connect'*. The Strategy aims to maintain and enhance the region's attractiveness as a location in which people and businesses choose to invest, work, learn, visit and live. The RES seeks economic growth but this growth must support improvements to the quality of life and respect environmental limits.

2.35 The West Midlands RES has three underlying principles. These are:

- pursuing equality, reaping the benefits of diversity;
- valuing the natural environment; and
- supporting urban and rural renaissance.

2.36 Throughout the RES, transport is highlighted as one of a number of challenges for the region in respect of managing future economic growth.

Local Policy

West Midlands Local Transport Plan (2006)

2.37 Transport policy at an individual authority level, is set out in the regional authorities LTP. The West Midlands conurbation authorities produce a combined local transport plan for the West Midlands region.

2.38 The key objective of the **West Midlands Local Transport Plan 2 (LTP2)** is to securely establish and recognise the West Midlands as an economic powerhouse in the United Kingdom, with plentiful jobs, a high quality of living and where the transport network offers attractive and effective ways of accessing work, shops, education and leisure. To achieve this, LTP2 recognises that high quality public transport networks will be required, along with less traffic congestion to improve journey times and delays, reduce air pollution and encourage economic growth. Among these improvements the safety of the region's roads with fewer accidents is also an objective.

2.39 LTP2 targets in relation to road traffic include:

- limiting the increase in road traffic mileage to no more than 7% between 2004 and 2010;
- restricting any increase in average vehicle delays in the morning peak between 2003 and 2010; and
- increasing the morning peak proportion of trips by public transport in the LTP centres.

West Midlands Local Transport Plan 3

2.40 A newer revision of the LTP document **(LTP 3)** which would set out the policy context for transportation policy in the region for the period 2011 to 2014 is currently being consulted on. It also sets out the broad policy for the longer term (present to 2026). The vision set out in the consultation document for the LTP3 states:

"To make the West Midlands Metropolitan Area more prosperous, healthier and safer, offering a high quality and attractive environment where people will choose to live, work and visit, and where businesses thrive and attract inward investment".

2.41 It is envisaged to achieve this by offering sustainable travel and transport choices and connectivity within and between the wide range of centres, large and small, which make up the Metropolitan Area. Improvements to technology and enhancing local accessibility will be considered key to reduce the need to travel, whilst supporting economic growth, within a low carbon environment. It also emphasises on social inclusion, whereby equal opportunities for everyone to gain access to services and facilities are provided for. The LTP3 also emphasises on reflecting our strong ethnic and cultural diversity, positively building on this distinct competitive and social advantage.

2.42 The aim of the LTP3 vision is defined as:

- to support economic growth, reflecting the Area's major contribution to the regional and national economies;
- to tackle climate change;
- to improve safety, security and health;
- to provide equality of opportunity to all, in an area of wide cultural and ethnic diversity; and
- to enhance our quality of life and the built environment.

Dudley Road Local Action Plan

2.43 The Dudley Road Local Action Plan (published November 2001) considers a notable proportion of the section to be covered by this Major Scheme Business Case and defines a vision for the Dudley Road for it to be *"a thriving local centre at the heart of the local community. The Local Plan for the Dudley Road Shopping Centre has been prepared to help achieve this vision by providing a framework to guide future investment and help facilitate its revitalisation."*

2.44 The plan deals with matters such as further improvements to the overall environment of the shopping area, development of unused land, better access to public transport, improvements to buildings and improvements to parks and open spaces.

Birmingham's Big City Plan

2.45 Developed since 2006, the Big City Plan is an evolving masterplan which sits in parallel to Birmingham's Core Strategy as a part of the local development framework for the City. The Big City Plan compromises of an Area Action Plan that will be adopted by the Council as a statutory planning document and give certainty for Birmingham's citizens, investors, developers and other agencies and a Delivery Plan that will identify how the Council will need to work with others to bring about the change.

2.46 The **Big City Plan – Work in Progress** report sets Birmingham's ambition to be a 'global city with a local heart' as well as developing a global role to sit in addition to its position as a regional

capital. Growth is a key element of this plan. The Big City Plan estimates that the City will grow considerably during the next 20 years and economic, social, cultural and educational facilities will all need to expand to facilitate this growth.

2.47 The Big City Plan recommends addressing five drivers of competitiveness, as follows:

- Innovation and skills – There needs to be better working between the universities, local government and the private sector;
- Economic and cultural diversity – Birmingham's City Centre should become more diverse for residents or visitor in its architecture, public realm, cultural facilities, heritage, retail offer, services, especially for young and minority ethnic groups;
- Connectivity – Birmingham must address critical issues, including accessibility, internal mobility, digital connectivity and connections and its relationships with London and other major centres of population and business;
- Strategic capacity – Birmingham needs strong leadership, vision and a long term integrated and partnership approach to development; and
- Quality of place – Birmingham City Centre should become more diverse, more authentic and gritty, more multicultural and more friendly to young people.

Birmingham Core Strategy (In Draft)

2.48 The **Birmingham Core Strategy**, currently in draft form, will set the vision and objectives for the future of the city and will be a city-wide spatial strategy. It replaces the Unitary Development Plan 2005 (UDP) and will form a part of the Local Development Framework for Birmingham.

2.49 The draft Core Strategy Issues and Options report considered three spatial options with a preferred option to be published later in 2010 following extensive consultation.

2.50 The Core Strategy will set out city wide policies and detailed proposals of 3 areas of the city (North-West, East and South) with a city centre chapter. It will be supported by Supplementary Planning Documents on specific locations. The period covered will be 2026 and adoption is likely in 2011/12.

2.51 The Core Strategy work is being interlinked with Birmingham's Big City Planning to set a wider strategic framework for the City.

Birmingham Economic Strategy 2005 – 2015

2.52 **Birmingham Economic Strategy 2005 – 2015** has been prepared to provide a framework for the future economic well-being in Birmingham. Its vision is a strategy to build on Birmingham's renaissance and secure a strong and sustainable economy for the people. The vision includes ensuring Birmingham is a well connected city with excellent international links, road infrastructure, public transport and communication.

2.53 The strategy recognises that effective transport infrastructure is key to future economic activity and regeneration, supporting access to learning and employment opportunities, attracting inward investment and boosting tourism.

2.54 In terms of delivering transport investment, the Strategy's key objective is:

'To ensure Birmingham has a high quality transport system that meets the aspirations and needs of all of its citizens, visitors and businesses, helping the economy to thrive, improving the environment and enhancing quality of life, in a safe and sustainable way.'

Birmingham Local Area Agreement

2.55 **Birmingham Local Area Agreement (LAA)** aims to improve the quality of life for Birmingham citizens. Some of the relevant priorities of the LAA include reducing congestion and helping

people to find employment, improving accessibility to attract investment to the area and improving health.

Birmingham Sustainable Community Plan

2.56 **Birmingham Sustainable Community Plan** produced by Birmingham Strategic Partnership sets a vision for the City for 2026 and aims to enable Birmingham people to succeed economically, stay safe in a clean, green city, be healthy, and enjoy a high quality of life. The Plan aims to see high levels of investment in the City Centre and outer areas such as those development sites in the Western Corridor area. It will also aim to achieve enhancements to the public transport network to help to reduce greenhouse gas emissions.

Smethwick Area Action Plan (2008)

2.57 The **Smethwick Area Action Plan (SAAP) (Dec 2008)** is a part of Sandwell's Local Development Framework (LDF) which sets out a framework for the future development and regeneration of the North Smethwick Area in line with the Government's agenda for creating sustainable communities. The SAAP seeks to allocate sites for specific uses which will provide a range of housing, close to local services and facilities, In addition, as well as safeguarding appropriate land for employment uses, aiding movement through the area by a choice of means of transport and protection of the historic environment. The AAP has a timescale for the implementation of local policies and proposals up to 2021.

2.58 The SAAP has identified eight local planning schemes across the region, including a number of sites close to the Birmingham/Sandwell boundary. The relocation of City Hospital to a site close to Grove Lane is a key element of the framework. Some of the other schemes include the redevelopment of land adjacent to Cranford Street into approximately 285 new residential dwellings and the creation of new mixed use areas and open space around Foundry Lane and Black Patch Park.

Conclusion

2.59 The in-depth understanding of the national, regional and local objectives has identified the key policy aspirations that should in part guide the study objectives. This overarching policy review when considered with the understanding of the current and future issues and opportunities in the study area, as discussed in the following sections, has been used to develop the study objectives relevant to the scheme. These have been discussed in Chapter 5 of this report.

Current Travel Demands and Levels of Service

2.60 At Stage 1 of the submission (and for the purposes of this OAR), data that is readily available, site visits and any previous work undertaken for other projects has been used to draw an overall appreciation of the current level of travel demand and level of service. It is envisaged that as a part of Stage 2, this will be further developed based on information from additional surveys and transport models.

Current Travel Demands

2.61 The A457 Dudley Road, the A41 Soho Road and the A456 Hagley Road are all a part of the principal road network that serves the western side of the West Midlands conurbation as well as providing a link to the wider strategic highway and the UK motorway network. As stated in section 1.13, the Birmingham Unitary Development Plan 2005 proposed to downgrade A41 Soho Road from the Strategic Highway Network and designate A457 Dudley Road as the main strategic link between the Black Country and the City.

2.62 As the A457 Dudley Road is therefore the key route between the M5 and Birmingham City Centre, the key demand within the corridor is trips destined to/originating from central Birmingham.

2.63 This level of strategic importance means that Dudley Road currently carries a significant amount of traffic to and from Birmingham City Centre. On average the two-way traffic along this section of A457 Dudley Road is approximately 24,000 vehicles per day Figure 2.1 and Figure 2.2 shows the traffic counts that have been collated along the route for the AM and PM peak periods. Whilst most of these counts were undertaken between 2006 and 2009, at some junctions more historic data has been presented. This is to give an indication of the level of demand from side roads at these priority junctions. It is also evident from the turn count information that the predominant movement of traffic at most of the junctions is straight ahead along the A457. This supports that the key trip attractor along the corridor is the City Centre.

2.64 Currently one of the key trip attractors along Dudley Road is the 700-bed City Hospital, with around 3500 staff (2007 estimates). In addition to these staff trips, the hospital attracts a large number of other trips by outpatients, inpatients and visitors. It additionally has an accident and emergency department so Dudley Road is a key route for emergency services. Plans for the future development of health and social care services in Birmingham and Sandwell mean that a large proportion of the City Hospital site will move to the new hospital in Smethwick in 2015. As this site is only a short distance from the existing site, it is considered there will be no significant reduction in the overall demand generated by the hospital in the corridor.

2.65 The other key attractors along Dudley Road are a mix of commercial, residential and industrial units. St Patrick's Catholic Primary School, which is close to the hospital, attracts trips during the school runs.

2.66 The industrial developments along this section of Dudley Road generate a number of associated movements of heavy goods/delivery vehicles. However, as a part of proposed regeneration in the area the patterns associated with the current freight movement may be altered.

2.67 City Hospital and St Patrick's Catholic Primary School generate significant volumes of pedestrian movements both along and across the section of the Dudley Road between Aberdeen Street and Western Road. In addition to pedestrian movements, both City Hospital and St Patrick's Catholic Primary School generate parking demand. The existing local centre to the west of the junction with City Road also creates a number of pedestrian trips in the area which generates a demand for safe crossings.

2.68 The local centre at the western end of the route is a busy, thriving shopping area which presents numerous challenges and conflicts for drivers. This encourages rat-running on the adjacent residential streets to the north. A significant proportion of traffic chooses to use Grove Lane and Cranford Street and join the Dudley Road via Winson Green Road or Heath Street to avoid the local centre section.

2.69 In terms of demand for public transport, there is a significant demand into Birmingham City Centre. This is catered for by many bus routes which follow the Dudley Road along its entire length. In addition to this a significant number of trips are made in the north and south of A457 Dudley Road to the local centres along A41 Soho Road and Bearwood respectively. The orbital 11 service follows a section of Dudley Road which provides opportunities for interchange.

2.70 Although the Birmingham – Wolverhampton railway line does follow the route, there are no stations in close proximity to Dudley Road. The key location for bus interchange is situated on the Dudley Road next to Summerfield Park. Metro Line One, the city's first light rail route operates between Birmingham Snow Hill and Wolverhampton with stations at frequent intervals. Adjacent to this, the heavy rail route from Snow Hill to Stourbridge via Smethwick West operates as part of the Jewellery Line. These serve the demand from the north side of the area.

In terms of cycling, the existing cycling demand is low (under 0.5%) This may be attributed to there being no facilities on the road to aid cyclists in making safer trips and to the lack of awareness about the health and environmental benefits of cycling. The safest parallel routes are close to Harborne (to the south of the A457) and following the Birmingham Canal towpath, although links to this route are poor and unclear.

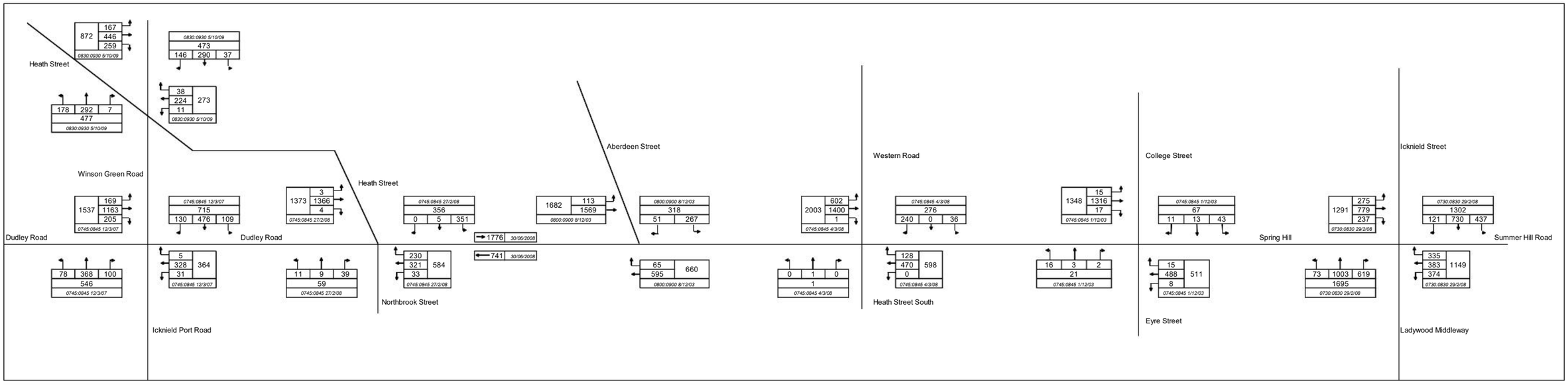


Figure 2.1 – AM Peak Hour Traffic Counts for Dudley Road

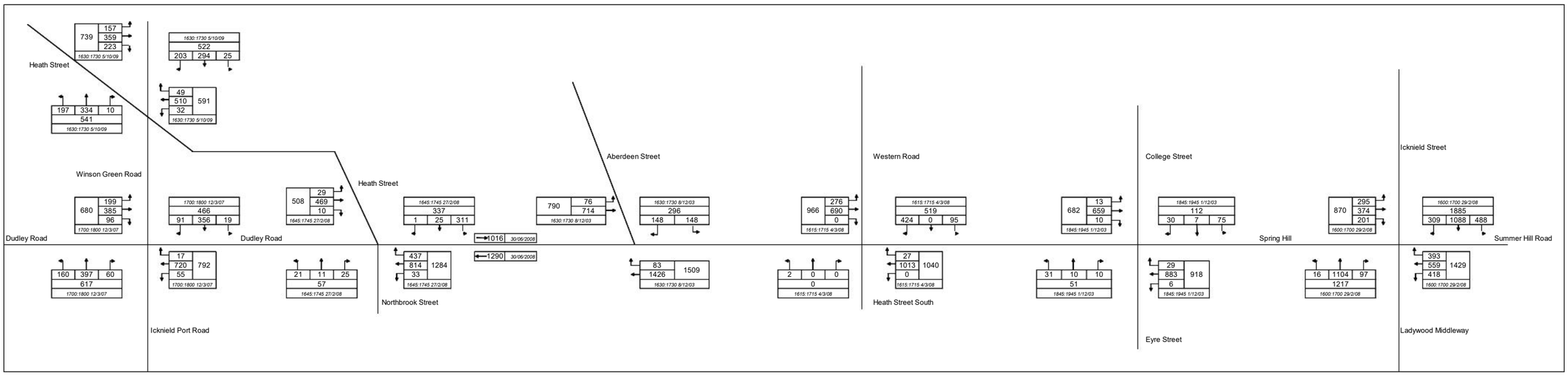


Figure 2.2 – PM Peak Hour Traffic Counts for Dudley Road

Current Levels of Service

2.71 This section gives an overall appreciation of the current levels of service along the A457 Dudley Road. Further details on specific transport related issues and problems are presented in Chapter 4 of this report.

2.72 As referred to in section 1.4, Birmingham City Council has recently completed a Route Management Strategy study on ten of the City's key radial corridors. The A457 Dudley Road was shown to be one of the worst of the ten routes, especially with regards to congestion and journey time reliability.

2.73 The existing road network is principally single carriageway with one or two traffic lanes in each direction and a 30mph speed limit. The traffic lanes are narrow with the total carriage width being predominantly less than 11 metres over four lanes (two lanes in each direction). Traffic suffers delays at the key junctions. The reliability of journey times is poor, especially during the peak periods. Although on-street parking and loading restrictions operate during the peak periods, they are not often adhered to especially in the shopping centre and outside the hospital. This exacerbates congestion further.

2.74 There are regular junctions along the route, most of them being all movement, priority junctions. The right turns into and out of these side roads often results in holding straight ahead traffic and causing delays. This also impacts the overall level of service of the route. Figure 1.2 (on page 4) shows the location of each of these junctions in relation to the extents of the scheme.

2.75 The overall level of service of the route is impacted by the some of the junctions where there are queues and delays during peak periods. The key junctions with these issues are:

- Ladywood Middleway (Ring Road);
- Dudley Road / Heath Street; and
- Dudley Road / Icknield Port Road / Winson Green Road.

2.76 Buses are the primary form of public transport for the area with a range of radial routes and services running to/from Birmingham City Centre using the route. Most of the bus services are currently operated by National Express West Midlands. In addition to this, other operators such as Central Connect and Redwing also run a few services. Bus trips are generally slow with the most congested sections between City Road and Heath Street and on the approach to Ladywood Middleway. In this area journey time reliability is also an issue. During the AM Peak, buses travel at an average speed of 10mph between City Road and the City Centre.

2.77 Although the Birmingham – Wolverhampton railway line does run in parallel to the A457, the closest railway stations are:

- Smethwick Rolfe Street (on the Birmingham to Coventry Line) with train frequencies of every 15-20 minutes to Birmingham (every 30 minutes frequencies alternating between trains to Birmingham Moor Street and Birmingham New Street); or
- Smethwick Galton Bridge (this station is served by both the Wolverhampton to Birmingham Line and the Birmingham to Stourbridge line) with train frequencies of less than every 10 minutes in the peak hour. Smethwick Galton Bridge station lies along the existing A457 corridor and provides high frequency access directly into the centre of the city.

2.78 Metro Line One operates between Birmingham Snow Hill and Wolverhampton with stations at frequent intervals which cater to the demand from the north of the area. Adjacent to this, the heavy rail route from Snow Hill to Stourbridge via Smethwick West operates as part of the Jewellery Line with stations at Jewellery Quarter and The Hawthorns.

2.79 In terms of the level of service for pedestrians, the route has footways along its length that are suitable for the levels of footfall at most locations. An exception to this is the section to the west of

Heath Street, where the effective available footway width is reduced due to clutter resulting from signs, street furniture and guard rail. Crossing movements are restricted in places as the level of provision for pedestrians does not adequately satisfy the existing demand. This is the case especially at the busier junctions. An example of this is the junction of Dudley Road and Western Road, directly adjacent to City Hospital. Despite the location, there are no pedestrian crossing facilities on any arm of the junction. This potentially limits access to the hospital for pedestrians walking from the City Centre or to/from the nearby bus stops. This leads to severe accessibility and severance issues within the corridor.

2.80 Pedestrian facilities are also limited at other places along the route, such as the busy four arm junction with Dudley Road / Icknield Port Road / Winson Green Road junction. There are currently pedestrian facilities on one of the four arms of the junction with a new crossing currently being implemented on another arm (Winson Green Road). This still limits safe pedestrian provisions in this high footfall location close to a large supermarket, an NHS health centre, Summerfield Park and the bus interchange with the 11 service.

2.81 The current level of service for cyclists is not good as there no provisions to help cyclists travel safely either along or across the route. The towpath of the Birmingham Canal provides a possible alternative route for cyclists, although this is not well used potentially due to:

- it not being overlooked by on-coming/going traffic, residences etc;
- infrequent ramp access points onto the towpath; and
- the route not being lit, making it inappropriate for cycling during dark hours.

Opportunities and Constraints

Opportunities

2.82 The key opportunities that are being considered as a part of the option development and the initial sifting stages are:

- The long-standing historic highway improvement line along the route, which will ensure that any improvements to the current alignment of the route can be incorporated without acquiring a significant amount of additional land;
- The identification of the Ladyport development area which will promote around 6000 houses and up to 3000 additional jobs in the area. The Ladyport development is effectively reliant on the delivery of the traffic management scheme; and
- The potential to develop better connections to the designated cycle route which follows the towpath of the Birmingham canal to promote cycling between this area and the City Centre.

Constraints

2.83 At this initial stage, no significant legal or institutional constraints have been identified.

2.84 The two key physical constraints on any improvement scheme to the road network are:

- the grade II listed bridge known as Lea Bridge, where the Dudley Road crosses the Birmingham Canal and the railway line (West Coast Mainline, Birmingham to Wolverhampton section); and
- the second Canal Bridge known as Spring Hill Bridge.

2.85 Any alterations to the structure of these bridges could significantly impact the overall scheme cost and may also need to be consulted upon. An early appreciation of this has been incorporated as a part of the option development and initial sifting stages

2.86 There are additional points that, although not acting as constraints on potential options, do need to be considered as a part of the option development stage. They are:

- the presence of a vibrant local centre to the west of the route serving the local communities; and
- the City Hospital site. Although this is to be largely relocated by 2015, a part of the hospital will remain at the site along Dudley Road.

2.87 Any scheme options being considered have to take account of these influences to ensure that the vibrancy and the economic viability of the local centre and the accessibility and connectivity to the City Hospital site remain.

3. Understanding the Future Situation

3.1 Having a comprehensive picture of the network in the future will better inform the choice of the scheme. In turn, this will ensure a scheme which benefits over a longer period of time.

Future Land-Uses and Policies

3.2 The area is currently a mix of disjointed uses of varying types, ages and conditions. Industrial areas such as those around Icknield Port Loop relate poorly to adjoining residential areas. The residential areas are also poorly related to each other with properties ranging from older traditional areas around Summerfield Park and Edgbaston Reservoir to large 1960's Council estates.

3.3 In future, as stated in sections 1.1 to 1.3, the Ladyport Framework proposes significant re-development and regeneration in the area. The Core Strategy proposes a number of areas where a Sustainable Urban Neighbourhood would be created, including the area around Icknield Port Loop and City Hospital, both key sites within Ladyport. The proposed development is divided across a number of sites with a programme that aims to accommodate:

- Higher density family housing to provide up to 6,000 new homes, almost doubling the number of existing homes; and
- Up to 3,000 new jobs, to be accessible to new and existing residents.

3.4 These proposals build on the vision set out in Birmingham's Big City Plan and Urban Living with the key objective of improving the connection between the City Centre and the Ladyport area through major developments, improved transport links and developing the area as a place in which people wish to invest.

3.5 Key elements of the development include:

- Completion of the residential development on the former site of Cape Hill Brewery;
- Redevelopment of the Icknield Port Loop site, with the potential for a residential led mixed use development;
- The relocation of City Hospital to a site close to the Sandwell boundary. The existing site has the potential for supporting mixed use development. The key strategic location of the site means it has a strong influence on the character of the A457 corridor;
- New retail centre adjacent Ladywood Middleway on the former site of Brookfield Shopping Precinct (currently under construction); and
- Potential for a range of uses including residential, retained and new employment uses and community/commercial developments, adjacent to the Birmingham Canal (Springhill Industrial Site).

3.6 More detailed masterplans for these regeneration areas will be developed and will inform the scheme in a greater level of detail in time for the final MSBC submission for Programme Entry in summer 2010.

3.7 Although many of the sites will have a direct impact upon the existing Dudley Road corridor the current nature of many of these (previously heavy industrial sites) means that they will require varying levels of reclamation in order for them to be capable of bringing forward modern standards of development.

Future Changes to the Transport System

3.8 The proposed land-use and policy developments in the future will impact the future transport system. One of the key changes to landuse is the relocation of a large proportion of City Hospital away from its existing Dudley Road site for which outline permission is granted and funding allocated. The project would result in the merging of the two existing main hospitals with the Birmingham and Sandwell Areas (City Hospital and Sandwell Hospital) into a single large scale hospital located on the A457, approximately 1 mile east of the current City Hospital site. Most of the existing City Hospital site would then become available for redevelopment with some limited heath care operations remaining on the current site to the north of the A457 Dudley Road. The target data for this move is currently programmed for 2015/2016.

3.9 The potential impact of the relocation on the future transport network is as discussed below:

- Following discussions with the key local bus operator it is understood that the 11 bus service, which currently travels via Aberdeen Street and City Road to give access to City Hospital, will be rerouted via Winson Green Road and extended to Cape Hill to give access to the new hospital. The 66 bus service is likely to be extended into the new site;
- The demand and hence the provision for pedestrian crossings in front of City Hospital is likely to be reduced; and
- The demand and hence the provision for parking in and around City Hospital is likely to be reduced and ambulances, staff and visitors to the hospital re-routed.

3.10 In addition to the relocation of the hospital, there are also proposals to redevelop the Icknield Port area. As a part of the proposals funding has been obtained through the Community Infrastructure Fund (CIF) to upgrade the junction of Ladywood Middleway and Icknield Port Road. This junction lies at the other end of Icknield Port Road from the Dudley Road.

3.11 During the submission for funding for the CIF process it was always recognised that the Dudley Road/Icknield Port Road junction would also need to be upgraded to cater for the increased demand and to help mitigate the impact of the development. Due to time constraints this could not be included within the CIF bid as the timescale on acquisition of land in relation to this development was too great. It was therefore agreed that improvements to this junction should be sought through this Major Scheme bid.

3.12 Outside of the direct study area for the Dudley Road Major Scheme, there is a Red Route proposal being developed for the A457 within the Sandwell area, to the west of Cape Hill, which will result in some network changes in the future.

Future Travel Demand and Levels of Service

Future Travel Demands

3.13 In terms of future travel demand, any changes within the corridor are likely to be driven by three key sources over forthcoming years within the Dudley Road corridor as follows:

- General changes to traffic demand in future due to changes in socio- economic and demographic factors, as would be expected;
- Continuing demand for the route to provide access to Birmingham City Centre in view of work being undertaken in parallel corridors; and
- Alterations to local land uses that would inevitably alter the travel patterns within the area,

3.14 A combination of all three of these factors should mean that the travel demand within this corridor will continue to grow significantly throughout the forthcoming period.

3.15 The first two of these elements are widely understood and would generally lead to a level of planned increase in demand along the corridor in line with local and national predictions in travel growth.

3.16 The third impact is however less understood and developed. As previously described within this report, there is aspiration for a major regeneration project within the area. This project has already commenced with two key initiatives currently being progressed. These projects are:

- Icknield Port Redevelopment Project; and
- City Hospital Redevelopment Project.

3.17 Each of these projects will have impacts on the local travel demands within the corridor. Although these are major components of the redevelopment projects, within the area there is available land capacity to build up to 6000 new houses and create up to 3000 new job opportunities which would seek to transform the whole area into a far more cohesive and vibrant area improving significantly the current social deprivation.

Icknield Port Redevelopment Project

3.18 Icknield Port Redevelopment project would be accessed directly from Icknield Port Road. The route links to Ladywood Middleway in the south and Dudley Road in the north. The redevelopment is primarily to a mixed use area, with the potential for up to 1800 new dwellings. This level of increase in demand will put additional trips into the Dudley Road corridor and a significant additional demand onto both Icknield Port Road / Dudley Road junction on the east end of the scheme proposals and Ladywood Middleway / Spring Hill junction on the western end of the scheme.

3.19 As stated in section 3.11, it is likely that the proposals will increase the traffic through the Dudley Road / Winson Green Road junction. The A457 Dudley Road will also act as the main public transport (PT) corridor for the new proposals and the Dudley Road Local Centre will act as the key local centre for the development. All of this will therefore have an impact on the future travel demand and the level of service of A457 Dudley Road.

City Hospital Redevelopment Project

3.20 The relocation of City Hospital, to a new site approximately one mile north of the Dudley Road proposals, is likely to have the greatest significance in terms of changes to the future demand on the corridor. This is due to the proposed redevelopments that will cover the site once the hospital has been relocated. This redevelopment has been approved in planning terms by the Department for Health. It is scheduled to be completed by 2015/2016 which also represents the preferred timescale for completion of the Dudley Road Traffic Management Scheme.

3.21 It is intended that once the relocation of the hospital is complete, most of the site will become available for regeneration purposes. It is envisaged that the site has the potential for a mixed use to come forward at this location.

3.22 It is anticipated that the relocation of the hospital will result in a reduction of turning movements within the corridor. In terms of the overall level of demand it is expected that the traffic which previously accessed the existing site is likely to remain within the corridor to access the new site and the retained health facilities on the existing site. There are also many facilities transferring from Sandwell General Hospital at West Bromwich to the new hospital site. This currently accounts for a catchment including West Birmingham and hence there is the potential for some traffic which currently uses the A41 Soho Road to transfer onto the A457 Dudley Road. In addition to this there will be an increase in demand to the area once the redevelopment of the land is brought forward.

3.23 Officers from Birmingham City Council are currently developing a development framework document. This is likely to be consulted towards the middle of 2010. Remaining development opportunities are however intended to fully account for all these future development proposals within this study and continued dialog between the two parties must take place to ensure that the most recent information is used in the appraisal and scheme modelling. It is however anticipated that there will be large alteration in travel demands within this key corridor.

Future Level of Service

3.24 With all of this anticipated change to the travel demand within the corridor, it is difficult to anticipate the future level of service that will be required within the corridor. This will only become clearer once the detailed transportation modelling has been completed in the next stage of scheme development.

3.25 One thing that is however apparent is that the situation is likely to significantly deteriorate. This is due to the three factors described in paragraph 3.13. Each of these issues will lead to an increase in the demand to travel within the corridor.

3.26 The level of service within the corridor is anticipated to be the major obstacle to this renaissance. The current level of service within the corridor is poor, as emphasised in the recent RMS study undertaken by BCC. It is not practical for the developments to progress without improvements to the existing infrastructure and it is important that the regeneration of the area is not inhibited by poor quality access through the current restricted infrastructure and by the rundown environment.

4. Establishing the Need for Intervention

4.1 The need for intervention is based on the analysis of the existing network and the likely implications of future changes to both the network (as described in sections 3.8 to 3.9 of this report) and in demand (as described in sections 3.13 to 3.23 of this report) on the network. As a part of the Primary Route Network, it is important that the A457 Dudley Road can accommodate both the current and future travel demands and perform well as a key gateway route into the City Centre.

Current Transport-Related Problems

A457 Dudley Road vis-à-vis other radial corridors

4.2 As stated in section 1.4, as a part of wider strategy development within Birmingham the City Council have recently completed a baseline Route Management Strategy (RMS) assessment for ten of the key radial corridors into the city, including the A457 Dudley Road. The assessment individually analysed each of the route in terms of their overall performance and also aimed at drawing conclusions about their comparative performance. Based on criteria including vehicle speeds and journey times, accident history and the level of provisions for pedestrians and cyclists, the A457 Dudley Road was shown to be the most critical of the ten routes in terms of performance during the peak periods.

4.3 As detailed in 'Route Management Strategy Radial Routes Performance Evaluation' (May 2009, copies of which can be made available on request), 73% of the inbound length (during the morning peak period) and 75 % of the outbound length (during the evening peak period) of the Dudley Road within Birmingham was identified to be critical. Critical is defined as having an overall performance that is substantially below a benchmark level set for the study. This is attributed to the overall poor performance of the route and its specifically shorter length as compared to other radial routes analysed by the study. Being considerably shorter than most of the ten radial routes, Dudley Road has fewer relatively better performing sections along the route which offset the congestion impacts of the relatively poorer sections.

Network and Traffic Conditions along Dudley Road

Links

4.4 As stated in section 2.73, A457 Dudley Road is principally a single carriageway road with narrow lanes. The overall carriageway width is less than 11 metres over four lanes (two lanes in each direction). The carriageway width over Spring Hill Bridge is particularly narrow (approximately 10.2 metres) over four traffic lanes. The route is also characterised by a number of closely-spaced junctions with associated turning movements. The overall impact of narrow lanes and junctions results in reduction in the effective capacity of the route resulting in slower journey times, more delays at junctions and less reliable journey times.

4.5 Figure 4.1 shows the General Traffic speeds for the route and its surrounding links during the AM peak (07:30–09.00). Figure 4.2 shows the General Traffic speeds for the route and its surrounding links during the PM peak (16:00–18:00).

4.6 The AM peak period has prime traffic flows towards Birmingham City Centre, with an average speed of 18mph for trips between City Road and the A4540 Ring Road. The average journey time during the AM peak period in the eastbound direction is under 4 minutes (217 seconds). The same trip during the non-congested (off-peak) period takes an average of around 140 seconds.

4.7 During the PM peak, the average speed of traffic moving in the westbound direction between the Ring Road and City Road is around 14mph. This means the average journey time for these trips is

just under 4 minutes (231 seconds). The average journey time for the same westbound trips during the non-congested (off-peak) period is around 142 seconds.

4.8 This analysis shows that journeys are slower travelling away from the City in the evening, compared to moving towards the City in the morning. This is partly due to the volume of traffic turning right from Dudley Road into Heath Street during PM peak which impacts the straight ahead traffic. In addition to this, the activities of the local shopping centre to the west of the corridor also has an impact on the corridor during the PM peak when the shops are active and the area has a far greater impact on the traffic moving along the link.

4.9 In terms of reliability, measured through the ratio of the standard deviation from the mean journey times to the mean journey time itself in respective time periods, the route is not reliable during either the peak periods. Journey time data from 2007 shows that in the AM peak, journey times vary to approximately 36% of the mean journey time (217s $\pm$ 76s). Journeys are even more unreliable in the PM peak period with the trips varying by as much as 50% of the mean journey time (231 $\pm$ 115 secs).

Junctions

4.10 As discussed in section 2.75, many of the congestion issues along the route are as a number of closely-spaced junctions (refer to Figure 1.3). An appreciation of each of the junctions and the issues which currently have an impact of their operation is discussed in the following sections.

Ladywood Middleway (Ring Road)

4.11 The junction with the Ring Road is formed by a large priority roundabout. There are three lanes on the approach to the roundabout from Dudley Road however there are often queues on the approach along Dudley Road which impacts both private vehicles and the radial bus routes. The junction carries approximately 63,000 vehicles during an average day (based on 12hour count, 2008). The junction has safety and capacity issues which impact the throughput of the junction and therefore the overall level of service of the route. A new retail development (currently under construction) will exacerbate these safety concerns.

Dudley Road / Eyre Street

4.12 The junction with Eyre Street is one of a number of side roads in this section of the route. The road provides access to industrial units as well as being a potential cut through for traffic travelling onto the A457 westbound from Ladywood Middleway. Whilst turning movements are the cause of some accidents, it is pedestrian safety which is also of concern in this area with pedestrians crossing away from the controlled facility (close to George Street West). The area is predominantly residential with a few commercial frontages on the south side and a high number of side roads. There has been a notable amount of turning movement and pedestrian personal injury accidents in the area around Eyre Street.

Dudley Road / Western Road

4.13 The junction is a four arm signal controlled junction although only minimal traffic uses the Heath Street South arm. It is however acknowledged that the use of this arm will increase due to the new developments. The main entrance into City Hospital is on Western Road which results in a large number of turning movements at this junction. Pedestrian access to the Hospital is also an issue as there are no pedestrian crossing facilities on any arm of the junction. This potentially limits access to the hospital for pedestrians walking from the City Centre.

Dudley Road / Heath Street and Dudley Road / Aberdeen Street

4.14 Both of these junctions are priority junctions which provide through links to Winson Green Road and onto Smethwick and Winson Green. The number 11 bus service (Outer Circle route) is routed via Aberdeen Street to provide direct access to the City Hospital, however buses are delayed due to the tight turn onto Dudley Road. The bus stop and narrow carriageway over the bridge are a

constraint on the Heath Street junction. The impact of vehicles right-turning in and out of Northbrook Street also conflicts with other vehicle movements which creates congestion for traffic along the A457.

Dudley Road / Icknield Port Road / Winson Green Road

4.15 This junction is currently a signal controlled and carries approximately 36,000 vehicles during an average day (based on 12-hour count, 2007). It currently suffers from a lack of capacity. In addition, pedestrian safety is an issue as there are only controlled pedestrian facilities on two of the four arms.

Parking

4.16 As stated in section 2.73, there are issues related to on-street parking which adversely impact the overall level of service of the route. These are particularly an issue along the section between Western Road and Aberdeen Street, which has the City Hospital and the St. Patrick's Catholic Primary School. Whilst there are parking restrictions during the peak periods, they are often disobeyed by drivers and the resulting parking then impedes traffic movement. This is more of an issue during the PM peak period.

4.17 Northbrook Street is used as informal parking for City Hospital, due to the high charges for parking on the hospital site. Whilst the section of the Northbrook Street closest to A457 Dudley Road is covered by parking restrictions (only allowing parking for limited time) there are sections not restricted which people use as informal parking.

4.18 Along the A457 Dudley Road, to the west of the junction with Heath Street, is Dudley Road Local Centre which is characterised by a range of local level retail shops and services. The typical issues that the local centre brings relate to on-street parking and loading/unloading. During busy periods, people tend to park on the footways causing safety issues for the pedestrians. This results in interruptions to the traffic not only through the local centre but also has a knock on effect on the sections primarily east of the local centre.

4.19 A457 Dudley Road corridor also forms a part of the wider Red Route proposals which cover the whole of the corridor from Paradise Circus to Cape Hill (within Birmingham) and through to Oldbury Centre (within Sandwell). The scheme is due to be implemented within Sandwell in 2010/11.

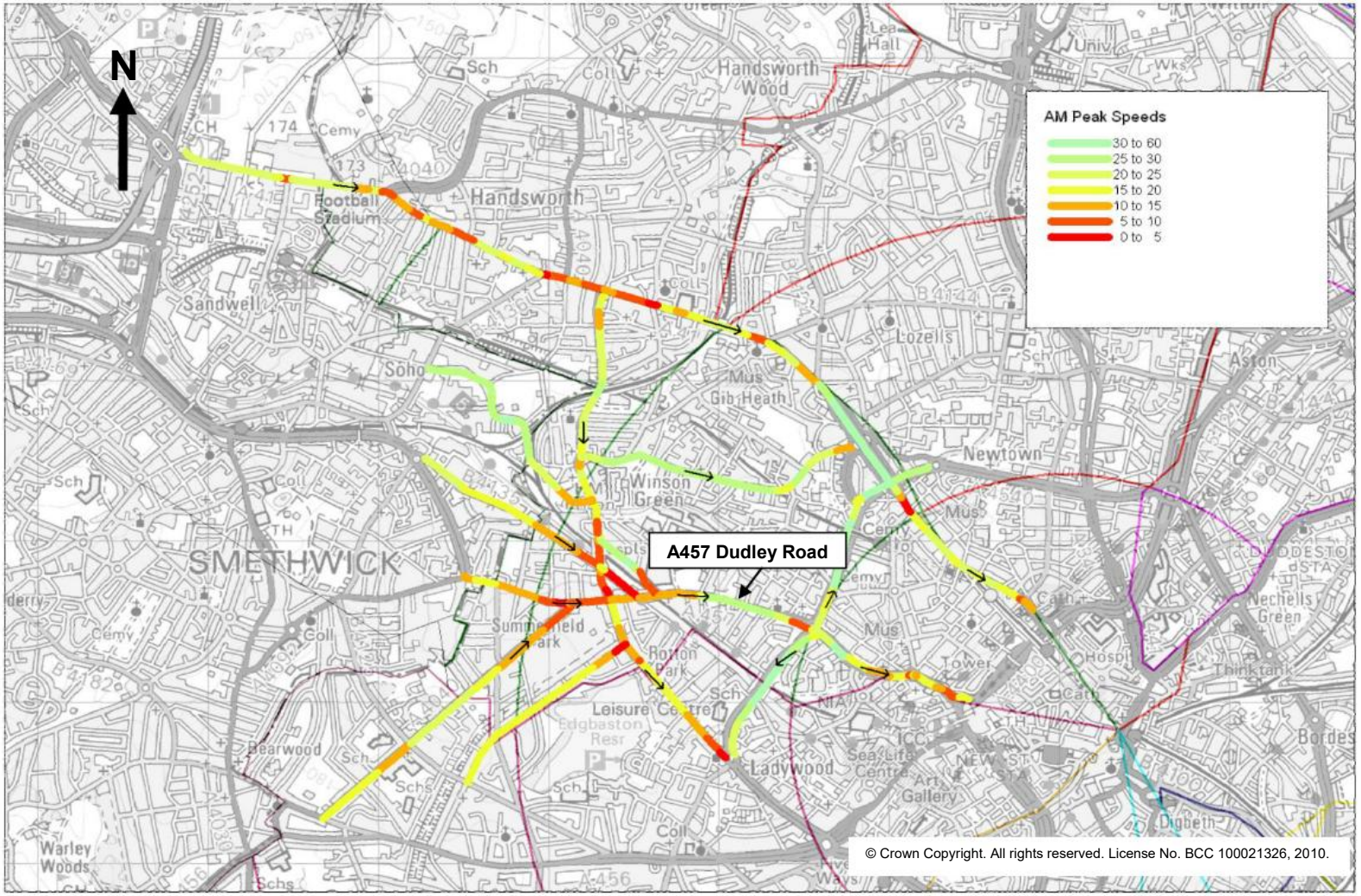


Figure 4.1 – AM Peak Inbound Speeds (mph) for General Traffic (Jan 07 – Dec 08)

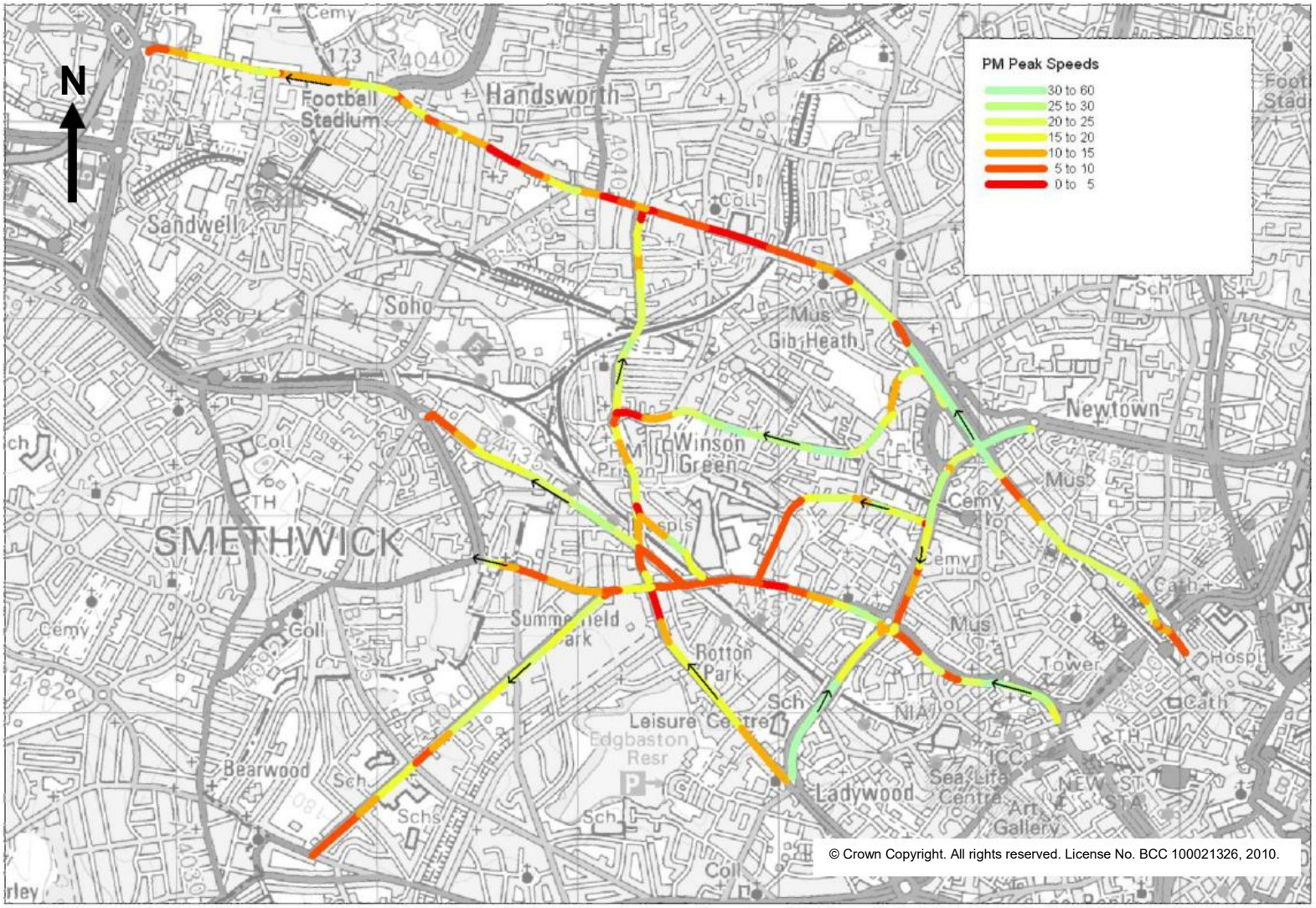


Figure 4.2 – PM Peak Inbound Speeds (mph) for General Traffic (Jan 07 – Dec 08)

Public Transport Operations

4.20 Buses are the primary form of public transport for the area with a range of orbital routes and services running to/from Birmingham City Centre using the route. All of the bus services are currently operated by National Express West Midlands.

4.21 There is a key interchange between services close to Summerfield Park where the services travelling along the A457 meet the orbital routes. Table 4.1 details all of the bus services which use the Dudley Road.

Table 4.1 – Bus Services which use the A457 Dudley Road

Route	Relation to Dudley Rd	Origin - Destination	Frequency
8a	Crosses the Ladywood Middleway roundabout	Inner Circle Route - Anticlockwise	10 minutes
8c	Crosses the Ladywood Middleway roundabout	Inner Circle Route - Clockwise	10 minutes
80	Along the A457	Birmingham – West Bromwich via Smethwick	15 minutes
81	Along the A457	Birmingham – Brandhall via Grove Lane	1 Hour (eve only)
82	Along the A457	Birmingham – Bearwood via Dudley Road	10 minutes
87	Along the A457	Birmingham – Dudley via Smethwick	10 minutes
88	Along the A457	Birmingham – Blackheath via Londonderry	10 minutes
11a	Orbital Service	Outer Circle Route - Anticlockwise	10 minutes
11c	Orbital Service	Outer Circle Route - Clockwise	10 minutes

4.22 Bus journeys are generally slow. The average speeds for buses travelling on the A457 between City Road and the Ring Road is around 10mph during both the AM peak period (eastbound towards Birmingham City Centre) and the PM peak period (westbound away from Birmingham City Centre). The most congested section is between City Road and Heath Street with long delays also on the approach to Ladywood Middleway.

4.23 Bus data from 2007 shows that poor reliability impacts the operation of bus services for the whole section between City Road and Ladywood Middleway. During the AM peak period the average journey time for this section for buses is around 514seconds with trips varying from this by as much as a 36% (514$\pm$ 184secs). The same trip in the westbound direction during the PM peak takes an average of 503 seconds with the variation in journey times of up to 48% (503 $\pm$ 243secs).

4.24 Currently, none of the services running along the A457 Dudley Road are Bus Showcase routes meaning that facilities and waiting environments have the potential to be improved. The interchange section close to Summerfield Park is the only point on the route where the provisions have been upgraded and in this area bus stops are well-maintained and have Real Time passenger information.

4.25 The Metro route runs to the north of the Dudley Road and may provide an option for residents in a catchment area to the north of the A457 Dudley Road. The Birmingham – Wolverhampton railway runs parallel to the route although there are no stations directly linked to the Dudley Road. The nearest station to Dudley Road is Smethwick Galton Bridge. This provides an attractive option for people making trips from outside of the city boundary. The rail service is every 10 minutes going to Birmingham Snow Hill Station and every 30 minutes going to Birmingham New Street. Census data shows that there are typically almost 1000 trips into the City Centre by rail from commuters living outside of the city boundary.

Transport Safety

4.26 Safety is a concern throughout the area with both vehicle and pedestrian personal injury accident data analysis reflecting there to be a notable issue. Accidents have been analysed within a 20m buffer of the A457 Dudley Road. In total 172 accidents have been recorded during a five year period (23th November 04 – 22nd November 09), with 15% of accidents resulting in a serious or fatal injury.

4.27 Appendix A shows the spatial distribution of serious and fatal accidents. It can be seen that the number of fatal accidents during the five year period was one, which involved a pedestrian and occurred close to the junction with Eyre Street. The other serious injury accidents are all dispersed along the route with no evidence of them being concentrated at specific locations.

4.28 The primary causation of all accidents was either a driver or pedestrian failing to look properly or a driver failing to judge the other person's path or speed. The junctions with relatively poor safety record are as listed in Table 4.2.

Table 4.2 – Summary of Reported Accidents at Key Junctions (2004 to 2009)

Dudley Road Junction with:	Total Accidents in five year period	Killed and Seriously Injured (KSI) %
Winson Green Road	36	11%
Aberdeen Street	20	15%
Ladywood Middleway	16	38%
Eyre Street	13	23%
Heath Street	20	5%

4.29 The accident data has also been analysed by age group (under 16s and over 70s) and by mode (pedestrians, cyclists, motorcyclists, etc) for the same period.

4.30 There were 47 pedestrian accidents along the section, with 36% of these resulting in a serious or fatal accident. The majority of the serious accidents have occurred between City Hospital and City Road. The large trip attractors of City Hospital and Summerfield Primary Care Centre both suffer from poor pedestrian accessibility due to inadequate and inappropriate facilities at nearby junctions. In addition, the lack of safe crossing facilities along the route also potentially impacts on the accessibility of the local shopping centre at the western end of the A457 Dudley Road and on the Lidl superstore, close to Winson Green Road.

4.31 The distribution of accidents by different vulnerable social groups and by modes over the five year analysis period is summarised in Table 4.3

Table 4.3 - Accident analysis by Vulnerable Social Groups

	Total	Total Fatal	Total Serious	Total Slight	% of Total	KSI %
All Accidents	172	1	24	147	N / A	15%
Accidents involving Pedestrians	47	1	16	30	27%	36%
Accidents involving Cyclists	12	0	2	10	7%	17%
Accidents involving Under 16s	26	0	5	21	15%	19%
Accidents involving Motorcyclists	10	1	2	7	6%	30%
Accidents involving Over 70s	3	0	1	2	2%	33%
Accidents involving Young Male Drivers	35	0	2	33	20%	6%

All accidents have been analysed within a 20m buffer of the centreline.

4.32 Appendix A shows the distribution of accidents by different vulnerable social groups and by modes over the five year analysis period spatially. The analysis showed that there are no significant patterns amongst these categories and the accidents are dispersed along the route meaning that there are no specific locations where the reported accidents are any worse than the others.

Cyclists

4.33 The A457 Dudley Road presents a significant challenge to cyclists of all abilities. Cycling on the route is impacted by on-street parking, narrow lane widths and frequent bus services which all reduce the space available for cycling.

4.34 There are no on-street provisions for cyclists and the amount of junctions and turning movements mean that there are numerous potential vehicle / vulnerable road user conflicts. At the junctions that are signalised, there are no advanced cycle stop lines.

4.35 In the areas close to the route, the Birmingham Cycle Network provides little alternative, with the canal towpath not a recommended option due to poor lighting and a lack of safe access (primarily due to the gradients involved). Links and connections to the wider cycling network such as Route 5 are also not sufficient to encourage cycle trips from the wider area.

4.36 The Harborne Walkway route runs through Summerfield Park to the west of City Road. There is an aspiration to complete this route with a link down to the canal, then along Northbrook Street onto the southern pavement of Dudley Road. This would connect close to the existing crossing by City Hospital, which may need to be upgraded to toucan to enable safe crossing provision for cyclists.

Pedestrians

4.37 The low level of car ownership in the area; the location of shops and bus stops; and activity generated by City Hospital means that there are frequent pedestrian movements along much of the route. In addition to these, there are other trip attractors such as Spring Hill

Library, St Patrick's Catholic Primary School and St Patricks R C Church which result in pedestrian demand.

4.38 All linear pedestrian movements are well catered for with wide footways along the length of the section. Footways are generally well maintained although the urban realm could be improved to address frontage clutter and the quality of the environment.

4.39 Whilst there are pelican crossings close to the key sites (such as City Hospital and St Patrick's Catholic Primary School), pedestrian movements are generally poorly assisted at the key junctions throughout the section. The junctions with inadequate/non-existent controlled pedestrian provisions are:

- Dudley Road/ Icknield Port Road/Winson Green Road Junction(Controlled pedestrian provision only across two of the four arms); and
- Dudley Road/Western Road/ Heath Street South Junction (no provision).

4.40 Both these junctions have less crossing provision than would be preferable considering the nature of the adjoining land uses.

4.41 As a major link with four lanes (with no central reserve), the A457 Dudley Road divides the communities on either side of the route. Inadequate or unsafe crossing provisions result in severance along the route, therefore impacting the social fabric of the societies along the route.

Environment

4.42 Data from the Department for Environment, Food and Rural Affairs (Defra), in the form of a Draft Noise Action Plan for the West Midlands, identifies the section of the A457 close to Ladywood Middleway as a key 'first priority' location to be addressed. Existing noise levels in this area are excessive and need to be addressed. The Noise Action Plan is designed to address the management of noise issues and effects from major roads in England under the terms of the Environmental Noise (England) Regulations.

4.43 The whole of Birmingham was declared as an Air Quality Management Area in 2003, which means that options for improvements should not only seek to minimise any adverse impacts of transport on the environment, wherever feasible should try to improve the overall environment by encouraging sustainable modes and discouraging the need to travel.

Future Transport-Related Problems

4.44 This section briefly discusses the potential transport related problems if no improvements are undertaken to improve the level of service and the performance of A457 Dudley Road or the 'without intervention' case.

4.45 As discussed in Chapter 3, under a 'without intervention' scenario, the problems will exacerbate further resulting in increased levels of congestion from the current levels. This will be reflected in higher delays and unreliable journeys. Even with an average level of traffic growth, the existing junctions will operate well over capacity, resulting in queues and significant delays at the junctions. Given that the junctions are closely spaced over the length of the route, it will adversely impact the future level of service of the highway network.

4.46 The increased levels of congestion on the A457 Dudley Road will encourage rat-running along alternate routes to access the City Centre and will impact the level of service on other radial routes such as A456 Hagley Road and A41 Soho Road, the latter of which has been downgraded from a strategic route to a local route. Rat-run routes along local network

will also be encouraged due to increased levels of congestion along A457 Dudley Road, resulting in potential safety issues.

4.47 In terms of the Public Transport network, increased levels of congestion will result in slower and less reliable journeys as compared to the current scenario, thus discouraging their use. Bus operators would be impacted by higher operations costs making the route less profitable. This may result in bus network being reviewed and potentially bus services being withdrawn. This may have an adverse impact on the public transport accessibility of communities which are already impacted by high levels of deprivation. A subsidised network alternatively would have a direct impact on public accounts.

4.48 Safety is another key problem that will worsen if no improvements are undertaken on the route. The local centre to the west of the route along with all the additional pedestrian trips due to the planned regeneration in the area will lead to increased pedestrian demand. Currently inadequate pedestrian crossing provisions with increased pedestrian and vehicle demand particularly at the key junctions will potentially result in more accidents. In addition to this, increased level of congestion, rat running and other issues related to the network being over capacity may encourage unsafe manoeuvres resulting in potential safety issues.

4.49 Increased levels of congestion will result in “start-stop” situations and will have an adverse impact on environment with deterioration of air quality and potential increase in noise levels as well. Extension of the Red Route could help to manage on-street parking but without expansion of off-street parking facilities, this solution is not likely to be favourable to businesses or the wider community.

4.50 Overall the already deprived areas will be further impacted resulting further decline of the area. This will discourage inward investment into the area and will also impact the current businesses and industries within the area.

4.51 As stated in section 3.3, there are plans to provide for around 6000 houses and up to 3000 new jobs in the Western Corridor Impact Investment Location. This will have added pressure on this already constrained network to accommodate this planned future growth. Some of the key junctions that will be impacted by planned future developments are:

- Dudley Road / City Road;
- Dudley Road/Icknield Port Road/Winson Green Road junction; and
- Ladywood Middleway (Ring Road).

4.52 The redevelopment of a large area of land in and around Icknield Port Road will impact both Dudley Road/Icknield Port Road/Winson Green Road junction and the junction of Ladywood Middleway / Icknield Port Road. As improvements to Ladywood Middleway/Icknield Port Road junction is currently at the final stages of implementation with an expected scheme opening in spring 2010, it is important to ensure that capacity enhancements to Dudley Road/Icknield Port Road/Winson Green Road junction are considered. As stated in section 3.11, during the submission for funding for the CIF process it was always recognised that the Dudley Road/Icknield Port Road junction would require an upgrade to cater for the increased demand and help to mitigate the impact of that development.

4.53 The other consideration that will impact the future is providing for access to the proposed regeneration sites within the area Western Corridor IIL. Detailed masterplans for the Western Corridor IIL are currently being developed. Planning and Transportation teams within BCC are working closely to ensure that the scheme considers the emerging issues related to access arrangements in the options being developed for the further appraisal in Stage 2 of the MSBC process.

Underlying Drivers or Causes

4.54 A clear understanding of the underlying causes of the problems and the key drivers that impact the route in both current and future scenarios is critical to finding optimum solutions to the problems discussed in Chapter 4. This section discusses the underlying causes of problems on the A457 Dudley Road.

Supporting Planned Regeneration in the Western Corridor IIL

4.55 Supporting planned regeneration is the key driver in developing the scheme objectives and options for improvements. As a part of Ladyport framework it is proposed to provide for 6000 houses and up to 3000 jobs within the Ladyport Area. This extensive regeneration will put additional pressure on the already congested network and is duly considered in developing scheme objectives and options.

4.56 In addition to this, the access arrangements to the sites, particularly the ones along A457 Dudley Road need to be duly considered as a part of the option development stage.

Inconsistent available highway capacity along the entire length of the route

4.57 Starting close to junction 1 of the M5, the A457 route is of dual carriageway standard between Oldbury and Cape Hill Roundabout, close to the Birmingham / Sandwell boundary. The route then reduces to single carriageway up to the Ladywood Middleway Roundabout before again becoming dual carriageway as far as Paradise Circus.

4.58 As stated in sections 1.13 and 1.14, the A457 is designated as Birmingham's key radial route from the Black Country, with the downgraded A41 Soho Road acting as the main secondary route. The majority of the delays and congestion within the corridor are within the single carriageway section.

4.59 For the majority of the route within Birmingham (between Cape Hill Roundabout and Ladywood Middleway Roundabout), the route is single carriageway with two lanes in each direction. Throughout this section however the effective highway capacity available to the traffic is not consistent, primarily due to:

- relatively narrow lanes along certain parts of the route such as on Lea Bridge which crosses the railway;
- right turn manoeuvres impacting the predominantly straight ahead movement of traffic along this strategic route; and
- the existing on-street parking provisions, in place outside of the peak periods, reducing the effective carriageway width when in operation.

4.60 This inconsistency in the available carriageway capacity forces certain sections of the route to operate as one lane in both or at least one direction particularly during peak periods when the travel demand is particularly high. This contributes to congestion resulting in slower and unreliable journeys which are also impacted by delays. This issue also impacts the overall safety along the route due to the issues involved with informal merging of lanes and larger vehicles trying to use narrow lanes.

A Strategic Route that is impacted by closely spaced junctions

4.61 A457 Dudley Road is a strategic route from the north-west into Birmingham City Centre with majority of the trips during the peak periods being straight ahead destined to or originating from the City Centre as shown in Figure 2.1 and Figure 2.2.

4.62 The route has a series of closely spaced junctions within the 1.6km section, east of the junction with City Road. The turning movements, and particularly right turn movements associated with these junctions, impact on the straight ahead traffic causing delays due to lane change manoeuvres or larger vehicles such as buses. Although the number of vehicles right turning traffic is low, the impact of the turning movements does contribute to increased congestion along the route.

The Impact of Dudley Road Local Centre

4.63 Lining the A457 to the west of the junction with City Road is Dudley Road Local Centre, an area characterised by a range of local retail shops and services. The typical issues that the local centre brings relate to on-street parking, loading/unloading, deliveries and high volumes of pedestrians crossing at both designated (controlled crossings being frequently called) and undesignated locations across the route. All of these factors impact on the free movement of strategic traffic.

4.64 This results in interruptions to the traffic, not only through the local centre sections, but also on the outbound traffic to the east of the local centre. This effect is more evident in the PM peak period when the local centre is in operation. This results in both congestion and safety issues along the route. It is well known that the local centre has these associated issues and this can lead to rat-running on adjacent residential streets by drivers wishing to avoid the local centre section of the A457 Dudley Road.

Severance to Communities

4.65 Due to the nature and characteristics of the A457 Dudley Road, the road divides the communities to the north and to the south. The areas along the route have a high proportion of ethnic groups with good community spirit. Whilst some connectivity between communities is provided through crossing provisions, they are not particularly safe as both carriageways are crossed at the same time with no refuge for the pedestrians. There are also locations where the existing crossings do not necessarily meet pedestrian desire lines. This results in both severance and safety issues as discussed in the previous sections.

Limited Accessibility for Pedestrians and Cyclists

4.66 There are some key attractors along the route which require safe and appropriate pedestrian access. The key ones are the Dudley Road Local Centre, City Hospital, St. Patrick's RC Church, St Patrick's Catholic Primary School and The Summerfield Centre. Whilst there are wide footways along the length of the section, the crossing provisions along the route are inadequate/non-existent in places. This restricts pedestrian accessibility to these key sites.

4.67 Similarly there are no particular provisions for cyclists which, given the nature and conditions on the road, raises concern over cycle safety along the route.

5. Identifying Objectives

Background

5.1 Having clearly set out objectives is essential for the development, implementation and monitoring of any scheme. For the current scheme, local objectives have been developed based on the following:

- appreciation of current and future issues and problems;
- discussions with key stakeholders;
- understanding of the opportunities and constraints that impact the route;
- appreciation of the key drivers or the causes of the problem; and
- appreciation of the wider policy context and the objectives to be delivered at national, regional and the local level (not necessarily in the scheme area).

5.2 Objectives have been developed at two levels namely:

- **Level 1 - Strategic Objectives (L1)** – These are defined as objectives which transport contributes to, but not always in a direct manner. It results in outcomes that are reflected to a wider area or to aspects besides the direct realm of transport; and
- **Level 2 – Scheme Specific Objectives (L2)** – These are defined as the objectives which reflect the direct effects of transport intervention. They also include the desired outputs and outcomes which are directly aspired for in the scheme area. They are further classified into two categories namely:
  - ***Key Scheme Objectives (L2-KO)*** – those directly seeking to deliver the strategic objectives;
  - ***Complementary Scheme Objectives (L2-CO)*** – those which will complement the key scheme objectives and are either set because the scheme provides an opportunity to do so or seek to mitigate against the impact of the scheme.

5.3 The locally-developed objectives that the scheme will seek to achieve are:

Level 1 - Strategic Objectives

- Objective L1-O1 - To establish the A457 Dudley Road as the strategic route into Birmingham City Centre from M5 Junction 1, Smethwick, Oldbury and West Bromwich;
- Objective L1-O2 - To enable the area wide regeneration of the Ladyport Area and the local centres of Dudley Road and Soho Road;
- Objective L1-O3 - To support improving the levels of deprivation (Indices of Multiple Deprivation (IMD); and
- Objective L1-O4 – To support housing growth within the Urban Living area.

Level 2 – Scheme Specific Objectives

Key Scheme Objectives

- Objective L2-KO1 - To enhance journey time reliability for all modes;
- Objective L2-KO2 - To minimise delays within the corridor;

- Objective L2-KO3 – To provide access to development sites and accommodate traffic generated by the Ladyport Development.

Complementary Scheme Objectives

- Objective L2-CO1 - To improve public transport operations and reliability;
- Objective L2-CO2 - To improve and encourage safe, secure and convenient access to and through the area for cyclists and pedestrians;
- Objective L2-CO3 - To improve safety for all road users of the corridor;
- Objective L2-CO4 - To improve the urban townscape within the corridor;
- Objective L2-CO5 - To minimise any current and future impacts of the road upon all environmental conditions on all users.
- Objective L2-CO6 - To reduce the impact of the existing severance caused by the road to all user groups; and
- Objective L2-CO7 - To improve accessibility to existing facilities for all social groups.

6. Define Geographic Scope of Intervention

6.1 A detailed understanding of the current and future situation (as described in Chapters 2 and 3 respectively), along with an appreciation of the transport related problems both in the current and the future scenarios (Chapter 4) show that the A457 Dudley Road between the Birmingham district boundary and the Ladywood Middleway (Ring Road) is one of the worst performing of the radial corridors leading into Birmingham (Source: DfT's Congestion Monitoring Data).

6.2 As stated in sections 1.13 and 1.15 in the early 1990s, a two phased plan was proposed to improve the A457 Dudley Road between Birmingham district boundary and the Ladywood Middleway (Ring Road), with the aim of promoting it as the key strategic route from the west of the district, into the City Centre. The introduction of new measures was broken into a two phase approach, either side of the junction of Dudley Road/City Road.

6.3 Phase 1 of the improvements has been completed through some minor improvements schemes on the A457, to the west of City Road and local widening at the junction of Heath Street and Winson Green Road. In addition, traffic calming measures have been implemented on some residential streets adjacent to the main route. The sections of A457 Dudley Road to the east of the City Road are still impacted by issues as discussed in the previous chapters.

6.4 Phase 2 of the improvements is concerned with the remaining section of the A457 Dudley Road (to the east of the Coty Road junction) and that is the focus of this intervention scheme. In addition to this, the planned regeneration in the Western Corridor IIL is primarily spread around the sections to the east of City Road, with the exception of the relocation of the City Hospital to a new site within Sandwell and the development of the Cape Hill brewery site for housing.

6.5 It is proposed that the scope of the intervention is defined as the 1.6 km section of A457 Dudley Road between City Road and Ladywood Middleway as shown in Figure 1.3 (page 4). Phase 2 of this scheme is designated as the current MSBC, for which BCC is seeking programme entry.

7. Generating Options

Introduction

7.1 As a part of the original submission to the DfT (Annex E submission, July 2004) a preferred option and Lower Cost Option were developed. It was considered reasonable to review the scheme options for this re-submission in accordance to the WebTag draft guidance for option development.

7.2 It was considered essential to re-examine the available options in order to ensure that all practical possibilities were given due consideration and that any proposal brought forward by BCC would represent the best value for money.

Methodology for Generation of Options

7.3 In an attempt to generate as many options as possible to address the issues on the A457 Dudley Road, a number of separate bodies have been consulted. This process has included discussions with parties as a part of generating the previously submitted scheme and ongoing discussions that have occurred since the Annex E submission in 2004. The generation of options has also considered feedback from the consultation.

7.4 During the consultation on the scheme, BCC has had discussions with the following organisations regarding the scheme proposals:

- Sandwell MBC (as the key neighbouring authority);
- The emergency services;
- City Hospital (as the key local trip attractor in the area);
- CENTRO (as the local public transport authority);
- National Express West Midlands (as the key local bus operator, formerly Travel West Midlands);
- Network Rail (as the main rail operator and with regard to Lea Bridge);
- British Waterways (as custodians of the waterways and with regard to the two canal bridges);
- Statutory Bodies, namely:
  - The Environment Agency;
  - English Heritage; and
  - Natural England.
- Local elected representatives; and
- Members of the public.

7.5 In addition to these, there was consultation with key stakeholder within the City Council to seek the optimum solution for the corridor. These key internal stakeholders included:

- BCC Development Strategy as the developed scheme would have to accord to all existing and emerging City Council policy;
- BCC Structures Team as the route passes over two key structures;
- BCC Cycling officers as the scheme potentially offers opportunities to promote better cycle accessibility into the City Centre from the west of the city;

- BCC Red Route Team as they are seeking to further develop the Red Route Network within the city. Dudley Road corridor is being considered for Red Routes Package Two Major Scheme Business Case;
- BCC Sustainable Travel Team as they seek to better develop more sustainable and integrated modes of travel;
- BCC Planning and Regeneration Team as there are planned regeneration sites as a part of the Western Corridor IIL; and
- Urban Living as the housing coordination body for this area of West Birmingham / Sandwell.

7.6 Recent and longstanding concerns and views expressed by all these bodies were examined to produce a range of possible options that may be considered within the corridor to address the need for intervention, as described in Chapter 4 of this report.

Options Generated

7.7 Based on an appreciation of wider policy objectives, current and future travel demands, issues, constraints and opportunities along the route and the scheme objectives alternative interventions that were deemed appropriate were developed. This was also complemented with the discussions and consultation with the relevant stakeholders as listed in sections 7.4 and 7.5, to have an initial list of options for further consideration.

7.8 This options generation was undertaken at two levels, including:

- Strategic Level; and
- Scheme Level.

Strategic Level

7.9 The Strategic Level option generation considered the wider strategic network including A41 Soho Road, A457 Dudley Road and A456 Hagley Road and shortlisted the range of scheme options to be further considered at scheme level. This level aimed to reduce the wide range of potential options to a more viable list of options. This was undertaken by sifting options that are either undeliverable, not viable, or would not provide clear benefits by contributing towards the desired objectives.

7.10 As proposed in the UDP 2005, A457 Dudley Road is designated as the key strategic route from the Black Country into Birmingham City Centre, with the A41 Soho Road downgraded from a strategic route to a more “high street” nature of route. Improvements to A457 Dudley Road are therefore considered vital, including its renumbering to the A41 designation.

7.11 As a starting point all modes were considered as potential options in line with the aspirations for the route and the wider strategic network.

7.12 In terms of private travel modes, the A457 corridor as a whole was considered. As stated in section 4.57, the A457 corridor from Oldbury (close to M5 J1) up to the Cape Hill Roundabout is of dual carriageway standard. The route then reduces to single carriageway as far as Ladywood Middleway Roundabout before continuing as a dual carriageway standard route to Paradise Circus. To promote the route as the strategic route from the Black Country into the City Centre, it was therefore considered important to upgrade the route to a consistent standard. In highway terms it was considered appropriate to take forward the option of developing the route to a high quality dual carriageway standard for further consideration taking into account the p.

7.13 In terms of Public transport options Centro’s Integrated Public Transport Prospectus was reviewed to ensure that any options align with the aspirations set out in the prospectus.

The aspirations for A457 Dudley Road and the wider strategic Network from the west into the City Centre are:

- A457 Dudley Road being developed as a Principal Bus Corridor;
- A41 Soho Road being promoted as the Midland Metro corridor with the existing Midland Metro route running parallel to the route; and
- A456 Hagley Road being promoted as a Rapid Transit Corridor with a major investment in bus showcase within the corridor currently nearing completion.

Improvements to the bus network were therefore another key element that was considered vital to develop any of the options to be taken forward.

7.14 As stated in sections 2.77, 2.78 and 4.25, whilst there is a network of railway lines and metro in the vicinity, A457 Dudley Road does not lie within the 800 metres catchment of these. To be able to take advantage of the available rail network, provision of a railway station in the proximity of A457 Dudley Road was a potential way forward to be taken for further consideration.

7.15 In addition to these, it was considered essential that all of the scheme options being considered for further appraisal should endeavour to deliver some complementary benefits and to mitigate any adverse impacts of the scheme if any.

7.16 The key outputs of the strategic level option generation were to develop scheme options which aim to:

- achieve a consistent standard of highway network for the A457 corridor with a good level of service;
- improve bus network, as appropriate and required;
- take advantage of available/proposed rail/metro/rapid transit network, as appropriate; and
- complement the main scheme option with elements to achieve wider policy objectives, greater benefits and to mitigate any adverse impacts of the scheme.

Scheme Level

7.17 Using the key outputs from the more strategic level option generation , a list of all possible scheme options that may be worthy of consideration were developed. The options were as follows:

Public Transport Based Improvements

- **PT 1 - Road widening to allow construction of bus lanes at key junctions**
  - The most congested points within the corridor are at key junctions. If it is possible for buses to obtain a significant level of priority at these points and gain an advantage it would improve bus journey times and reliability significantly. This would encourage some mode shift to buses. Any new bus priority is likely to be achieved by using capacity gained through the road widening, thus not compromising the existing highway capacity.
- **PT 2 - Road widening to allow construction of bus lanes throughout the length of the route**
  - This option further develops option PT1 to provide continuous bus lanes throughout the existing corridor through road widening. This would increase both the perception and level of benefit relating to the scheme.

- **PT 3 - Construction of a new railway station adjacent to Dudley Road**
  - The Dudley Road crosses the Birmingham branch of the West Coast Mainline (Birmingham to Wolverhampton section). It is possible to construct a new railway station adjacent to Dudley Road to allow a high standard access by rail directly into Birmingham New Street.

Highway Capacity Improvements

- **HC 1 - Upgrading of the route to high standards (D2 or near D2 Standards) with bus priority where feasible and desirable**
  - This option includes upgrading the entire route to D2 or near D2 standards with bus priority where feasible and desirable. As there are sensitive areas along the route such as bridges, this option is expected to have a high scheme costs to achieve D2 standards over these.
- **HC 2 - Upgrading of the route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges**
  - As with option HC1, this option includes upgrading the entire route to D2 or near D2 standards with bus priority where feasible and desirable with the exception of some compromise solutions on pinch points such as bridges. To ensure a high standard route all key junctions will be upgraded as a part of this option. There are however clearly some high cost elements to the scheme, such as works to the bridges. It is possible to minimise the work required upon the bridge whilst seeking to address the remaining issues within the area.
- **HC 3 - Upgrading of the route to an acceptable standard with minimal capital investment**
  - This will exclude some of the more capital intensive elements and will need to compromise at places on the scheme by providing only the basic minimum elements. Certain elements of the scheme would cost significantly more than others. This is particularly important in relation to the two bridges. If the impact upon these high cost items was minimised, whilst trying to maintain the integrity of the scheme, then an intermediate cost scheme may be produced which provides many of the benefits with a reduced capital investment.
- **HC 4 - Upgrading selected junctions only**
  - Rather than considering the entire route, it would be possible to upgrade only the major junctions within the corridor to address many of the congestion related issues. As some of the key issues are at junctions, this will improve the junction capacity and safety and result in benefits which will be relatively lower, however commensurate to the costs.
- **HC 5 – Implementing Red Route proposals along the route**
  - The route has issues related to on-street parking which impact the journey time reliability and causes delays. Dudley Road corridor is being considered for Red Routes Package Two Major Scheme Business Case. An option to introduce red route type proposals may resolve issues related to on-street parking and provide benefits in terms of minimising delays and improving journey time reliability.

8. Initial Sifting

8.1 The WebTag Draft Guidance Unit 2.1.2 suggests that once the comprehensive list of options has been developed, an initial sifting takes place that will reduce these to a more manageable list of interventions to be taken forward to a more detailed assessment process.

8.2 The eight options that are identified in section 7.17 were then taken through an initial sifting process using the methodology suggested within the draft guidance (section 1.8: Initial Sifting). This process reduced the list of options to a more manageable size, with those scheme identified being taken on for a detailed option appraisal.

8.3 Each of the options under consideration was assessed using the pro-forma type table given within the guidance. The criteria used for this level of sifting were based on assessing each of these eight options on the following:

- **Strategic Fit** – The extent to which each contributed in achieving both the Level 1 – Strategic Objectives and Level 2 – Scheme Specific Objectives (as defined in section 5.3); and
- **Risks** – The level of risk involved in taking the scheme forward, which included:
  - Complexity of delivery / implementation;
  - Affordability and financial sustainability;
  - Stakeholder acceptability; and
  - Public acceptability.

8.4 This assessment assigned a qualitative score to the extent each of these options met the criteria listed in section 8.3 based on a five point scale ranging from 'Strongly Positive' to 'Strongly Negative'. A rationale for the assigned qualitative scores was also documented. Assessment of each of these eight options is contained within Appendix B of this document. A brief summary of the findings extracted from these detailed pro-formas is presented in Table 8.1.

8.5 From Table 8.1, there are four options identified that should be taken forward to the next stage of assessment. Each of these four options identified are then taken forward for further development and assessment and have been referred to as 'potential options' in this document. These four potential options are:

- **Option PT 2** – Road widening to allow construction of bus lanes throughout;
- **Option HC 1** – Upgrading of the route to high standards (D2 or near D2 Standards) with bus priority where feasible and desirable;
- **Option HC 2** – Upgrading of the route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges; and
- **Option HC 3** - Upgrading of the route to an acceptable standard with minimal capital investment

Table 8.1 – Summary of Initial Sifting

Option Ref.*	Extent to which option meets objectives (No. Of Occurrences)					Worst Risk Score**	Summary	Potential Option (Yes/No)
	Str. Pos.	Pos.	Neu.	Neg.	Str. Neg.			
PT 1	0	4	9	1	0	Med	Although the scheme in overall terms would be beneficial, it does not address enough issues within the corridor for detailed consideration.	No
PT 2	1	7	5	1	0	High	The scheme provides benefits in a significant number of areas and is therefore worthy of further consideration in the process.	Yes
PT 3	0	6	8	0	0	High	Although the scheme provides benefits in a few areas, it does not tackle enough of the overall corridor issues. It is therefore not considered to be an option worth taking forward.	No
HC 1	6	8	0	0	0	Med	The scheme provides benefits in a significant number of areas and is therefore worthy of further consideration.	Yes
HC 2	4	10	0	0	0	Med	The scheme is expected to provide similar benefits as HC1 and is likely to be delivered at a lower cost to HC1. As the scheme provides significant level of benefits in a significant number of areas it is considered worthy of being taken forward.	Yes
HC 3	0	12	2	0	0	Med	Although the scheme is less beneficial than HC1/HC2, it is likely to be to offset by the reduction in cost. As the scheme provides benefits in a significant number of areas it is considered worthy of being taken forward.	Yes
HC 4	0	9	5	0	0	Med	Although the scheme does provide some benefits, the limited scope of each intervention creates a piecemeal approach that means that many of the key objectives of the scheme are not met. It is therefore not consider worth taking forward for more detailed consideration.	No

Option Ref.*	Extent to which option meets objectives (No. Of Occurrences)					Worst Risk Score**	Summary	Potential Option (Yes/No)
	Str. Pos.	Pos.	Neu.	Neg.	Str. Neg.			
HC 5	0	5	9	0	0	High	Whilst the scheme will result benefits to through traffic, it may have lower levels of public acceptability. In addition to this, it does not achieve benefits for all modes. Whilst red route measures will need to complement one of the above options it is not comprehensive enough to deliver the overall desired benefits on its own.	No

** For description of options please refer to section 7.17 .*
*** Risks associated with four aspects of taking the scheme forward, as listed in section 8.3, were assessed and the worst score is reported in this summary table.*

9. Development and Assessment of Potential Options

Introduction

9.1 The WebTag Draft Guidance Unit 2.1.2, Appendix A, provides an option assessment framework against which schemes should be judged. In addition to this, outline concept designs were produced for each of the potential options so an accurate relative assessment could be undertaken into the merits of each.

9.2 In order to fully understand the impacts of the schemes, further development work of each of the schemes put forward for appraisal has been undertaken. This has been in the form of:

- **Preliminary Scheme Design** - a more detailed consideration of the potential design of the scheme and some concept layouts to assess the achievability of the design in relation to the network and local constraints; and
- **Overall appraisal based on '5 cases Model'** – Potential options assessed against the key five assessment criteria Strategic, Value for Money, Delivery, Financial and Commercial, using the Option Assessment Framework.

9.3 Sections 9.5 to 9.38 provide an assessment of each of the potential options based on the scheme design to see how feasible the concepts are on the ground. Following this section, each of the potential options as per the 5 cases models is presented. A preliminary comparative Appraisal Summary Table (AST) has been presented based on the Goals and Challenges as prescribed In WebTag Draft Guidance Unit 2.5 (section 1.2.10).

9.4 This overall assessment has lead to the decision on the likely schemes to be taken forward to Stage 2 for appraisal through the full business case process.

Assessment of Scheme Design

Option PT 2 - Road widening to allow construction of bus lanes throughout

Scheme Principles

9.5 It would be possible to develop the scheme to upgrade the route to a D2 plus bus lane (effectively D3) over the entire route. The proposals for a single traffic lane plus a bus lane (effectively a straight forward D2) were also considered but were eliminated as the reduction in highway capacity would result in increased congestion which would not help deliver growth and regeneration objectives.

9.6 The scheme would have the benefits of maintaining the existing highway capacity whilst providing high standard accessibility for public transport by allowing public transport vehicles to advance to the front of any queuing along the route. The use of advanced technology could then allow bus services priority over other vehicles at specific points effectively giving them a more reliable and continuous flow throughout this key public transport corridor.

Scheme Constraints

9.7 The preliminary design work undertaken in order to complete the detailed level of appraisal has highlighted a number of elements within the scheme that would be difficult and expensive to overcome. The three key constraints on this scheme are:

- Dudley Road Local Centre (viability, accessibility, severance and integration);
- Lea Bridge - This is a listed structure over both the railway line (West Coast Mainline Birmingham to Wolverhampton section) and the canal (which runs parallel to the railway); and
- Spring Hill Canal Bridge.

9.8 In designing any public transport priority scheme, it is important to keep the infrastructure as continuous as is possible to prevent a piecemeal priority which gives no true advantage to the bus.

Dudley Road Local Centre (Section between City Road and Heath Street)

9.9 There are several competing issues within the corridor, especially in the sections that form a part of the local centre. There is the need to maintain the current vibrancy of the local centre, which can be best achieved by promoting accessibility and integration within the local area and reducing the existing level of severance within the corridor.

9.10 These targets are in contrast to the option of any substantive widening within the corridor to facilitate any provision of bus priority measures. To achieve this would also require the demolition of properties. This is not considered an acceptable option as it would remove the very shops that need to be retained.

9.11 The centre would therefore be reduced to a bus priority scheme for the Winson Green / Dudley Road / Icknield Port Road junction. This junction is a key location in this section as there are existing safety and capacity issues as well as a need for better pedestrian facilities.

9.12 If the additional capacity obtained at this junction were given over to bus priority, this would not address the other issues. Due to the limited scope of the scheme, buses would be held up in queues with other vehicles at the junction and only gain a limited level of priority in close proximity of the junction. In summary, all traffic would actually take longer to get through the area, thus making conditions worse.

9.13 It is therefore not considered appropriate to pursue bus priority measures within this section of the corridor.

Lea Bridge

9.14 Lea Bridge is a listed structure and therefore requires special consideration as a part of the scheme. In order to achieve a D3 standard and also include the provision for the right turn into Heath Street, the bridge would require significant widening. As the bridge lies immediately to the east of the centre, it seems appropriate to consider not starting the eastbound bus lane until after Lea Bridge, as this would significantly reduce the cost without compromising the scheme. The maximum length of any bus lane in the scheme proposals would therefore run from east of Lea Bridge to the junction of Icknield Street / Spring Hill and Ladywood Middleway.

Spring Hill Bridge

9.15 The existing Spring Hill Canal Bridge is currently wide enough for four narrow traffic lanes. In order to accommodate a D3 standard, the road would require widening which would mean substantial alterations to the alignment. Although the land is likely to be available, the most likely solution would be the construction of a new parallel bridge with allowance for a

light well to meet with British Waterways Board (BWB) standards. The new structure would substantially increase the scheme land take and cost.

9.16 It would therefore be possible to have bus priority running through the section but it would produce only fragmented benefits for bus services. This could lead to a worsening of the scheme benefits and the perception of bus users.

Summary

9.17 It would be possible to construct bus lanes within the scheme area, between Heath Street and Ladywood Middleway. As there would be an additional lane required in each direction, widening would be required on both sides of the road. The implications of this upon the scheme costs would be significant, in statutory undertakers' costs alone. If that was coupled with the cost of obtaining the additional land and road widths this may cause substantial issues. Therefore this option is not to be considered based on the high level of scheme cost. It is also not consistent with Dudley Road Local Action Plan proposals.

Option HC 1 - Upgrading of the route to high standards (D2 or near D2 Standards) with bus priority where feasible and desirable

Scheme Principles

9.18 It would be possible to develop a scheme to upgrade the route to a D2 standard with additional bus lane wherever there is the appropriate need for its provision subject to no existing constraints. This would significantly improve the standard of the route in terms of public transport. These measures should be coupled with an upgrade to each of the key junctions both in terms of absolute capacity and better linkages with other junctions. Where practical this would be through the installation of traffic signals.

Scheme Constraints

9.19 The further design work undertaken in order to complete the detailed level of appraisal has highlighted a number of elements within the scheme that would be difficult and expensive to overcome. The three key constraints on this scheme are:

- Dudley Road Local Centre (viability, accessibility, severance and integration);
- Lea Bridge - This is a listed structure over both the railway line (West Coast Mainline Birmingham to Wolverhampton section) and the canal (which runs parallel to the railway); and
- Spring Hill Canal Bridge.

Dudley Road Local Centre (Section between City Road and Heath Street)

9.20 There are several competing issues within the corridor, especially in the sections that form part of the local centre. There is the need to maintain the current vibrancy of the local centre, which can be best achieved by promoting accessibility and integration within the local area and reducing the existing level of severance within the corridor.

9.21 These targets are in contrast to the option of any substantive widening within the corridor. This option would look to achieve a solution to the existing congestion issues by localised widening using land that is already available. Conversion to dual carriageway standard is possible for a significant proportion of the route (between Heath Street and Ladywood Middleway). Upgrading this area as opposed to the whole single carriageway section is seen as essential to retain cohesiveness within the local centre.

Lea Bridge

9.22 Lea Bridge is a listed structure and therefore requires special consideration in comparison to other structure. Widening the road to a D2 standard will provide space for a right turn into Heath Street. This would however increase the overall scheme costs considerably due to the challenges associated with either widening the existing bridge (statutory undertakers' plants) or providing parallel footbridges.

Spring Hill Bridge

9.23 The existing Spring Hill Canal Bridge is wide enough for four narrow lanes. Similar to Lea Bridge, widening this bridge to accommodate a D2 standard would increase the capital cost of the scheme. Although the land is likely to be available, the most likely solution would be the construction of a new parallel bridge with allowance for a light well to meet with British Waterways Board (BWB) standards. This new structure would however also be expensive to construct and would require significant alteration to the road alignment in the area, substantially increasing the scheme land take.

Summary

9.24 It would be possible to construct a D2 standard route with provision for some level of bus priority between Heath Street and Ladywood Middleway however this could result in considerable scheme costs. Therefore this option has not been taken forward.

Option HC 2 - Upgrading of the route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges

9.25 It would be possible to develop the scheme to upgrade the route to a D2 standard with bus lane wherever the land was available that would provide substantive scheme benefits and where there is adequate rationale for its provision. This would significantly improve the standard of the route for PT. These measures would be coupled with an upgrade to each of the key junctions both in terms of absolute capacity and better linkages with other junctions. At the three key pinch points mentioned in section 9.26, compromise solutions will need to be adopted.

Scheme Constraints

9.26 The preliminary design work undertaken in order to complete the detailed level of appraisal has highlighted a number of elements within the scheme that would be difficult and expensive to overcome. The three key constraints on this scheme are:

- Dudley Road Local Centre (viability, accessibility, severance and integration);
- Lea Bridge - This is a listed structure over both the railway line (West Coast Mainline Birmingham to Wolverhampton section) and the canal (which runs parallel to the railway); and
- Spring Hill Canal Bridge.

9.27 The adoption of lower cost solutions at these points would mean that the scheme could be delivered more effectively without significant compromises to the level of benefits achieved.

Dudley Road Local Centre (Section between City Road and Heath Street)

9.28 There are several competing issues within the corridor, especially in the sections that form part of the local centre. There is the need to maintain the current vibrancy of the local centre, which can be best achieved by promoting accessibility and integration within the local area and reducing the existing level of severance within the corridor.

9.29 These targets are in contrast to the option of any substantive widening within the corridor. This option would look to achieve a solution to the existing congestion issues by localised widening using land that is already available. The conversion of the route to dual carriageway standard is possible for a significant proportion of the route (between Heath Street and Ladywood Middleway). Upgrading this section rather than the entire length of the area under consideration is a compromise which complements the two parallel single carriageway corridors and is judged to be essential to prevent issues within the local centre.

Lea Bridge

9.30 Lea Bridge is a listed structure and therefore requires special consideration in comparison to other structure. Widening the road to a D2 standard and having provision for the right turn in to Heath Street could be achieved by widening the bridge. This is achieved by a combination of reducing the existing footway widths and having narrower lanes relative to the remaining sections of the scheme. Although this would provide a pinch point for the scheme given the constraints within the area, it is felt that this would be acceptable.

Spring Hill Bridge

9.31 The existing Spring Hill Canal Bridge is currently wide enough for four narrow lanes. It does however have wide footways. In order to widen it to accommodate a D2 standard would require widening into these footways and providing a new pedestrian over bridge. To this extent it will minimise the work required to the bridge.

Summary

9.32 It would be possible to construct a D2 standard route between Heath Street and Ladywood Middleway in a simple and effective manner. If this was coupled with a junction improvement at Winson Green Road / Dudley Road / Icknield Port Road this creates a comprehensive deliverable scheme. Option HC2 will achieve similar benefits to HC1, but with lower capital costs as Option HC2 is based on making compromise solutions at the three pinch points. It is therefore considered that for the assessment based on the '5 Cases Model' as presented in Table 9.1 they are considered as one (HC1/HC2)

Option HC 3 - Upgrading of the route to an acceptable standard with minimal capital investment

9.33 It would be possible to upgrade the route with provision for right turning traffic, provided through right turn lanes and central hatching along the length of the route. This can be coupled with an upgrade to most of the key junctions both in terms of absolute capacity and better linkages with other junctions. Wherever practical this can be through the installation of traffic signals.

9.34 This approach seeks to minimise the overall capital investment required for the scheme while maximising benefits, all whist trying to maintain a consistent standard for the scheme.

9.35 In order to achieve this, the following design principles have been adopted:

- There will be no alterations to the existing bridge structures including widening into existing footways within the structures;
- The improvements to the junction of Spring Hill / Icknield Street / Ladywood Middleway will not be included within the proposals;
- Widening can only take place on one side to minimise impacts to Statutory Undertakers equipment;
- There will be no provision for bus lanes throughout the scheme;

- Minimum design standards will be applied to lane widths etc; and
- No allowance will be made for improvements to townscape (planting, quality materials etc.)

9.36 By adhering to these design principles a significantly lower cost alternative can be produced.

Scheme Constraints

9.37 In adhering to the design principles described, this removes the two bridge constraints upon the potential scheme. The other constraint on this proposal is the impact of any option on Dudley Road Local Centre. By adhering to the approximate design given in Option HC 2, with a lower standard improvement at the Winson Green Road / Icknield Port Road / Dudley Road junction, an appropriate option is available removing most of the constraints.

Summary

9.38 It would be possible to construct an improvement to the road that will meet many of the goals set out without the overall capital expenditure that is envisaged in option HC2.

Assessment Based on '5 Cases Model'

Option Assessment Framework

9.39 Table 9.1 presents the Option Assessment Framework for the three remaining option designs that are to be taken forward, as explained in Table 8.1. The Option Assessment Framework lays out a set of criteria against which each of the design options is now assessed to enable a direct comparison of the relative merits of each of the options to be made. Each column in the table represents a different one of the design options. Presented in sections 9.40 to 9.47 is a summary and discussion of the appraisal results, coupled with a discussion of the merits of each option.

Table 9.1 – Option Assessment Framework

Assessment Area	**Option PT 2** Road widening to allow construction of bus lanes throughout	**Option HC2** Upgrading of the route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges	**Option HC 3** Upgrading of the route to an acceptable standard with minimal capital investment
Regional Transport and Spatial Strategy and LTP objectives fit			
Regional Policy Alignment	The scheme would help to deliver significant improvements to the PT network and to other traffic as well. This will therefore support the delivery of the Ladyport Impact Investment Location as identified in the RSS and RTP.	The scheme would help to deliver significant improvements to the transport network and assist in delivery of the Ladyport Impact Investment Location, as identified in the RSS and RTP.	The scheme would help to deliver some improvements to the transport network and will still assist in delivery of the Ladyport Impact Investment Location, as identified in the RSS and RTP.
LTP Policy Alignment	The scheme is closely aligned to the objectives of West Midlands LTP2 and the emerging WM LTP3 in helping to support growth by improving the reliability and efficiency of the network with special focus on the PT network. The scheme would also help to contribute towards a safer and healthier society and will help to promote equal opportunities by increasing accessibility for deprived areas and those reliant on PT.	The scheme is closely aligned to the objectives of West Midlands LTP2 and the emerging WM LTP3 in helping to support growth by improving the reliability and efficiency of the network with improvements to the PT network. The scheme would also help to contribute towards a safer and healthier society and will help to promote equal opportunities by increasing accessibility for deprived areas and those reliant on PT.	The scheme will aim for the same benefits as for HC2 but the level to which this option will contribute to the WM LTP2 and LTP3 objectives will be relatively lower. There will be improvements to reliability and safety.
Meeting intervention objectives – Addressing problems and challenges			
Scheme objectives	As shown in Table 8.1. this option was assessed against the objectives and its contribution is as follows: 1 Strongly Positive, 7 Positive, 5 Neutral, 1 Negative and 0 Strongly Negative	As shown in Table 8.1. this option was assessed against the objectives and its contribution is as follows: 4 Strongly Positive, 10 Positive, 0 Neutral, 0 Negative and 0 Strongly Negative	As shown in Table 8.1. this option was assessed against the objectives and its contribution is as follows: 0 Strongly Positive, 12 Positive, 2 Neutral, 0 Negative and 0 Strongly Negative
Tackle climate change			
Reduce greenhouse gas emissions	Although some environmental conditions would improve due to a reduction in congestion, the new bus lane will increase the available capacity for general traffic (currently the two lanes in each direction are shared by both general traffic and buses). It is expected that there will be latent demand which will fill up this available capacity thus resulting in an overall higher level of fuel consumption. This may off-set any benefits due to reduced congestion therefore balancing itself out.	It is anticipated that the overall journeys will become more reliable and "Start-Stop" conditions will be reduced due to overall improvements to the route. This will reduce the total overall fuel consumption which will result in reduction in the greenhouse gas emissions. As a part of Stage 2 when detailed modelling is undertaken, a quantified appraisal will be undertaken with the estimated carbon savings.	Although the route will be improved, there will still be locations along the route where the improvements to reliability and "start-stop" situation will not be significant, thus resulting in relatively lesser reduction in greenhouse gas emissions.
Support economic growth			
Improve reliability	The scheme would seek to enhance journey time reliability for all modes including a significant improvement to the reliability of bus trips. However, the additional capacity for the general traffic being part filled up by latent demand, the improvements to reliability of general traffic may not be as significant as for buses. At this stage it is predicted that the impact of this option will be Neutral.	The scheme would seek to enhance the reliability of bus trips for a proportion of the route, without compromising the journey time reliability of other modes. The overall impact of this option on improving reliability is predicted to be beneficial at this stage.	As compared to HC2 option, this scheme would give relatively lower levels of improvement to overall journey time reliability for all road based modes. As there will still be pinch point locations due to limited capital investments, the overall journey time reliability may be impacted. The overall impact of this option on improving reliability is predicted to be slightly beneficial at this stage.
Improve connectivity – journey time and vehicle operating costs	The improvements and increased capacity would enhance the reliability and improve journey times of bus trips and hence increase the attraction of PT as a mode. This is also likely to increase the number of people using buses. Due to reduced congestion levels the vehicle operating costs of all vehicles, particularly buses will improve	The improvements and dualling of the route would enhance the reliability and journey times of trips by all modes, especially bus trips on the proportion of the route which is covered by bus lanes and hence reduce operating costs.	The improvements and increased capacity would give some small improvements to the reliability and speed of trips for all road based modes, without favouring any particular mode.
Improve connectivity- Revenue impacts	The scheme would increase the appeal of buses as a mode to travel and hence there may be an increase in the level of revenue achieved by bus companies. At this stage a quantified assessment of benefits is not possible.	The scheme may increase the appeal of buses as a mode to travel and hence may cause an increase in the level of revenue achieved by bus companies. At this stage a quantified assessment of benefits is not possible.	The scheme is not likely to have any impact on the level of revenue generated by bus companies.

Assessment Area	Option PT 2 Road widening to allow construction of bus lanes throughout	Option HC2 Upgrading of the route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges	Option HC 3 Upgrading of the route to an acceptable standard with minimal capital investment
Support the delivery of housing	The improvements to local PT reliability and journey times would make the area attractive for additional regeneration. Given the growth proposals are focusing on delivering 6000 houses in the area, at this stage, it is expected that all of these three options for improvements will have a moderate positive impact in supporting the delivery of housing.	The overall improvements to the network, including improved junctions with greater capacity and throughputs and enhanced safety (particularly at the junctions at Ladywood Middleway and Winson Green Road), will all result in this scheme supporting the delivery of housing. Some level of proposed bus priority in the eastbound direction will enhance local PT reliability and journey times. This will make the PT network more attractive as well and would further promote regeneration in the area. As stated in Option PT2, it is expected to have a positive impact in supporting the delivery of housing.	The improvements to the network would make the area attractive for additional regeneration. This option suggests improvements to only key junctions, thus limiting the level of regeneration activity. The extent to which this option will support in the delivery of housing will be relatively limited relative to HC2 option. As stated in Option PT2, it is expected to have a moderately positive impact in supporting the delivery of housing although the increase in capacity may not support the full proposals.
Enhance resilience	The improvements and additional capacity achieved by the scheme would mean that Dudley Road will become more capable of adapting to incidents in both this corridor, and on parallel transport corridors. At this stage it is expected that reduced congestion will therefore enable the route to be able to contribute to resilience and the impact will therefore be beneficial.	The improvements and additional capacity achieved by the scheme would mean that Dudley Road will become more capable of adapting to incidents in both this corridor, and on parallel transport corridors. The impact at this stage is expected to be beneficial.	The overall improvements to the corridor and additional capacity achieved by the scheme would mean enhanced resilience. The impact at this stage is expected to be beneficial. However as there will be compromise solutions specifically at the two bridges, resulting in the current narrow lanes to remain as existing, these pinch points may lower the level of overall benefits as compared to the other two options.
Wider (economic) impacts	At this stage it would appear that any of the options will result in regeneration impacts of the scheme over Regeneration Area (South Black Country and North Birmingham) more than contributing to central Wider Impacts (WIs) through productivity and wider welfare gains. An indicative assessment of the these regeneration impacts is briefly discussed under “Enhance regeneration”	At this stage it would appear that any of the options will result in regeneration impacts of the scheme over Regeneration Area (South Black Country and North Birmingham) more than contributing to central Wider Impacts (WIs) through productivity and wider welfare gains. An indicative assessment of the these regeneration impacts is briefly discussed under “Enhance regeneration”	At this stage it would appear that any of the options will result in regeneration impacts of the scheme over Regeneration Area (South Black Country and North Birmingham) more than contributing to central Wider Impacts (WIs) through productivity and wider welfare gains. An indicative assessment of the these regeneration impacts is briefly discussed under “Enhance regeneration”
Promote Equality of Opportunity			
Improve accessibility	The greater reliability and accessibility of the PT network would improve access to in particular employment and healthcare facilities within the corridor, especially for those more disadvantaged (e.g. without access to a car) and use PT as their main form of travel. At this stage there is likely to be a diversion of routes to serve the relocated hospital.	The greater reliability and improved journey times will enhance accessibility to/from the area. In addition to this, some level of the PT priority will further enhance accessibility for public transport users. Additional and improved pedestrian crossing provisions will enhance pedestrian access to key trip attractors within the area, particular City Hospital and the local schools in the area. The scheme, by linking with the regeneration proposals in the area, will enhance overall accessibility of the regeneration sites by sustainable modes of transport. Accessibility to the area for cyclists will also be enhanced. In overall terms this option will improve accessibility for all road users, but in particular public transport users, pedestrians and cyclists.	The greater reliability and accessibility of the entire network would improve access to facilities within the corridor. The improvements will however at places be limited due to minimum level of capital investment, thus resulting in relatively lower level of improvements to accessibility.
Improve affordability	It is anticipated that the scheme will not change the cost to users and hence affordability will be at least no worse than existing.	It is anticipated that the scheme will not change the cost to users and hence affordability will be at least no worse than existing.	It is anticipated that the scheme will not change the cost to users and hence affordability will be at least no worse than existing.
Reduce severance	The selective nature of the intervention and the likely use of local widening mean that this option would not be aimed directly at reducing severance. On the contrary road widening is expected to have a slightly adverse impact on severance.	The comprehensive nature of the scheme and the provision of significant facilities for both pedestrians and cyclists will reduce the impacts of severance for pedestrians and cyclists. Key pedestrian improvements occur adjacent to the City Hospital which enhances the safe access for outpatients, employers and visitors to the hospital. Preliminary analysis also shows that the proportion of the households with no access to car over 15% more than the same for Birmingham. Any improvements to levels of severance will therefore have more benefits to these groups in particular.	Whilst this option also provides facilities that seek to reduce severance caused by the road, these improvements are not along/across the entire length of the corridor. The impact of severance will therefore be reduced to a relatively lesser extent as compared to option HC2 as crossing will still mean traversing four lanes in many locations.

Assessment Area	Option PT 2 Road widening to allow construction of bus lanes throughout	Option HC2 Upgrading of the route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges	Option HC 3 Upgrading of the route to an acceptable standard with minimal capital investment
Enhance regeneration	At this stage it would appear that any of the options will result in moderate benefits in terms of regeneration of the local area. The proposed growth is aiming to deliver around 6000 new houses and up to 3000 jobs. Any of the scheme options will help to connect existing and future development sites to employment opportunities and will enhance regeneration. An assessment was undertaken as a part of the original Annex E submission in 2004, which estimated approximately £30m of private investment in the area, approximately 20 hectares of derelict land being re-gained and 100,000 sq. m of new business area to be created. A more detailed assessment will inform this further.	For the same reasons as stated in Option PT2, at this stage it will appear that this option will result in moderate benefits in terms of regeneration of the local area.	For the same reasons as stated in Option PT2, at this stage it will appear that this option will result in moderate benefits in terms of regeneration of the local area.
Reduce regional economic imbalance	Increased connectivity and accessibility levels will also uplift the area and make it more attractive for inward investments. The long term impact of this will be improvements to the economic levels of this otherwise deprived area. This will together with the growth proposals therefore contribute in reducing the local and regional economic imbalance that currently exists with moderate positive impact.	As with the PT2 option, this intervention would also result in reduced levels of congestion, enhanced reliability, increased connectivity and accessibility in the area thus making the area more attractive for inward investments. The long term impact of this will be to improve the economic levels of this otherwise deprived area. This will together with the growth proposals contribute in reducing the local and regional economic imbalance that currently exists with moderate positive impact.	For the same reasons as the other two options, this intervention would also contribute in reducing the local and regional economic imbalance that currently exists but at a lower level although this would still be insufficient to allow for all of the growth proposals to proceed. At this stage the impact is estimated to be slightly positive.
Improve Quality of Life and promote healthy, natural environment			
Reduce exposure to noise	At this stage, it is not envisaged that the percentage difference in flows, percentage share of HGV traffic and link speeds would be more than the prescribed levels given in WebTag Unit 2.1.2 (Draft version), Appendix A, Table A.2 (c) to warrant a significant impact to exposure to noise levels. It is also not envisaged that this will alter significantly between the three shortlisted options and hence does not appear to be a key driver to appraise this in detail at this stage.	For the same reasons as given in Option PT2, at this stage it is envisaged that the impact on exposure to noise will at worst be neutral. It will be better informed with more detailed modelling as a part of Stage 2.	For the same reasons as given in Option PT2, at this stage it is envisaged that the impact on exposure to noise will at worst be neutral. It will be better informed with more detailed modelling as a part of Stage 2.
Minimise impact of biodiversity	The additional land take required for widening is primarily on currently built up areas along the route or existing footways. There are therefore no impacts to biodiversity identified at this stage. The existing canal is to be retained.	The additional land take required for widening is primarily on currently built up areas along the route or existing footways. This therefore means that there is no likely impact on biodiversity identified at this stage.	With land take being kept to a minimum, there no likely impact on biodiversity identified at this stage.
Minimise impact on water	The impact of this scheme and the associated local widening may slightly increase the volume of water discharged from the highway. At the detailed design stage any such impacts will be mitigated through due consideration to drainage issues related to any of the options being taken forward.	For the same reasons as stated in option PT2, any potential adverse impacts that may arise due to slight increased volume of water discharged from the highway will be duly considered in terms of detailed design. At the detailed design stage any required changes to the drainage arrangements in the scheme area will be carefully examined and incorporated.	The impact of this scheme will have a negligible impact on the volume and quality of water discharged from the highway as there is not a significant amount of widening.
Minimise impact on heritage	Widening of the carriageway would involve some land take. The works to the Grade II listed Lea Bridge over the Birmingham-Wolverhampton railway line and the canal is likely to have a negative impact on the existing listed bridge. However, any changes to this will be done in consultation with the key stakeholders minimising this impact.	The scheme acknowledges that the Lea Bridge is a Grade II listed structure and thus does not propose any additional widening of the structure. Some widening over the existing footway is proposed, which will ensure that the impact on heritage is minimal.	This scheme would not alter the existing bridge structures, including the listed bridge. Therefore the impacts in terms of heritage are not anticipated at this stage.
Minimise impact on Landscape	Local road widening without a comprehensive scheme would potentially lead to slight adverse impacts on the existing urban environment and landscape. Tree planting is likely to be incorporated in the final design.	This comprehensive scheme may impact landscape at certain locations along the route due to some local widening, additional signals etc, but it proposes to generally enhance the level of urban realm as well as landscape. This will ensure that any slight adverse impacts are well offset resulting in overall improvement to the landscape.	As the scheme proposes only minimal widening of the carriageway, there is likely to be only a minimal impact on the existing urban environment and landscape, except at key junction where improvements will result in larger junctions.
Improve experience of travel-Journey Ambience	Improvements would significantly enhance travellers' experience of using PT, improving journey times resulting an improved and more satisfying end-to-end experience for users. The improvements should reduce delays to all traffic also resulting in better journey ambience.	Overall improvements to the journey times, less "start-stop" situations, minimum delays, enhanced safety will reduce driver stress and will therefore result in a more satisfying end-to-end journey experience. This will therefore be beneficial in terms of journey ambience.	The scheme will improve most sections of the route resulting in improvements to the congestion levels and therefore improving the end-to-end journey experience and journey ambience for users. This will therefore be beneficial in terms of journey ambience.

Assessment Area	Option PT 2 Road widening to allow construction of bus lanes throughout	Option HC2 Upgrading of the route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges	Option HC 3 Upgrading of the route to an acceptable standard with minimal capital investment
Improve experience of travel-Transport Interchange	The current levels of interchange facilities between the orbital services and the radial services which exist to the west of Winson Green road/Icknield Port Road junction are good. The scheme would not alter them and will therefore have no impact on the level or quality of travel interchange and waiting experience for users of PT.	As given in Option PT2, the scheme would not alter the currently good levels of interchange between bus services. In addition to this, improved cycling facilities will provide for better interchange between cycling and bus services. This will have a slight positive impact on the level of transport interchange.	The scheme would not alter the existing level of interchange between different bus services. The level of transport interchange will therefore not be impacted by this option.
Improve experience of travel-Option Value	Whilst providing bus priority will enhance the bus journeys, this will not alter the available options for travel for the users directly. The scheme would therefore not substantially change the option value.	This scheme will aim to promote cycling along the north side with shared cycle and pedestrian facilities on wide carriageway. The scheme will also aim to link up Dudley Road to the existing canal tow path under the Lea Bridge by provision of ramp access from Dudley Road. This will provide an additional safe option for people to get to/from Birmingham City Centre. This would therefore have a slight positive impact on option value.	This scheme would not substantially change the availability and range of transport services within the study area, therefore not changing the option value.
Improve the urban environment-Townscape	This option will involve road widening, involve additional signals and signs to introduce bus priority and will therefore lead to slight adverse impact to the townscape.	Whilst the scheme may have slight adverse impacts due to widening outside the existing carriageway, some of the existing buildings along the carriageway, being derelict or fairly run down, contribute little in terms of urban design. A comprehensive scheme to include overall improvements to the route including considerations to urban realm will offset the slight impacts of widening on townscape or even make the townscape more attractive and inviting.	In minimising the overall cost of the scheme, concentration would be given to achieving the overall goals of the scheme rather than its appearance. The impact would therefore not seek to improve the townscape beyond what currently exists.
Improve access to leisure	The scheme would help to provide improved links to Birmingham City Centre locations such as National Indoor Arena (NIA) and the International Conference Centre (ICC) as the A457 is the key vehicle link to this part of the City. In addition the scheme would improve link to local leisure opportunities such as Summerfield Park and the Birmingham Canal. The priority given to PT by the scheme will also assist in improving access to these leisure opportunities for sustainable travel modes.	Some level of the PT priority throughout the day (not just peak period) will enhance accessibility to public transport for leisure travelling, especially City Centre locations such as the NIA / ICC. Safe pedestrian crossing provisions will enhance pedestrian access to key trip attractors within the area. Accessibility to the area for the cyclists will also be enhanced. In overall terms this option will improve accessibility for leisure.	The greater reliability and accessibility of the entire network would improve access to leisure within/outside the corridor. The improvements will however at places be limited due to minimum level of capital investment, thus resulting in relatively lower level of improvements to accessibility to leisure as compared to other options.
Better Safety, Security, and Health			
Reduce the risk of death or injury (Accidents)	The selective nature of the intervention means that safety would not be a primary outcome objective of the scheme although the dualling of a significant proportion of the route would help to reduce the likelihood of accidents. The previous assessment (Annex E 2004 submission) estimates a reduction of some 59 accidents. It is considered that the revised scheme would provide a reduction in accidents even greater than this previous estimate.	The dualling of a significant proportion of the route and improvements to key junctions will reduce unsafe turning movements, hence improve safety. The previous assessment (Annex E 2004 submission) estimates a reduction of some 59 accidents. It is considered that the revised scheme would provide a reduction in accidents even greater than this previous estimate. As a part of Stage 2, more detailed COBA models will be used to help inform the monetary benefits of accident savings.	For the same reasons as given in option HC2 it is considered that the revised scheme would provide a reduction in accidents even greater than the previous estimate of 59 accidents. This reduction would however not be to the same level as the other two proposals due to the greater number of conflicts.
Improve health through physical activity (Physical fitness)	Widening to contain bus lanes will provide safer routes for cycling which may encourage more people to make cycling trips. Improved pedestrian crossings facilities on key desire lines may encourage more people to travel on foot for all or a part of their journey. This will all contribute to improving health through greater physical activity.	The provision of shared pedestrian and cycling facility along most of the north section of the route will promote cycling. In addition to this provision of an eastbound section of bus lane for a proportion of the road will provide a safer route for cycling which may encourage more people to make cycling trips. The scheme also proposes to provide cycle access to the canal tow path under the Lea Bridge. Improved pedestrian crossings facilities on key desire lines may encourage more people to travel on foot for all or a part of their journey. Cumulative impact of all of these proposals will help in improving health through physical activity.	The proposed scheme would not provide any additional facilities to encouraging cycling. Improved pedestrian crossings facilities on key desire lines may encourage more people to travel on foot for all or a part of their journey. At this stage, the impact of this option on improving health is still expected to be slightly beneficial.

Assessment Area	Option PT 2 Road widening to allow construction of bus lanes throughout	Option HC2 Upgrading of the route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges	Option HC 3 Upgrading of the route to an acceptable standard with minimal capital investment
Reduce air quality health costs (Air quality)	A reduction in congestion and as a result of modal shift onto PT should result in an improvement in air quality within the corridor.	A reduction in congestion, reduction in "start-stop" situations, minimised delays are expected to result in benefits to the air quality. In addition to this there may be some level of modal shift onto PT due to promotion of smarter choices and a section of bus priority, which may also contribute to an improvement in air quality within the corridor.	A reduction in congestion may result in an improvement in air quality within the corridor.
Reduce vulnerability to terrorism	All the options in the scheme are based on the principles of outward planning such as at-grade crossings, good quality bus stops and general layout with no particular enclosed spaces particularly vulnerable to terrorism. In addition to this, the overall levels of congestion along the route will be minimised as a result of any of the improvement options. This will mean that in case of any terrorist event, the route has enhanced access to emergency vehicles and for any potential traffic diversion from adjacent parallel routes. Additional signals will provide an ability to respond to emergencies.	As stated in option PT2, this option will aid in reducing the vulnerability to terrorism.	As stated in option PT2, this option will aid in reducing the vulnerability to terrorism.
Reduce crime	The review of on-street parking and the availability of CCTV and ANPR cameras will address crime issues.	The review of on-street parking and the availability of CCTV and ANPR cameras will address crime issues.	The review of on-street parking and the availability of CCTV and ANPR cameras will address crime issues.
Impact on Public Accounts			
Broad transport budget (Central government)	The previous scheme estimate of £16.5 million is unlikely to be sufficient to meet the overall costs of these scheme proposals and the scheme would be more likely to cost in excess of £20 million for budgetary purposes.	The scheme was originally estimated to cost in the order of £16.5 million (2004 cost estimate). The scheme has been rationalised to make it more relevant to current needs. It is however considered that for initial budgetary purposes this figure is still valid. A more detailed cost estimate of the current costs will be undertaken in stage 2 of the process.	The scheme was originally low cost scheme estimated to cost in the order of £12.5 million (2004 cost estimate). The scheme has been rationalised to make it more relevant to current needs. It is anticipated that the current Lower Cost Option proposals will have significantly reduced the cost of the scheme meaning it is more likely to be in the region of £8million
Broad transport budget (Local government)	It would be anticipated that Birmingham City Council and its partners would contribute 10% of the overall scheme costs.	It would be anticipated that Birmingham City Council and its partners would contribute 10% of the overall scheme costs.	It would be anticipated that Birmingham City Council and its partners would contribute 10% of the overall scheme costs.
Wider public finance impacts	Improvements in public transport viability should help reduce demands on the health service and on revenue support.	Improvements in public transport viability should help reduce demands on the health service and on revenue support.	Improvements in public transport viability should help reduce demands on the health service and on revenue support.
Benefit Costs Ratio			
Cost to private sector	The nature of the regeneration proposals would require significant investment to reclaim the land leaving little monies available to support off site infrastructure improvements. It would however be aimed to continue to seek private sector funding as a part of on-going discussions with, in particular, housing developers.	It is unlikely that any private sector funding would be forthcoming for the scheme. The nature of the regeneration proposals would require significant investment to reclaim the land leaving little if any monies available to support off site infrastructure improvements. It would however be aimed to continue to seek private sector funding as a part of on-going discussions with, in particular, housing developers.	It is unlikely that any private sector funding would be forthcoming for the scheme. The nature of the regeneration proposals would require significant investment to reclaim the land leaving little if any monies available to support off site infrastructure improvements. It would however be aimed to continue to seek private sector funding as a part of on-going discussions with, in particular, housing developers.

Assessment Area	Option PT 2 Road widening to allow construction of bus lanes throughout	Option HC2 Upgrading of the route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges	Option HC 3 Upgrading of the route to an acceptable standard with minimal capital investment
Indicative Net present value	The previous NPV for the scheme submitted in 2004 was in the order of £23 million. It is anticipate that the scheme described would likely to produce a similar level of benefit as this with an increased cost. This would reduce the overall NPV down to potentially below the £20 million level. This NPV value did not include or the significant level of regeneration proposals for the area in the 2004 assessment. The actual level of benefit from the scheme would only be available once the modelling is completed as a part of stage 2. In addition to this the Regeneration benefits will complement the NPV.	The previous assessment of the proposals was estimated NPV to be in the order of £23million. It is considered that the revised scheme would produce a greater level of benefit as the original assessment in 2004 did not include or the significant level of regeneration proposals for the area. The actual level of benefit from the scheme would only be available once the modelling is completed as a part of stage 2. In addition to this the Regeneration benefits will complement the NPV.	The previous assessment of the proposals for the lower cost option was estimated NPV to be in the order of £7.6million. It is considered that the revised scheme would produce a greater level of benefit. The actual level of benefit from the scheme would only be available once the modelling is complete required in stage 2 and did not include or the significant level of regeneration proposals for the area. In addition to this the Regeneration benefits will complement the NPV.
Indicative economic BCR	The previous BCR for the scheme submitted in 2004 was in the order of 2.36. It is anticipated that this option would be likely to produce a similar level of benefit as this but with an increased cost. This would potentially reduce the overall BCR down to significantly below 2.0. The actual level of benefit from the scheme would only be available once the modelling is completed in stage 2.	The previous BCR for the scheme submitted in 2004 was in the order of 2.36. It is considered that the revised scheme would produce a greater level of benefit although this would only be established once the modelling is completed in stage 2. The previously submitted scheme did not include the significant level of regeneration proposals for the area and the impact of this is likely to produce a higher BCR.	The previous BCR for the low cost scheme submitted in 2004 was in the order of 0.35. It is considered that the revised scheme would produce at least an equivalent level of benefit to this but at a reduced cost. Given this same level of PVB and a significantly lower level of PVC, the anticipated BCR for the scheme would be in the order of 2.0. The actual level of benefit from the scheme would only be available once the modelling is completed in stage 2. It may be noted that the previously submitted scheme did not include the significant level of regeneration proposals for the area and the impact of this is likely to produce a higher BCR.
Social and Distributional Impact (Supporting Analysis)			
Reduce social and distributional impacts on potential vulnerable groups for each of the SDI indicators	The scheme is located within an area identified with high proportions of overall deprivation (IMD 2007), which suggests some social impacts (negative or positive) may occur as a result of the scheme. To date preliminary GIS based desktop analysis has been undertaken to examine the profiles of Personal Injury Accidents (PIAs), with particular reference to the vulnerable groups – pedestrians and cyclists and the young, elderly and young male drivers as shown in Appendix A. The results show that there were more pedestrians PIAs then cyclists over the same time period and more 16 years or younger PIAs then those aged over 70 years. To date no other demographic profiling has been undertaken to assess the other likely social and distributional impacts of the scheme. It is also expected that the housing developments will seek a greater mix of housing types.	As discussed in option PT2, to date some demographic analysis has been undertaken to address part of the SDI assessment considering levels of overall IMD and the safety of vulnerable users.	As discussed in option PT2, to date some demographic analysis has been undertaken to address part of the SDI assessment considering levels of overall IMD and the safety of vulnerable users.
Capital and Revenue Costs			
Outturn cost to implement	It is anticipate that the outturn costs of the scheme would be in excess of £20million. Detailed cost estimates would be completed in stage 2 of the process.	It is anticipated that the outturn costs of the scheme would be in the order of those previously submitted (£16.5million). Detailed cost estimates would be completed in stage 2 of the process.	It is anticipated that the outturn costs of the scheme would be in the order of those £8.0million. Detailed cost estimates would be completed in stage 2 of the process.
Operating and maintenance costs	It is not anticipated that maintenance and operational cost would be significantly different from those of the current infrastructure.	It is not anticipated that maintenance and operational cost would be significantly different from those of the current infrastructure.	It is not anticipated that maintenance and operational cost would be significantly different from those of the current infrastructure.
Funding Assumptions			
Funding allocation	It may be possible for some funding to be obtained from the area wide regeneration proposals. Due to the nature and work required to reclaim the sites from existing uses, this is believed to be likely from Homes and Communities Agency (HCA). Money would therefore be required predominately from DfT with a 10% contribution from BCC or partners. The scheme is a priority highlighted in the RFA process.	It may be possible for some funding to be obtained from the area wide regeneration proposals. Due to the nature and work required to reclaim the sites from existing uses, this is believe to be to be likely from Homes and Communities Agency (HCA). Money would therefore be required predominately from DfT with a 10% contribution from BCC and partners The scheme is a priority highlighted in the RFA process.	It may be possible for some funding to be obtained from the area wide regeneration proposals. Due to the nature and work required to reclaim the sites from existing uses, this is believe to be to be likely from Homes and Communities Agency (HCA). Money would therefore be required predominately from DfT with a 10% contribution from BCC and partners. The scheme is a priority highlighted in the RFA process.
Option Assessment Framework (Delivery Case)			
Likely delivery agents	Standard civil engineering contractors through standard BCC procurement methods and governance criteria.	Standard civil engineering contractors through standard BCC procurement methods and governance criteria.	Standard civil engineering contractors through standard BCC procurement methods and governance criteria.

Assessment Area	Option PT 2 Road widening to allow construction of bus lanes throughout	Option HC2 Upgrading of the route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges	Option HC 3 Upgrading of the route to an acceptable standard with minimal capital investment
Stakeholder acceptability	As this provision would only address some of the issues that are currently present there is a risk that not all stakeholders would support the proposals.	A wide stakeholder involvement has already been undertaken as a part of the Local Action Plan, which supports the overall principles underlying the scheme.	As this provision would only address some of the issues that are currently present there is a risk that not all of the public would support the proposals.
Public acceptability / Interest	As this provision would only address some of the issues that are currently present there is a risk that not all of the public would support the proposals.	A wide stakeholder involvement has already been undertaken as a part of the Local Action Plan, which supports the overall principles underlying the scheme.	As this provision would only address some of the issues that are currently present there is a risk that not all of the public would support the proposals.
Option Assessment Framework (Commercial Case)			
Route to market	Standard civil engineering contractors through standard BCC procurement methods and governance criteria.	Standard civil engineering contractors through standard BCC procurement methods and governance criteria.	Standard civil engineering contractors through standard BCC procurement methods and governance criteria.

Summary and Discussion of Assessment of Potential Options

9.40 This section has dealt with the assessment of the four options that were the most favourable from the initial sifting. Each of these potential schemes has been assessed against the standard '5 Cases Model' laid out in the WebTag Draft Guidance Unit 2.1.2.

9.41 In addition to this, an assessment has been made regarding the practicality and deliverability of each of the potential design options as a scheme.

9.42 This initial assessment concerning potential deliverability has highlighted issues with each of the options. These issues have been considered and where possible, solutions sought. This has been achieved whilst ensuring cost effectiveness and practicality are maintained.

9.43 This overall assessment has enabled the following set of conclusions to be drawn for each of the options presented within the Option Assessment Framework.

Option PT 2

9.44 It is **not recommended** that this option is taken forward. The rationale for this is:

- It is likely to be the most expensive option requiring significantly greater level of investment than other options;
- The adverse environmental impact of the scheme is significantly greater than the alternatives in terms of size and nature of road; and
- The level of benefits obtained from the scheme are not likely to be significantly greater than other schemes.

Option HC 1

9.45 Whilst this option provides benefits, it involves higher scheme costs due high capital cost elements such as widening the two bridges outside the current right of way. Option HC 3 is able to provide a similar benefit without this capital cost by offering compromise solutions at each of the key constraints. **It is therefore not worth carrying forward the assessment of the two options separately, and Option HC 2 will be considered instead.**

Option HC 2

9.46 The assessment clearly identifies this option as providing the greatest number and most significant potential benefits to the scheme area. **It is therefore recommended that this option is taken forward as the preferred scheme.**

Option HC 3

9.47 Although this option provides less benefits in overall terms than option HC 3 it is believed that this may be offset by the reduced capital investment cost within the scheme. **It is considered therefore appropriate that this option is taken forward to the next stage of consideration and will form the Lower Cost Option for appraisal purposes.**

10. Proposed Options for Further Appraisal in Stage 2

10.1 As summarised in sections 9.46 and 9.47, the better performing options proposed to be taken forward for full business case appraisal in Stage 2. These are:

- **Preferred Option** – **HC2** - Upgrading of the entire route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges; and
- **Lower Cost Option** – **HC3** - Upgrading of the entire route to an acceptable standard with minimal capital investment

10.2 For the purpose of reporting and all future discussions, these better performing options will be referred to as “Preferred Option” and “Lower Cost Option”. This section gives a description of both these options. Appendix C presents the plan showing both of the options.

Preferred Scheme Option

Overview

10.3 As stated in sections 9.25 to 9.32 the preferred option aims to upgrade the route to develop the route into a dual carriageway with two lanes in each direction for the majority length of the route. The dual carriageway will start at the junction with Heath Street going east as far as Ladywood Middleway. To achieve this, the route will need to be widened in a number of places. The central reserve will improve the operation of the network by considerably reducing the number of turning movements, thus improving safety and increasing the capacity of the route.

10.4 Junction improvements will take place at a number of the key junctions to improve capacity and increase throughput of vehicles. Continuous pedestrian footways are to be supplemented by link and junction crossings.

10.5 Delays to public transport trips will be reduced and more reliable journeys achieved with the junction improvements, a section of bus lane and a bus gate. The bus lane will begin to the west of College Street and continue as far as the approach to the Ladywood Middleway roundabout with the Ring Road. At the eastern end, a new bus gate will help buses gain priority over other traffic on the approach to the roundabout.

10.6 As mentioned in section 9.26, one of the constraints on the scheme is the Lea Bridge where the A457 crosses the Birmingham Canal and the Birmingham-Smethwick railway line. The proposed scheme will widen the carriageway across the railway bridge by widening into some of the footway, whilst maintaining sufficient width for pedestrian movements.

10.7 Across the Spring Hill canal bridge, the existing footway will be developed into additional carriageway and a new pedestrian footway footbridge built to the south of the route.

10.8 The proposed scheme will remove all on-street parking which currently lines the route, freeing additional capacity on the network. The route is being considered as a part of Red Routes Package Two Major Scheme Business Case. For any review of the existing TROs, the needs of the school (opposite City Hospital) will need to be considered including drop-off/pick-up times.

10.9 On the south side of the route, Steward Street will be restricted to one way traffic entering the street. Eyre Street will be re-aligned and restricted to one –way out of the street on to A457 Dudley Road, past the last access. This proposal is based on the scheme being implemented prior to the completion of the developments to the south of the route. Once these proposals are brought forward (likely to be after 2015), then the road layout for this area would be confirmed,

depending on the primary point of access to the new developments. The junction with Eyre Street and/or Spring Hill Passage would be developed into a signalised junction with pedestrian facilities depending on the primary point of access into the development site. An alternate access arrangement to the development site to the south of A457 could be provided by signalisation of the junction with George Street West. A wide central reserve with a provision for an all movement junction in future, if required, has therefore been included in the scheme proposals.

10.10 The scheme will also benefit from appropriate signing as shown in "Traffic Sign Regulations and General Directions 2002" and the agreed renumbering of the route to become the A41.

10.11 Wherever possible, the proposed scheme has been designed within the existing highway improvement lines. Further details on the preferred scheme are described in the following sections.

Junction Improvements

10.12 Junction improvements will take place at a number of the key bottleneck junctions to improve capacity and throughput of traffic, safety, accessibility and linkages to the other parts of the network. Turning count data has been analysed to ensure that any proposed junction improvements do not adversely impact the access from any particular side roads. The improvements are targeted at the following locations to provide benefits to the overall scheme. The junctions are:

- **Ladywood Middleway** - The roundabout junction with the A4540 Ring Road will be signalised with provision for pedestrians on all approach arms;
- **Spring Hill Passage -** Direct access to Spring Hill Passage from Dudley Road is proposed to be closed. A turning head is provided at the end of the road;
- **Steward Street -** Small junction realignment scheme with provision of a dedicated right turn lane in. Stewart Street is to be one-way entry only from Dudley Road;
- **Eyre Street -** Small junction realignment scheme. The road is proposed to be two way up to the last access with one-way left turn exit only onto Dudley Road;
- **Western Road** – Upgraded junction to create a larger signalised junction. New pedestrian crossing facilities will be added on all arms of the junction to improve accessibility to the nearby City Hospital site;
- **Aberdeen Street** – The junction will be realigned to improve the turning radius for vehicles turning into the junction. Due to the dual carriageway, the only turning movements will be left turns in and out of the junction ;
- **Heath Street** – The junction will be altered to restrict movements out of Heath Street to left turns only. The dual carriageway will provide a dedicated right turn lane from Dudley Road into Heath Street. The right turn out of Heath Street will not be allowed. Turning movements at Northbrook Street are restricted to left turns in and out of the side road; and
- **Winson Green Road** – The junction will be upgraded to a larger signalised junction with pedestrian crossing provisions. The additional capacity will help to accommodate both the existing demand and the demand generated by development on the Icknield Port Loop sites to the south of the A457. The pedestrian facilities will improve safety at the junction.

Public Transport

10.13 Due to the lack of a parallel rail alternative close to the Dudley Road, there is considerable emphasis placed on the bus network for sustainable trips between the extents of the study route and Birmingham City Centre.

10.14 The Dudley Road is currently used by a number of east-west and orbital bus services. The proposed scheme is designed to target improvements at points where the lack of capacity in the existing network impacts on the operation of the bus services.

10.15 The improvements to junctions to enhance capacity, as highlighted above, will all help to achieve a reduction in delays to bus services. The benefits will be most notable at the junction with Winson Green Road which is currently a bottleneck to all vehicles including buses.

10.16 On the eastbound approach to Ladywood Middleway, the proposed scheme includes a section of bus lane for approximately 475m which will help all bus services to avoid delays on the approach to the Ring Road. The length of the bus lane is considered to be adequate to bypass the predicted queues, and should provide noticeable improvements to bus operations. At the eastern end of the bus lane is a bus gate which will enable buses to get priority over general traffic to get to the roundabout.

Vulnerable Road Users

10.17 The dualling of the Dudley Road will give significant benefits for vulnerable road users. By restricting the number of turning vehicles, there is significantly less potential for conflicts to occur, especially for cyclists using the route.

10.18 Pedestrian movements are to be made significantly easier with new pedestrian facilities to be provided along and across the route at key locations. Pedestrian footways are to be maintained at a high standard with a minimum width of 2 metres for the length of the route.

10.19 The locations where there will be pedestrian facilities are:

- **Junction with Ladywood Middleway** – Pedestrian crossing incorporated into signalised roundabout;
- **Bus gate close to Ladywood Middleway** – New pedestrian crossing to be incorporated with the bus gate;
- **Close to Steward Street** – New staggered pedestrian crossing facility with central refuge (to replace existing pelican crossing nearby);
- **Junction with Western Road** – New pedestrian crossing facilities on the three busiest arms of the junction. There are no facilities across Heath Street South although this is only an access road which is used infrequently;
- **Crossing close to St Patrick's Catholic Primary School** – New staggered pedestrian crossing facility with central refuge (to replace existing pelican crossing);
- **Junction with Heath Street** – New pedestrian crossing facilities with central refuge (to replace existing crossing at same location); and
- **Junction with Winson Green Road** - New pedestrian crossing facilities on all four arms of the signalised junction.

10.20 The addition of new pedestrian crossing facilities there will be a significant upgrade to the existing level of provision which exists along the route. This will make walking a more attractive modal choice for people making short distance trips along the route. The new facilities, especially at the western end of the study extents will improve the accessibility for the Lidl Superstore (on the corner of Winson Green Road), the NHS health centre and the local shopping centre, which lines Dudley Road to west of the study extents as far as the district boundary with Sandwell.

10.21 In terms of cycling provision, it is proposed to take advantage of the wide footways (over 4 metres) along the north side of Dudley Road from Lea Bridge to Ladywood Middleway, to develop them as shared cycling provision with pedestrians. In addition to this the scheme also seeks to promote cycling access to the canal towpath from Dudley Road by provision of ramp access.

Lower Cost Option

10.22 The Lower Cost Option is based on the same principles and objectives as the preferred option, however by minimising the amount of land take required and by not widening either of the two bridge structures. This will significantly reduce the capital costs of the scheme.

10.23 The route would be upgraded predominantly with ghost islands to enable right turns for much of the route. There will be two traffic lanes in each direction. Some sections of the route will have central reserve to restrict certain turning movements.

10.24 Improvements are concentrated only at the key junctions to improve capacity and throughput of traffic, safety, accessibility and linkages to other parts of the network. The improvements are targeted at the some of the bottleneck locations where congestion is currently an issue as detailed below:

- **Eyre Street -** Small junction improvement scheme to widen the junction with left turns in and out only allowed;
- **Western Road** – Upgrade to junction to create a larger signalised junction without realignment. New pedestrian crossing facilities will be added on all four arms of the junction to improve accessibility to the nearby City Hospital site;
- **Aberdeen Street** – The junction will be realigned to improve the radius for vehicles turning out of the junction. The only turning movements at the junction will be left turns in and out;
- **Heath Street** – The junction will be altered to restrict movements out of Heath Street to left turns only. A dedicated right turn lane for right turns from Dudley Road into Heath Street is proposed. Turning movements at Northbrook Street are restricted to left turns in and out of the side road; and
- **Winson Green Road** – The junction will be upgraded with provision for pedestrian crossings on all four arms.

10.25 This proposed option does not include any bus priority lanes, although the local widening will increase capacity at some locations.

10.26 The proposed scheme will remove all on-street parking which currently lines the route, freeing additional capacity on the network. For any review of the existing TROs, the needs of the school (opposite City Hospital) will need to be considered including drop-off/ pick-up times.

10.27 Right turns out of Eyre Street and Steward Street will no longer be allowed. Alternate routes connecting these streets to Ladywood Middleway (via Cope Street to the south of Dudley Road) should ensure that these movements are accounted for.

11. What Next?

11.1 In addition to this OAR, BCC has also produced an Appraisal Summary Report (ASR), which is being submitted together with this report. The ASR sets out the proposed appraisal methodology and the scope of further appraisal for the two options being taken forward for further consideration in Stage 2.

11.2 Following this submission, it is the intention of BCC to organise a meeting with DfT when dialogue restarts. The meeting will seek agreement on the overall scheme options and the proposed appraisal methodology in order that the MSBC can be completed at the earliest opportunity.

Appendix A
Accident Analysis Plots

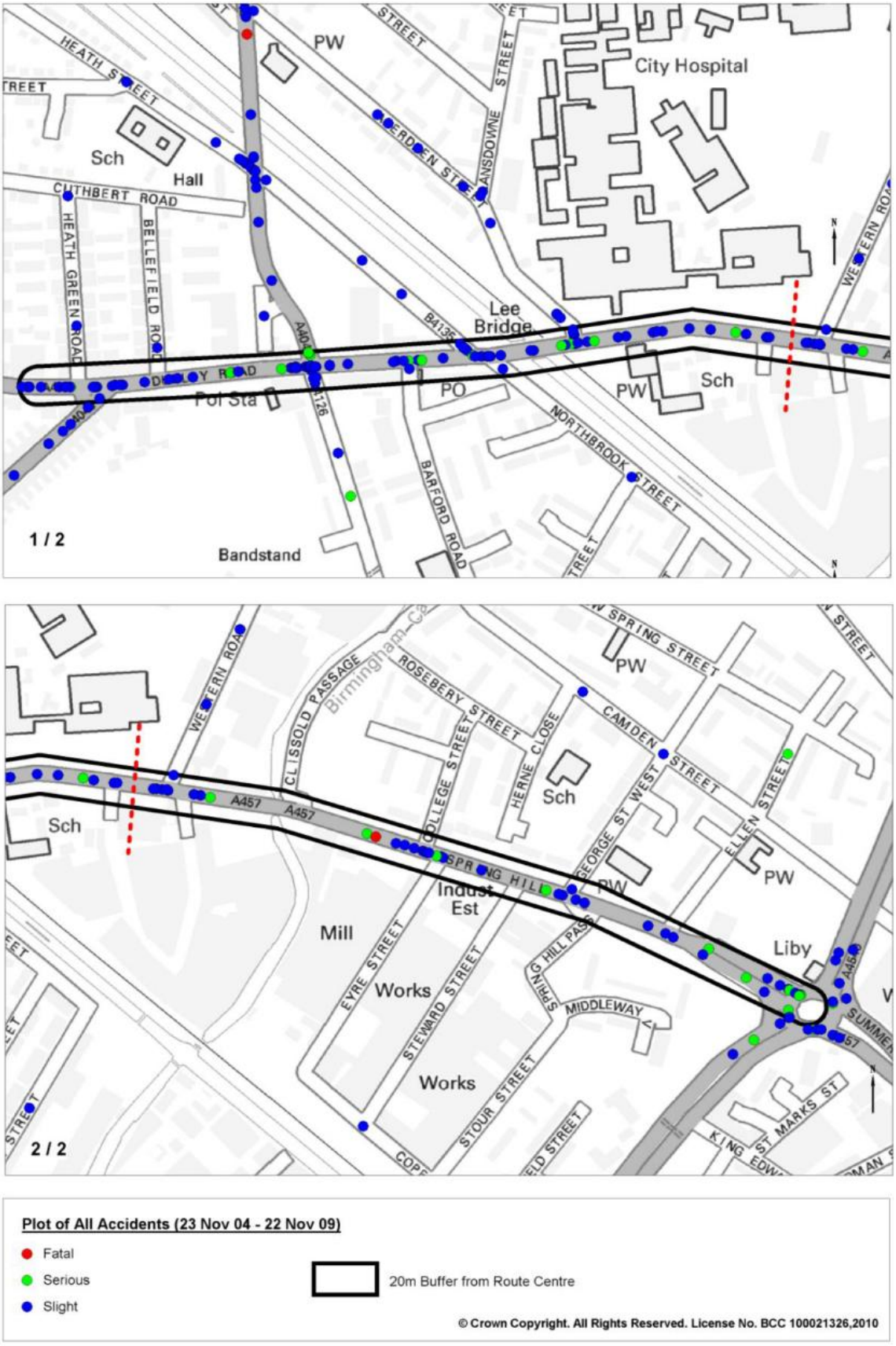


Figure A.1 – Plot of all accidents along the route

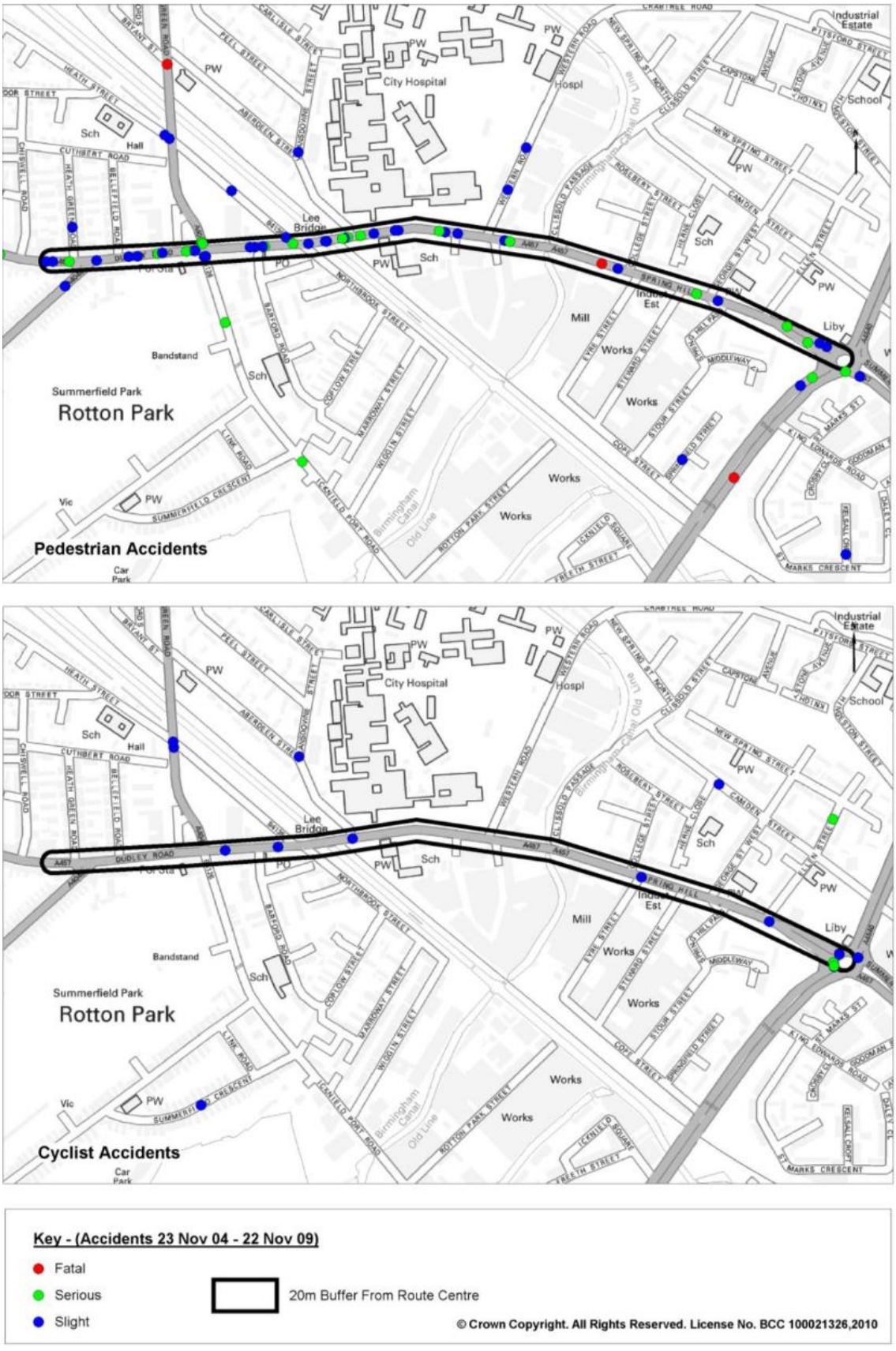
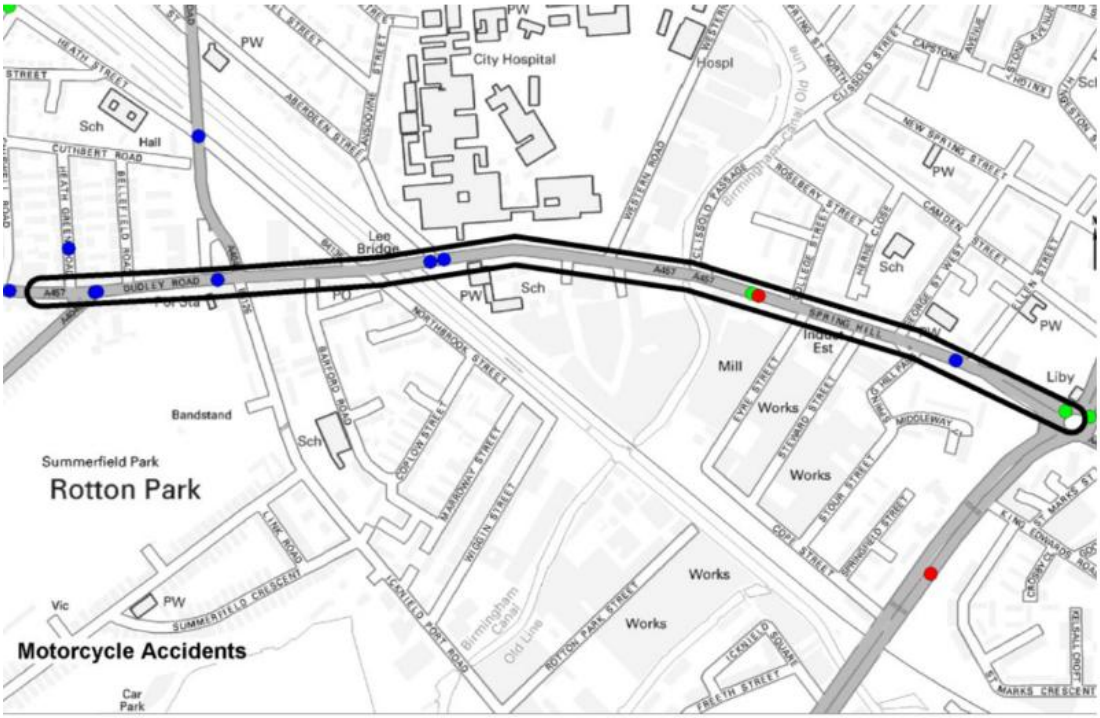
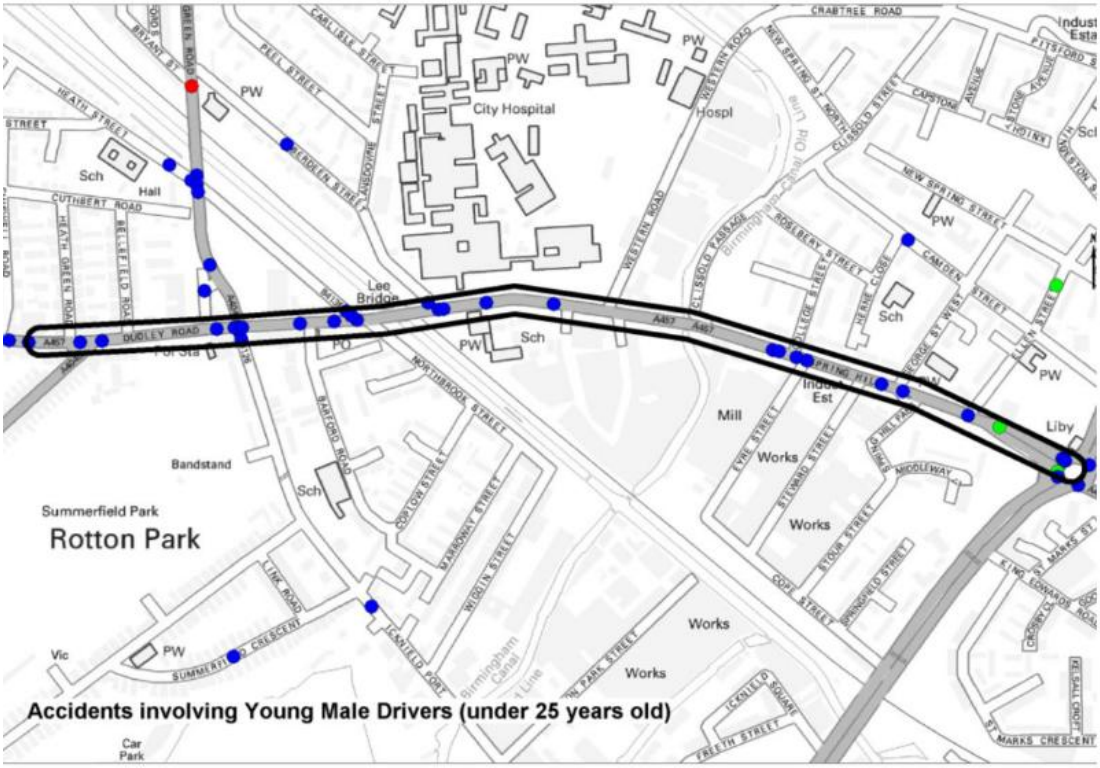


Figure A.2 – Plots of all accidents involving pedestrians and all accidents involving cyclists



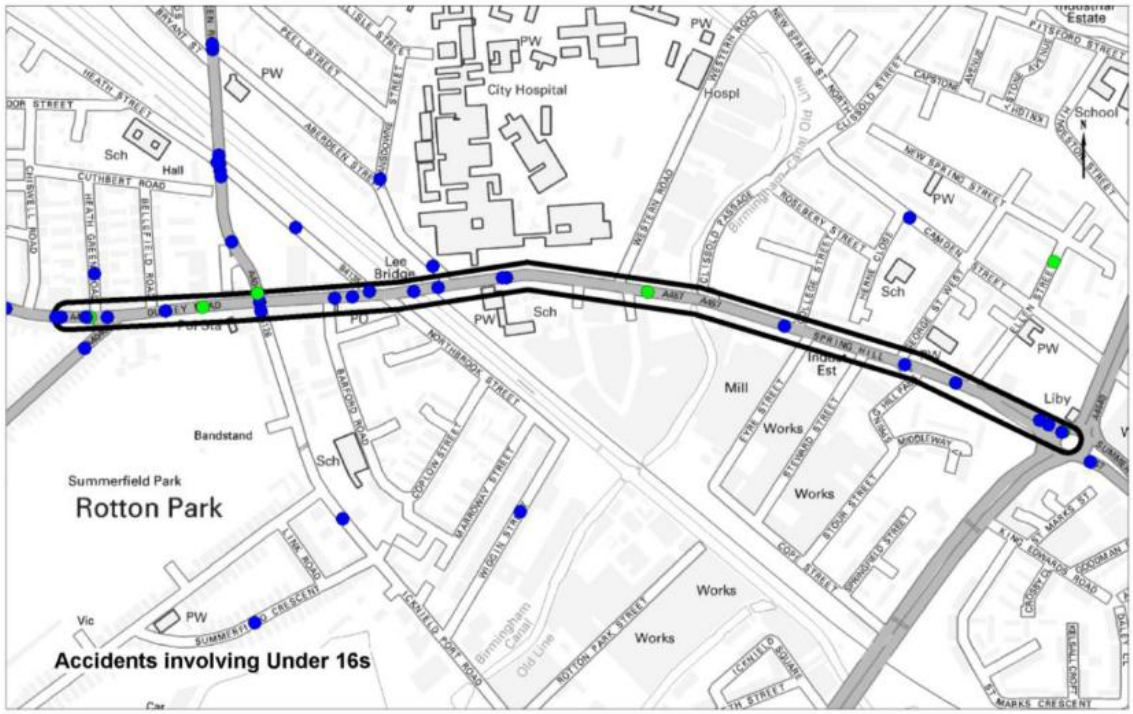


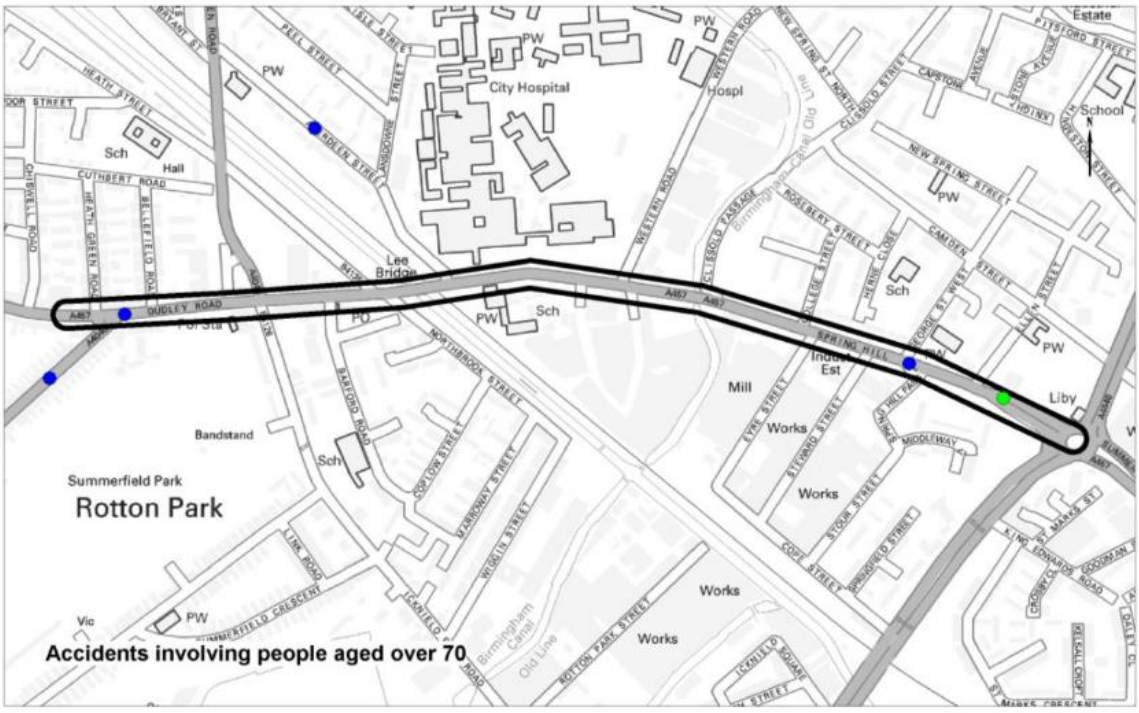
Key - (Accidents 23 Nov 04 - 22 Nov 09)

- Fatal
- Serious
- Slight

20m Buffer From Route Centre

Figure A.3 – Plots of all motorcycle accidents and all accidents involving young male drivers





Key - (Accidents 23 Nov 04 - 22 Nov 09)

- Fatal
- Serious
- Slight

20m Buffer From Route Centre

Figure A.4 – Plots of all accidents involving under 16s and all accidents involving over 70s.

Appendix B
Initial Sifting Tables for Design Options

B.1 Option PT 1

Option PT 1 - Road widening to allow construction of bus lanes at key junctions

	Qualitative Score	Rationale
Objective L1-O1 - To establish the A457 Dudley Road as the strategic route into Birmingham City Centre from M5 Junction 1, Smethwick, Oldbury and West Bromwich;	Positive	The improvement to PT infrastructure would mean that the route would become more attractive means of access to the City Centre.
Objective L1-O2 - To enable the area wide regeneration of the Ladyport Area and the local centres of Dudley Road and Soho Road;	Positive	The improvements to local PT reliability and journey times would make the area attractive for additional regeneration.
Objective L1-O3 - To support in improving the levels of deprivation (Indices of Multiple Deprivation (IMD).	Neutral	The localised nature of any improvements would mean there would be only be no overall impact on the IMD of the area.
Objective L1-O4 – To support housing growth within the Urban Living area.	Neutral	The improvements to local PT reliability and journey times would help support the housing growth although not to a significant level.
Objective L2-KO1 - To enhance journey time reliability for all modes;	Neutral	Although it would enhance the reliability of bus trips, the reliability of travel for other vehicles would at best be maintained. Without careful design it could be made worse.
Objective L2- KO2 - To minimise delays within the corridor;	Neutral	Although it would minimise the delays to bus trips, the amount of delays to other vehicles would at best be maintained. Without careful design it could be made worse.
Objective L2- KO3 – To provide access to development sites and accommodate traffic generated by the Ladyport Development.	Neutral	Whilst the option will contribute to a certain level, it is not anticipated that it would have any significant impact on either access to the new development sites or as a means to accommodate the additional traffic
Objective L2-CO1 - To improve public transport operations and reliability;	Positive	The provision of bus lanes at key locations would improve the reliability and speed of all bus trips along the corridor.
Objective L2- CO2 - To improve and encourage safe, secure and convenient access to and through the area for cyclists and pedestrians;	Neutral	The provision of the bus lanes would not provide any additional benefits for vulnerable modes of travel.
Objective L2- CO3 - To improve safety for all road users of the corridor;	Neutral	The selective nature of the intervention and the likely use of local widening mean that the scheme would not be aimed directly at safety enhancements.
Objective L2- CO4 - To improve the urban townscape within the corridor;	Negative	Localised road widening without a comprehensive scheme would potentially lead to a worsening of the existing poor urban environment.

	Qualitative Score	Rationale
Objective L2- CO5 - To minimise any current and future impacts of the road upon all environmental conditions on all users.	Positive	The localised nature of any improvements would mean there would be only limited benefit in environmental conditions.
Objective L2- CO6 - To reduce the impact of the existing severance caused by the road to all user groups;	Neutral	The selective nature of the intervention and the likely use of local widening mean that the scheme would not be aimed directly at reducing severance.
Objective L2- CO7 - To improve accessibility to existing facilities for all social groups.	Neutral	The localised nature of any improvements would mean there would be little benefit in terms of making facilities more accessibility within the corridor.
Risks		
Complexity of delivery / implementation	Medium Risk	Most but not all of the land is in public ownership. Schemes are straight forward local widening schemes.
Affordability and Financial sustainability	Medium Risk	The related cost to benefit ratio of the scheme is likely to be low as it is not beneficial to the majority of users.
Stakeholder Acceptability	Medium Risk	As this provision would only address some of the issues that are currently present there is a risk that not all stakeholders would support the proposals.
Public Acceptability	Medium Risk	As this provision would only address some of the issues that are currently present there is a risk that not all of the public would support the proposals.

Summary of Assessment

Strategic Fit	Number of Occurrences
Strongly Positive	0
Positive	4
Neutral	9
Negative	1
Strongly Negative	0
Risk	
Worst Risk Score	Medium Risk
Summary	
Qualitative	Although the scheme in overall terms would be beneficial, it does not address enough issues within the corridor for detailed consideration.
Other consideration	Should be considered as a part of a larger project not as a single stand alone option.
Taken Forward Yes/No	No

B.2 Option PT 2

Option PT 2 - Road widening to allow construction of bus lanes throughout;

	Qualitative Score	Rationale
Objective L1-O1 - To establish the A457 Dudley Road as the strategic route into Birmingham City Centre from M5 Junction 1, Smethwick, Oldbury and West Bromwich;	Positive	The improvement to PT infrastructure would mean that the route would become more attractive means of access to the City Centre.
Objective L1-O2 - To enable the area wide regeneration of the Ladyport Area and the local centres of Dudley Road and Soho Road;	Positive	The improvements to local PT reliability and journey times would make the area attractive for additional regeneration.
Objective L1-O3 - To support in improving the levels of deprivation (Indices of Multiple Deprivation (IMD).	Positive	The improvements to access to the transport network would mean there would be an improvement to public transport accessibility of the local population which should lead to an improvement in the IMD score for the area.
Objective L1-O4 – To support housing growth within the Urban Living area.	Positive	The improvements to PT reliability and journey times would help support the housing growth.
Objective L2-KO1 - To enhance journey time reliability for all modes;	Positive	The scheme would seek to enhance the reliability of bus trips without compromising the journey time reliability of other modes.
Objective L2- KO2 - To minimise delays within the corridor;	Neutral	Although it would minimise the delays to bus trips, the amount of delays to other vehicles would at best be maintained. Without careful design it could be made worse.
Objective L2- KO3 – To provide access to development sites and accommodate traffic generated by the Ladyport Development.	Neutral	Whilst the option will contribute to a certain level, it is not anticipated that it would have any significant impact on either access to the new development sites or as a means to accommodate the additional traffic
Objective L2-CO1 - To improve public transport operations and reliability;	Strongly Positive	The provision of bus lanes along the corridor would significantly improve the reliability and journey times of all bus trips.
Objective L2- CO2 - To improve and encourage safe, secure and convenient access to and through the area for cyclists and pedestrians;	Positive	The provision of continuous bus lanes in each direction would allow cyclists (who can use bus lanes) greater provision within the corridor.
Objective L2- CO3 - To improve safety for all road users of the corridor;	Neutral	The selective nature of the intervention and the likely use of local widening mean that schemes would not be aimed directly at safety enhancements.
Objective L2- CO4 - To improve the urban townscape within the corridor;	Negative	Road widening without a comprehensive scheme would potentially lead to a worsening of the existing poor urban environment.

	Qualitative Score	Rationale
Objective L2- CO5 - To minimise any current and future impacts of the road upon all environmental conditions on all users.	Neutral	Although some environmental conditions would improve, the selective nature of the improvements would mean that on balance the impacts are likely to be equal.
Objective L2- CO6 - To reduce the impact of the existing severance caused by the road to all user groups;	Neutral	The selective nature of the intervention and the likely use of local widening mean that schemes would not be aimed directly at reducing severance.
Objective L2- CO7 - To improve accessibility to existing facilities for all social groups.	Positive	The greater reliability and accessibility of the PT network would improve access to facilities within the corridor, especially for those who are socially disadvantaged and use PT is their main form of travel.
Risks		
Complexity of delivery / implementation	Medium Risk	Most but not all of the land is in public ownership. Schemes are straight forward local widening schemes.
Affordability and Financial sustainability	High Risk	The related cost to benefit ratio of the scheme is likely to be low as it is not beneficial to the majority of users. The cost is likely to be high in relation to other options and relative to the associated benefits.
Stakeholder Acceptability	Medium Risk	As this provision would only address some of the issues that are currently present there is a risk that not all stakeholders would support the proposals.
Public Acceptability	Medium Risk	As this provision would only address some of the issues that are currently present there is a risk that not all of the public would support the proposals.

Summary of Assessment

Strategic Fit	Number of Occurrences
Strongly Positive	1
Positive	7
Neutral	5
Negative	1
Strongly Negative	0
Risk	
Worst Risk Score	High Risk
Summary	
Qualitative	The scheme provides benefits in a significant number of areas and is therefore worthy of further consideration in the process.
Other consideration	Should be coupled with a smarter choices initiative or marketing promotion exercise.
Taken Forward Yes/No	Yes

B.3 Option PT 3

Option PT 3 - Construction of a new railway station adjacent to Dudley Road

	Qualitative Score	Rationale
Objective L1-O1 - To establish the A457 Dudley Road as the strategic route into Birmingham City Centre from M5 Junction 1, Smethwick, Oldbury and West Bromwich;	Positive	The improvement to PT infrastructure would mean that the route would become more attractive as a means of accessing the City Centre.
Objective L1-O2 - To enable the area wide regeneration of the Ladyport Area and the local centres of Dudley Road and Soho Road;	Positive	The provision of an additional train station would mean that additional regeneration would be possible within the area.
Objective L1-O3 - To support in improving the levels of deprivation (Indices of Multiple Deprivation (IMD).	Positive	The provision of additional access to a different transport network would mean an improvement to the social mobility of the local population which should lead to an improvement in the IMD score for the area.
Objective L1-O4 – To support housing growth within the Urban Living area.	Positive	The provision of an additional train station would help support housing growth in the area.
Objective L2-KO1 - To enhance journey time reliability for all modes;	Neutral	A new railway station would not impact upon the reliability of journeys for users of the corridor unless there was a high mode shift. As this is unlikely, the impact is not considered significant.
Objective L2- KO2 - To minimise delays within the corridor;	Neutral	The provision of a new railway station would not impact upon the delays of users of the corridor unless there was a high mode shift. As this is unlikely, the impact is not considered significant.
Objective L2- KO3 – To provide access to development sites and accommodate traffic generated by the Ladyport Development.	Neutral	Although the scheme may result in modal shift away from private cars on the A457 Dudley Road, the impact is unlikely to be significant enough to accommodate the additional traffic generated by the new development or improve access to the development sites.
Objective L2-CO1 - To improve public transport operations and reliability;	Positive	Although the majority of PT use to the area is currently by bus, providing the local population with access to a high standard, reliable rail service directly into the City Centre would promote the area.
Objective L2- CO2 - To improve and encourage safe, secure and convenient access to and through the area for cyclists and pedestrians;	Neutral	A new railway station would not impact upon the provision for vulnerable users within the corridor.
Objective L2- CO3 - To improve safety for all road users of the corridor;	Neutral	The provision of a new railway station would not impact upon the safety of users of the corridor unless there was a high mode shift. As this is unlikely, the impact is not considered significant.

	Qualitative Score	Rationale
Objective L2- CO4 - To improve the urban townscape within the corridor;	Neutral	The provision of a new railway station would not impact upon the urban environment of the corridor.
Objective L2- CO5 - To minimise any current and future impacts of the road upon all environmental conditions on all users.	Neutral	The provision of a new railway station would not impact upon the environmental issues of users of the corridor unless there was a high mode shift. As this is unlikely, the impact is not considered significant
Objective L2- CO6 - To reduce the impact of the existing severance caused by the road to all user groups;	Neutral	The provision of a new railway station would not impact upon severance caused by the road unless there was a high mode shift. As this is unlikely, the impact is not considered significant.
Objective L2- CO7 - To improve accessibility to existing facilities for all social groups.	Positive	The provision of a new railway station would improve the accessibility of existing facilities along the corridor given the bigger catchment area provided.
Risks		
Complexity of delivery / implementation	High Risk	Provision of a new station would be difficult due to capacity issues within the rail corridor.
Affordability and Financial sustainability	High Risk	The related cost to benefit ratio of the scheme is likely to be low as it is not beneficial to the majority of users. The cost is likely to be high in relation to other options and relative to the associated benefits.
Stakeholder Acceptability	Medium Risk	As this provision would only address some of the issues that are currently present there is a risk that not all stakeholders would support the proposals.
Public Acceptability	Medium Risk	As this provision would only address some of the issues that are currently present there is a risk that not all of the public would support the proposals.

Summary of Assessment

Strategic Fit	Number of Occurrences
Strongly Positive	0
Positive	6
Neutral	8
Negative	0
Strongly Negative	0
Risk	
Worst Risk Score	High Risk
Summary	
Qualitative	The scheme provides benefits in only a few areas and does not tackle the overall issues related with the corridor. It is therefore not considered worth taking forward as an option.
Other consideration	Could potentially be considered as part of an area-wide rail strategy in tandem with other rail promotions such as improvements to the Jewellery Line.
Taken Forward Yes/No	No

B.4 Option HC 1

Option HC1 - Upgrading of the route to high standards (D2 or near D2 Standards) with bus priority where feasible and desirable

	Qualitative Score	Rationale
Objective L1-O1 - To establish the A457 Dudley Road as the strategic route into Birmingham City Centre from M5 Junction 1, Smethwick, Oldbury and West Bromwich;	Strongly Positive	The improvements to infrastructure would mean that the route would become a more attractive means of access to the City Centre.
Objective L1-O2 - To enable the area wide regeneration of the Ladyport Area and the local centres of Dudley Road and Soho Road;	Strongly Positive	The comprehensive nature of the scheme would mean that it is capable of supporting and promoting the regeneration of the area.
Objective L1-O3 - To support in improving the levels of deprivation (Indices of Multiple Deprivation (IMD).	Positive	The improvements to all aspects of accessibility and integration proposed by the schemes would seek to promote the area and improve the IMD of the local population.
Objective L1-O4 – To support housing growth within the Urban Living area.	Positive	The comprehensive nature of the scheme would mean that it is capable of supporting housing growth in the area.
Objective L2-KO1 - To enhance journey time reliability for all modes;	Strongly Positive	The provision of additional capacity and increased signal coordination would lead to significant improvements in reliability for all users of the route.
Objective L2- KO2 - To minimise delays within the corridor;	Strongly Positive	The provision of additional capacity and increased signal coordination would lead to significant improvements in reliability for all users of the route.
Objective L2- KO3 – To provide access to development sites and accommodate traffic generated by the Ladyport Development.	Strongly Positive	Improvements to key junctions would help to improve accessibility to the Ladyport development sites and will help accommodate the increase in traffic resulting from.
Objective L2-CO1 - To improve public transport operations and reliability;	Positive	The provision of bus lanes at some locations would improve the reliability and speed of all bus trips along the corridor.
Objective L2- CO2 - To improve and encourage safe, secure and convenient access to and through the area for cyclists and pedestrians;	Positive	The comprehensive nature of the scheme and related additional provision for vulnerable users would be beneficial.
Objective L2- CO3 - To improve safety for all road users of the corridor;	Strongly Positive	The comprehensive nature of the scheme and its focus on all modes would mean that an improvement in the poor safety and security issues of the area could be achieved.

	Qualitative Score	Rationale
Objective L2- CO4 - To improve the urban townscape within the corridor;	Positive	The comprehensive nature of the scheme and the provision of a central reserve within the corridor to “break up” the road would mean that there would be an improvement in the townscape on this key approach into the centre of the city.
Objective L2- CO5 - To minimise any current and future impacts of the road upon all environmental conditions on all users.	Positive	The comprehensive nature of the scheme and the reduction in vehicles idling and caught in congestion would mean that there would be an improvement in environmental conditions within the corridor.
Objective L2- CO6 - To reduce the impact of the existing severance caused by the road to all user groups;	Positive	The comprehensive nature of the scheme and the provision of significant facilities that seek to reduce severance caused by the road would promote accessibility for all road users within the corridor.
Objective L2- CO7 - To improve accessibility to existing facilities for all social groups.	Positive	The comprehensive nature of the scheme and the provision of significant facilities that seek to promote accessibility within the corridor would improve accessibility for all users within the corridor.
Risks		
Complexity of delivery / implementation	Medium Risk	Most but not all of the land required is already in public ownership. The scheme is primarily a straight-forward widening scheme so should be deliverable.
Affordability and Financial sustainability	Low Risk	The scheme would likely provide a good cost to benefit ratio and would be sustainable in the long term.
Stakeholder Acceptability	Medium Risk	Although the scheme would address many of the issues that are currently present, there is a risk that not all stakeholders would fully support the proposals.
Public Acceptability	Medium Risk	Although the scheme would address the provision of many of the issues that currently exist, there is a risk that not all of the public would fully support the proposals.

Summary of Assessment

Strategic Fit	Number of Occurrences
Strongly Positive	6
Positive	8
Neutral	0
Negative	0
Strongly Negative	0
Risk	
Worst Risk Score	Medium Risk
Summary	
Qualitative	The scheme provides benefits in a significant number of areas and is therefore worthy of further consideration in the process
Other consideration	Should be coupled with a smarter choices initiative or marketing promotion exercise.
Taken Forward Yes/No	Yes

B.5 Option HC 2

Option HC2 - Upgrading of the route to high standards (D2 or near D2 Standards) with compromise solutions at key pinch points such as bridges

	Qualitative Score	Rationale
Objective L1-O1 - To establish the A457 Dudley Road as the strategic route into Birmingham City Centre from M5 Junction 1, Smethwick, Oldbury and West Bromwich;	Strongly Positive	The improvement to infrastructure would mean that the route would become more attractive as a means of accessing the City Centre.
Objective L1-O2 - To enable the area wide regeneration of the Ladyport Area and the local centres of Dudley Road and Soho Road;	Strongly Positive	The comprehensive nature of the scheme would mean that it is capable of supporting and promoting the regeneration of the area.
Objective L1-O3 - To support in improving the levels of deprivation (Indices of Multiple Deprivation (IMD).	Positive	The improvements to all aspects of accessibility and integration proposed by the schemes would seek to promote the area and improve the IMD of the local population.
Objective L1-O4 – To support housing growth within the Urban Living area.	Positive	The comprehensive nature of the scheme would mean that it is capable of supporting housing growth in the area.
Objective L2-KO1 - To enhance journey time reliability for all modes;	Positive	The provision of additional capacity and increased signal coordination would lead to significant improvements in reliability for all users of the route. Unless the compromises at the high cost points did not affect capacity then the level of benefit would be less than option HC3.
Objective L2- KO2 - To minimise delays within the corridor;	Positive	The provision of additional capacity and increased signal coordination would lead to significant improvements in reliability for all users of the route. Unless the compromises at the high cost points did not affect capacity then the level of benefit would be less than option HC3.
Objective L2- KO3 – To provide access to development sites and accommodate traffic generated by the Ladyport Development.	Strongly Positive	Improvements to key junctions would help to improve accessibility to the Ladyport development sites and will help accommodate the increase in traffic resulting from.
Objective L2-CO1 - To improve public transport operations and reliability;	Positive	The provision of bus lanes at some locations would improve the reliability and speed of all bus trips along the corridor.
Objective L2- CO2 - To improve and encourage safe, secure and convenient access to and through the area for cyclists and pedestrians;	Positive	The comprehensive nature of the scheme and related additional provision for vulnerable users would be beneficial.

	Qualitative Score	Rationale
Objective L2- CO3 - To improve safety for all road users of the corridor;	Strongly Positive	The comprehensive nature of the scheme and its concentration on all modes would mean that an improvement in the poor safety and security issues of the area could be achieved. Alteration to the standard at pinch points is unlikely to affect the safety benefits obtained from HC1.
Objective L2- CO4 - To improve the urban townscape within the corridor;	Positive	The comprehensive nature of the scheme and the provision of a central reserve within the corridor to “break up” the road would mean that there would be an improvement in the townscape on this key approach into the centre of the city. The reduction in the standard over the bridge structure may however mean that there is no longer a consistent central reserve. This would reduce the townscape benefits below that of those in option HC1.
Objective L2- CO5 - To minimise any current and future impacts of the road upon all environmental conditions on all users.	Positive	The comprehensive nature of the scheme and the reduction in vehicle idling and caught in congestion would mean that there would be an improvement in environmental conditions within the corridor. Unless the compromises at the high cost points did not affect capacity then the level of benefit would be less than that of option HC1.
Objective L2- CO6 - To reduce the impact of the existing severance caused by the road to all user groups;	Positive	The comprehensive nature of the scheme and the provision of significant facilities that seek to reduce severance caused by the road would improve accessibility for all road users within the corridor.
Objective L2- CO7 - To improve accessibility to existing facilities for all social groups.	Positive	The comprehensive nature of the scheme and the provision of significant facilities that seek to promote accessibility within the corridor would improve accessibility for all users within the corridor.
Risks		
Complexity of delivery / implementation	Medium Risk	Most but not all of the land required is already in public ownership. The scheme is primarily a straight-forward widening scheme so should be deliverable.
Affordability and Financial sustainability	Low Risk	The scheme would likely provide a good cost to benefit ratio and would be sustainable in the long term.
Stakeholder Acceptability	Medium Risk	Although the scheme would address many of the issues that are currently present, there is a risk that not all stakeholders would fully support the proposals.
Public Acceptability	Medium Risk	Although the scheme would address many of the issues that currently exist, there is a risk that not all of the public would fully support the proposals.

Summary of Assessment

Strategic Fit	Number of Occurrences
Strongly Positive	4
Positive	10
Neutral	0
Negative	0
Strongly Negative	0
Risk	
Worst Risk Score	Medium Risk
Summary	
Qualitative	The scheme is expected to have similar benefits as HC1 with less cost. As the scheme provides significant level of benefits in a significant number of areas and is therefore worthy of further consideration in the process
Other consideration	Should be coupled with a smarter choices initiative or marketing promotion exercise.
Taken Forward Yes/No	Yes

B.6 Option HC 3

Option HC3 - Upgrading of route to an acceptable standard with minimal capital investment

	Qualitative Score	Rationale
Objective L1-O1 - To establish the A457 Dudley Road as the strategic route into Birmingham City Centre from M5 Junction 1, Smethwick, Oldbury and West Bromwich;	Positive	The improvement to infrastructure would mean that the route would become more attractive as a means of accessing the City Centre.
Objective L1-O2 - To enable the area wide regeneration of the Ladyport Area and the local centres of Dudley Road and Soho Road;	Positive	The scheme would be capable of supporting and promoting some of the elements of the regeneration of the area. It would however largely be focused on addressing the existing issues.
Objective L1-O3 - To support in improving the levels of deprivation (Indices of Multiple Deprivation (IMD).	Positive	The improvements to all aspects of accessibility and integration proposed by the schemes would seek to promote the area and improve the IMD of the local population.
Objective L1-O4 – To support housing growth within the Urban Living area.	Positive	The scheme would be capable of supporting some housing growth in the area. It would however largely be focused on addressing the existing issues.
Objective L2-KO1 - To enhance journey time reliability for all modes;	Positive	The provision of additional capacity and increased signal coordination would lead to significant improvements in reliability for all users of the route. The improvement is however not likely to be as significant as in option HC1 or HC2.
Objective L2- KO2 - To minimise delays within the corridor;	Positive	The provision of additional capacity and increased signal coordination would lead to improvements in reliability for all users of the route. The improvement is however not likely to be as significant as in option HC1 or HC2.
Objective L2- KO3 – To provide access to development sites and accommodate traffic generated by the Ladyport Development.	Positive	Improvements to key junctions would help to improve accessibility to the Ladyport development sites.
Objective L2-CO1 - To improve public transport operations and reliability;	Positive	In minimising the capital investment it would not be possible to provide additional bus lanes. Although buses would benefit from the overall improvements in reliability, it is not anticipated that the impact would be significant. The improvement is however not likely to be as significant as in option HC1 or HC2.
Objective L2- CO2 - To improve and encourage safe, secure and convenient access to and through the area for cyclists and pedestrians;	Neutral	In minimising the capital investment it would not be possible to provide additional provision for vulnerable users. Although they would benefit from the general improvements to infrastructure equality, these benefits are not anticipated to be significant.

	Qualitative Score	Rationale
Objective L2- CO3 - To improve safety for all road users of the corridor;	Positive	The comprehensive nature of the scheme and its focus on all modes would mean that an improvement in the poor existing safety and security issues of the area could be achieved. The improvement is however not likely to be as significant as in option HC1 or HC2.
Objective L2- CO4 - To improve the urban townscape within the corridor;	Neutral	In minimising the overall cost of the scheme, concentration would be given to achieving the overall goals of the scheme rather than its appearance. The impact would therefore not seek to improve this element beyond what currently exists.
Objective L2- CO5 - To minimise any current and future impacts of the road upon all environmental conditions on all users.	Positive	The comprehensive nature of the scheme and the reduction in vehicles idling and caught in congestion would mean that there would be an improvement in environmental conditions within the corridor. The improvement is however not likely to be as significant as in option HC1 or HC2.
Objective L2- CO6 - To reduce the impact of the existing severance caused by the road to all user groups;	Positive	The comprehensive nature of the scheme and the provision of significant facilities that seek to reduce severance caused by the road would promote accessibility for all road users within the corridor. The improvement is however not likely to be as significant as in option HC1 or HC2.
Objective L2- CO7 - To improve accessibility to existing facilities for all social groups.	Positive	The comprehensive nature of the scheme and the provision of significant facilities that seek to promote accessibility within the corridor would improve accessibility for all users within the corridor. The improvement is however not likely to be as significant as in option HC1 or HC2.
Risks		
Complexity of delivery / implementation	Medium Risk	Most but not all of the land required is already in public ownership. The scheme is primarily a straight-forward widening scheme so should be deliverable.
Affordability and Financial sustainability	Low Risk	The scheme would likely provide a good cost to benefit ratio and would be sustainable in the long term.
Stakeholder Acceptability	Medium Risk	Although the scheme would address many of the issues that currently exist, there is a risk that not all stakeholders would fully support the proposals.
Public Acceptability	Medium Risk	Although the scheme would address many of the issues that currently exist, there is a risk that not all of the public would fully support the proposals.

Summary of Assessment

Strategic Fit	Number of Occurrences
Strongly Positive	0
Positive	12
Neutral	2
Negative	0
Strongly Negative	0
Risk	
Worst Risk Score	Medium Risk
Summary	
Qualitative	Although the scheme is less beneficial than HC2, it is likely to be to offset by the reduction in cost. As the scheme provides significant level of benefits in a significant number of areas and is therefore worthy of further consideration in the process
Other consideration	Should be coupled with a smarter choices initiative or marketing promotion exercise.
Taken Forward Yes/No	Yes

B.7 Option HC 4

Option HC4 - Upgrading only selected junctions only

	Qualitative Score	Rationale
Objective L1-O1 - To establish the A457 Dudley Road as the strategic route into Birmingham City Centre from M5 Junction 1, Smethwick, Oldbury and West Bromwich;	Positive	The improvement to infrastructure would mean that the route would become a more attractive means of access to the City Centre. The improvement is not likely to be as significant as in option HC1, HC2 or HC3.
Objective L1-O2 - To enable the area wide regeneration of the Ladyport Area and the local centres of Dudley Road and Soho Road;	Positive	The scheme would be capable of supporting and promoting some of the elements of the regeneration of the area. It would however largely to be focused on addressing the existing issues.
Objective L1-O3 - To support in improving the levels of deprivation (Indices of Multiple Deprivation (IMD).	Neutral	The localised nature of the improvements is unlikely to lead to any significant impact on the IMD of the surrounding communities.
Objective L1-O4 – To support housing growth within the Urban Living area.	Positive	The scheme would be capable of supporting some housing growth in the area. It would however largely be focused on addressing the existing issues.
Objective L2-KO1 - To enhance journey time reliability for all modes;	Positive	The provision of additional capacity and increased signal coordination would lead to significant improvements in reliability for all users of the route. The improvement is however not likely to be as significant as in option HC1, HC2 or HC3.
Objective L2- KO2 - To minimise delays within the corridor;	Positive	The provision of additional capacity and increased signal coordination would lead to improvements in reliability for all users of the route. The improvement is however not likely to be as significant as in option HC1, HC2 or HC3.
Objective L2- KO3 – To provide access to development sites and accommodate traffic generated by the Ladyport Development.	Positive	Selected junction improvements would help to improve accessibility to the Ladyport development sites and will help accommodate the increase in traffic resulting from.
Objective L2-CO1 - To improve public transport operations and reliability;	Positive	In minimising the capital investment, it would not be possible to provide bus lanes on the route. Although buses would benefit from the overall improvements in reliability it is not anticipated that this would be significant. The improvement is however not likely to be as significant as in option HC1 or HC2.
Objective L2- CO2 - To improve and encourage safe, secure and convenient access to and through the area for cyclists and pedestrians;	Neutral	By only selecting specific locations for improvements, it is unlikely that significant benefits can be achieved to assist vulnerable users within the corridor.

	Qualitative Score	Rationale
Objective L2- CO3 - To improve safety for all road users of the corridor;	Positive	Junctions are the key points in terms of safety. They are however not the only location with safety issues. Just tackling them would improve the safety record of the area however the benefits would not be as significant as in option HC1, HC2 or HC3.
Objective L2- CO4 - To improve the urban townscape within the corridor;	Neutral	With improvements only at specific locations it is unlikely that any significant improvement in townscape could be achieved.
Objective L2- CO5 - To minimise any current and future impacts of the road upon all environmental conditions on all users.	Positive	The comprehensive nature of the scheme and the reduction in vehicles idling and caught in congestion would mean that there would be an improvement in environmental conditions within the corridor. The improvement is not likely to be as significant as in option HC1, HC2 or HC3.
Objective L2- CO6 - To reduce the impact of the existing severance caused by the road to all user groups;	Neutral	The limited scope of the scheme, although providing some level of benefit, it is not considered that this would be significantly greater than the existing situation. The improvement is not likely to be as significant as in option HC1, HC2 or HC3.
Objective L2- CO7 - To improve accessibility to existing facilities for all social groups.	Neutral	The limited scope of the scheme, although providing some level of benefit, it is not considered that this would be significantly greater than the existing situation. The improvement is not likely to be as significant as option HC1, HC2 or HC3.
Risks		
Complexity of delivery / implementation	Medium Risk	Most but not all of the land required is already in public ownership. The scheme is primarily a straight-forward widening scheme so should be deliverable.
Affordability and Financial sustainability	Medium Risk	The scheme would likely provide a good cost to benefit ratio and would be sustainable in the long term.
Stakeholder Acceptability	Medium Risk	Although the scheme would address many of the issues that currently exist, there is a risk that not all stakeholders would fully support the proposals.
Public Acceptability	Medium Risk	Although the scheme would address many of the issues that currently exist, there is a risk that not all of the public would fully support the proposals.

Summary of Assessment

Strategic Fit	Number of Occurrences
Strongly Positive	0
Positive	9
Neutral	5
Negative	0
Strongly Negative	0
Risk	
Worst Risk Score	Medium Risk
Summary	
Qualitative	Although the scheme is largely beneficial the limited scope of each of the intervention and the overall piecemeal approach means that many of the key objectives of the scheme are not met. It is therefore not consider worth taking forward for more detailed consideration.
Other consideration	Should be coupled with a smarter choices initiative or marketing promotion exercise.
Taken Forward Yes/No	No

B.8 Option HC 5

Option HC5 - Implementing Red Route proposals along the route

	Qualitative Score	Rationale
Objective L1-O1 - To establish the A457 Dudley Road as the strategic route into Birmingham City Centre from M5 Junction 1, Smethwick, Oldbury and West Bromwich;	Positive	The prohibition of stopping / parking will help to establish the A457 Dudley Road as the key strategic route.
Objective L1-O2 - To enable the area wide regeneration of the Ladyport Area and the local centres of Dudley Road and Soho Road;	Neutral	It is anticipated that a red route type proposal would improve capacity although not significantly enough to enable the regeneration in the corridor to be brought forward.
Objective L1-O3 - To support in improving the levels of deprivation (Indices of Multiple Deprivation (IMD).	Neutral	It is anticipated that a red route type proposal would not significantly impact on levels of deprivation.
Objective L1-O4 – To support housing growth within the Urban Living area.	Neutral	It is anticipated that a red route type proposal would improve effective capacity although not significantly enough to enable significant housing growth to be developing within the corridor.
Objective L2-KO1 - To enhance journey time reliability for all modes;	Positive	The prohibition of stopping / parking will help to improve journey times for all modes.
Objective L2- KO2 - To minimise delays within the corridor;	Positive	The prohibition of stopping / parking will help to minimise delays to all modes.
Objective L2- KO3 – To provide access to development sites and accommodate traffic generated by the Ladyport Development.	Neutral	It is anticipated that a red route type proposal would not significantly impact on the accessibility of the new development areas. The scheme would however help to accommodate the additional demand generated by the sites.
Objective L2-CO1 - To improve public transport operations and reliability;	Positive	The prohibition of stopping / parking will help to improve public transport reliability and operations.
Objective L2- CO2 - To improve and encourage safe, secure and convenient access to and through the area for cyclists and pedestrians;	Neutral	Whilst the scheme would improve conditions for cycling along the route (by removing obstacles in the nearside lane), the increase in speeds will negatively impact the ease of movement for pedestrians and increase danger for cyclists.
Objective L2- CO3 - To improve safety for all road users of the corridor;	Neutral	It is anticipated that a red route type proposal may result in increased speeds along the route which may have a level of adverse impact on pedestrian safety. However eliminating congestion, start/stop conditions etc may improve safety for other modes. It is therefore expected that the impact on safety will be neutral.

	Qualitative Score	Rationale
Objective L2- CO4 - To improve the urban townscape within the corridor;	Neutral	It is anticipated that a red route type proposal would not affect the urban townscape significantly
Objective L2- CO5 - To minimise any current and future impacts of the road upon all environmental conditions on all users.	Positive	The prohibition of stopping / parking will help to reduce the amount that vehicles are required to brake. This will have a net positive impact on vehicles emissions.
Objective L2- CO6 - To reduce the impact of the existing severance caused by the road to all user groups;	Neutral	It is anticipated that a red route type proposal would not impact the amount of severance to all user groups significantly.
Objective L2- CO7 - To improve accessibility to existing facilities for all social groups.	Neutral	It is not anticipated that a red route type proposal would significantly help to improve accessibility to existing facilities.
Complexity of delivery / implementation	Low Risk	Experience based on already implemented Red Routes schemes shows that the scheme will be a straightforward scheme to deliver and implement with no particular issues with land ownerships etc as the scheme will be within the existing Right of Way.
Affordability and Financial sustainability	Low Risk	The related cost to benefit ratio of the scheme is likely to be medium as it is beneficial to the through traffic and buses. The cost is likely to be low in relation to other options and relative to the associated benefits.
Stakeholder Acceptability	High Risk	As this provision would only address some of the issues that are currently present there is a risk that not all stakeholders would support the proposals. As this option impacts on-street parking, this will have lower levels of stakeholder acceptability.
Public Acceptability	High Risk	As this option impacts on-street parking, this will have lower levels of stakeholder acceptability. The nature of land use along the route is local centre retail, hospital, schools etc, which generally seek to have on-street parking provisions.

Summary of Assessment

Strategic Fit	Number of Occurrences
Strongly Positive	0
Positive	5
Neutral	9
Negative	0
Strongly Negative	0
Risk	
Worst Risk Score	High Risk
Summary	
Qualitative	Although the scheme in overall terms would be beneficial, it does not address enough issues within the corridor for detailed consideration.
Other consideration	
Taken Forward Yes/No	No

Appendix C

Preferred Designs and Low Cost Scheme Designs

B

Status CD

Drawing Number 5091038/006/TP/CD/002

DO NOT SCALE

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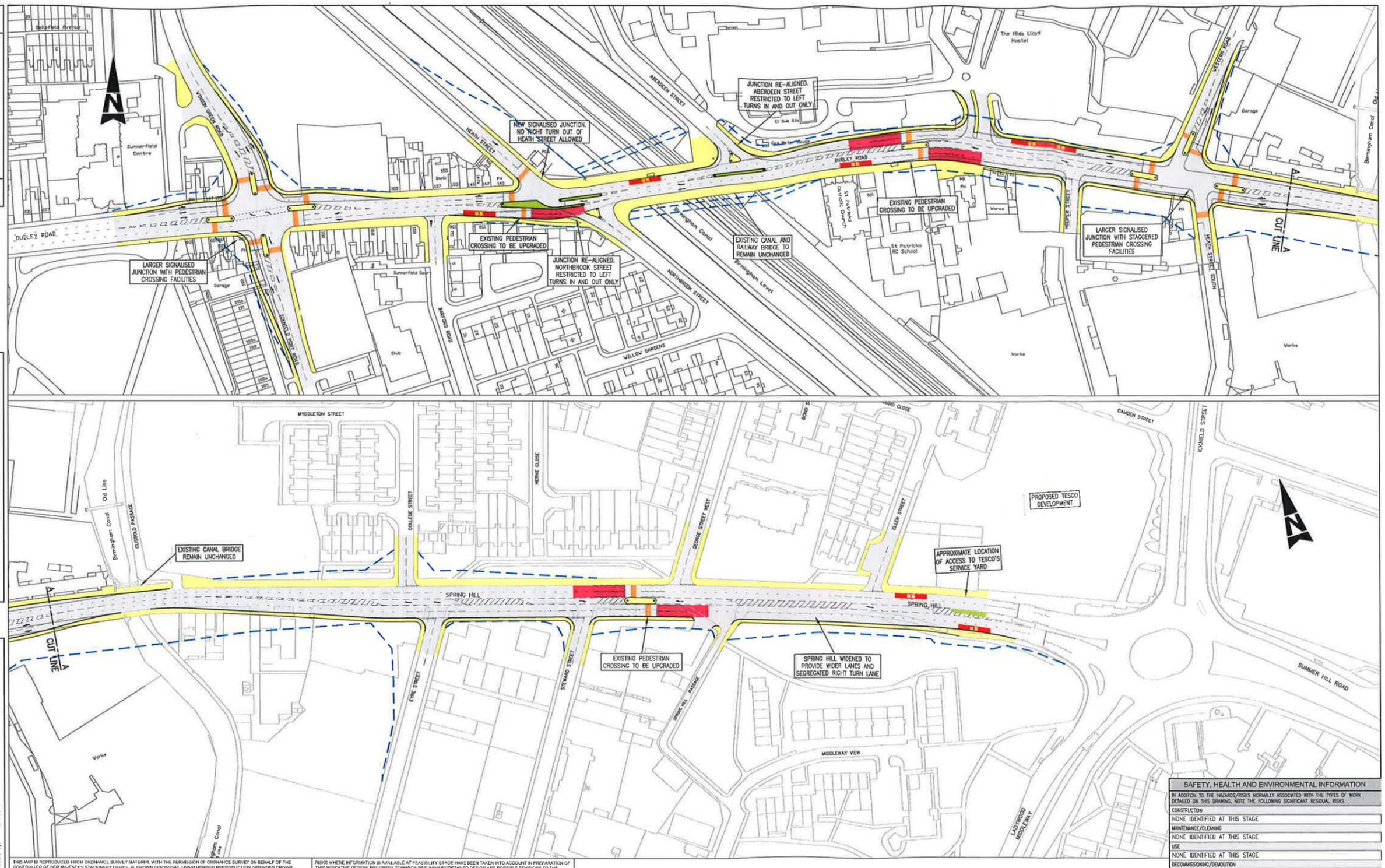
A1



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KEY:

- CARRIAGEWAY
- CENTRAL RESERVE
- FOOTWAY/REFUGE
- PEDESTRIAN CROSSING
- BUS STOP
- HIGHWAY IMPROVEMENT LINE

Rev	Description	By	Date	Chk'd	Auth
B	UPDATED H.I.L	CC	20/07/10	JB	HB
A	FIRST ISSUE				

ATKINS

Atkins Limited
Consulting Engineers,
The Axis
10 Holliday Street
Birmingham
West Midlands B1 1TF

Tel: 0121 483 5000
Fax: 0121 483 6161
www.atkinsglobal.com

Client: Birmingham City Council

Project: DUDLEY ROAD MAJOR SCHEME BUSINESS CASE

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION	NONE IDENTIFIED AT THIS STAGE
MAINTENANCE/CLEANING	NONE IDENTIFIED AT THIS STAGE
USE	NONE IDENTIFIED AT THIS STAGE
DECOMMISSIONING/DEMOLITION	NONE IDENTIFIED AT THIS STAGE

Title: APPENDIX THREE
PROPOSED SCHEME
LOWER COST OPTION

Sheet Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	1:1000	JS Date 23/04/10	HB Date 23/04/10	NS Date 23/04/10

Status: CD
Drawing Number: 5091038/006/TP/CD/002
Rev: B

File: TP002 rev B.dwg
Date: Jul 20, 2010 - 10:08am
Plotted by: kosk1699

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Rev C

Drawing Number 5091038/006/TP/CD/001

Status CD

DO NOT SCALE

A1

0 10 100

LARGER SIGNALISED JUNCTION WITH STAGGERED PEDESTRIAN CROSSING FACILITIES

NEW SIGNALISED JUNCTION. NO RIGHT TURN OUT OF HEATH STREET ALLOWED

EXISTING PEDESTRIAN CROSSING TO BE UPGRADED

JUNCTION RE-ALIGNED. NORTHBROOK STREET RESTRICTED TO LEFT TURNS IN AND OUT ONLY

JUNCTION RE-ALIGNED. ABERDEEN STREET RESTRICTED TO LEFT TURNS IN AND OUT ONLY

PROPOSED CYCLE/PEDESTRIAN FACILITIES ON WIDE FOOTWAYS

LEFT IN LEFT OUT ONLY

CARRIAGEWAY TO BE WIDENED OVER EXISTING BRIDGE

PROPOSED CYCLE/PEDESTRIAN FACILITIES ON WIDE FOOTWAYS

EXISTING PEDESTRIAN CROSSING TO BE UPGRADED

WIDE CENTRAL RESERVE WITH A PROVISION FOR ALL MOVEMENT JUNCTION IN FUTURE, IF REQUIRED AND AS APPROPRIATE

PROPOSED CYCLE/PEDESTRIAN FACILITIES ON WIDE FOOTWAYS

LARGER SIGNALISED JUNCTION WITH PEDESTRIAN CROSSING FACILITIES

PROPOSED CYCLE/PEDESTRIAN FACILITIES ON WIDE FOOTWAYS

SEE INSET FOR ALTERNATE OPTION

PROPOSED CYCLE/PEDESTRIAN FACILITIES ON WIDE FOOTWAYS

BUS LANE PROVIDED ON THE EASTBOUND CARRIAGEWAY

PROPOSED CYCLE/PEDESTRIAN FACILITIES ON WIDE FOOTWAYS

LOCATION OF TESCO SERVICE ACCESS

NEW BUS GATE*

NEW SIGNALISED ROUNDABOUT WITH PEDESTRIAN CROSSING FACILITIES

CANAL BRIDGE TO BE WIDENED

STEWARD STREET RE-ALIGNED AND RESTRICTED TO ONE WAY TRAFFIC

EYRE STREET RE-ALIGNED AND RESTRICTED TO ONE WAY TRAFFIC PAST LAST ACCESS

WIDE CENTRAL RESERVE WITH A PROVISION FOR ALL MOVEMENT JUNCTION IN FUTURE, IF REQUIRED AND AS APPROPRIATE

SPRING HILL WIDENED TO A DUAL CARRIAGEWAY WITH CENTRAL RESERVE

PROPOSED ROAD CLOSURE WITH A PROVISION FOR TURNING HEAD

ALTERNATE JUNCTION ARRANGEMENT TO PROVIDE ACCESS TO PROPOSED DEVELOPMENTS

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KEY:

- CARRIAGEWAY
- CENTRAL RESERVE
- FOOTWAY/ REFUGE
- PEDESTRIAN CROSSING
- BUS LANE
- BUS STOP
- HIGHWAY IMPROVEMENT LINE

*NOTE: THE INTERACTION BETWEEN THE PROPOSED LOCATION OF THE BUS GATE AND THE PEDESTRIAN CROSSING REQUIRES FURTHER ASSESSMENT BASED ON ADDITIONAL MODELLING

Rev	Description	By	Date	Chk'd	Auth
C	AMENDMENTS FOLLOWING BCC COMMENTS & PRELIMINARY BRIDGE ASSESSMENT	JC	28/01/11		
B	UPDATED H.I.L	CC	20/07/10	JB	HB
A	FIRST ISSUE				

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION	
NONE IDENTIFIED AT THIS STAGE	
MAINTENANCE/CLEANING	
NONE IDENTIFIED AT THIS STAGE	
USE	
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DECOMMISSIONING/DEMOLITION	
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ATKINS™

Atkins Limited
Consulting Engineers,
The Axis
10 Holliday Street
Birmingham
West Midlands B1 1TF

Tel: 0121 483 5000
Fax: 0121 483 6161
www.atkinsglobal.com

Client

Project: DUDLEY ROAD MAJOR SCHEME BUSINESS CASE

Title: PROPOSED SCHEME PREFERRED OPTION

Sheet Size	Original Scale	Designed/Drawn	Checked	Authorised
A1	1:1000	JS Date 20/04/10	HB Date 23/04/10	KW Date 23/04/10

Status	Drawing Number	Rev
CD	5091038/006/TP/CD/001	C

File: TP001 rev C.dwg
Date: May 02, 2013 - 10:10am
Plotted by: traoycy

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