

## **Black Country Study**

Transport Investment Project Prioritisation –  
Connecting the Black Country

Prepared For

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## PREFACE

This report is provided as part of a portfolio of evidence that has been developed to test the interventions needed to turn the Black Country Vision into reality. The report identifies the challenges for the future transport networks in the Black Country based on the current prevailing conditions and forecasts for 2021 and 2031. These forecasts are described in the report 'PRISM: The Black Country Study November 2005'. Transport Interventions have then been identified to address these challenges.

These Transport Interventions have been tested as part of a Preferred Transport Strategy for the Black Country. This work is summarised in detail in the report, 'PRISM: Black Country Study June 2006'.

## 1.0 INTRODUCTION

Carl Bro Consulting Engineers have been appointed by the Black Country Consortium to advise on strategic highway and transportation issues and offer guidance where necessary to ensure that any transport strategy proposed to support land use options is sustainable, deliverable and fits within the context of the Black Country Study and planning policy guidance.

The purpose of the Black Country Study is to set radical new aspirations and forge a vision leading to the renaissance of this part of the West Midlands Region over the next 30 years.

It is important to remember the Study is a vision led process and the spatial framework will translate the aspirations set out in the vision into a land use transport strategy for the Black Country until 2031.

Its four key objectives are:

1. To reverse net out-migration
2. To raise income levels
3. To change the socio-economic mix
4. To transform the environment

The Black Country must be connected regionally, nationally and internationally to achieve the role to which the vision aspires. This was recognised within the Regional Transport Strategy. (RTS)

A newly vibrant Black Country needs a reliable high quality integrated transport network to enable people and goods to move around. The Study is working towards proposals for a sustainable transport system that will fulfil the 30 year vision.

It has to be recognised however, that the area is difficult to serve by bus as the widespread network lacks a clear focus. However, the transport system must serve the strategic centres and other development opportunities for concentrations of activity, while protecting communities from the damaging effects of extraneous through traffic.

The strategic transport steers are:

1. To plan for no increase in congestion, maximising the use of existing road space and to radically improve public transport.
2. To test the feasibility and sustainability of providing new access routes for freight into the Black Country.
3. To develop the high volume public transport network to connect the four Black Country strategic centres and connectivity to Birmingham and beyond.
4. To allocate and reallocate the space required for high volume networks.
5. To assess the implications of demand management.
6. To actively encourage the development of walking and cycling as an integral part of the transport network.

This report identifies areas of operating stress on the local road network in the Black Country that in the opinion of Carl Bro need to be addressed, and identifies the key features of a transport strategy that require transport investment vital for the Black Country Study Delivery Plan to deliver sustainable access options to employment and housing areas.

This report outlines

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- the methodology used in the evaluation of alternative transport strategies to meet the needs of the Black Country Vision,
- identifies the contribution of local transport plan scheme proposals
- evaluates the alternative ways of addressing the problems identified
- describes the key focus of the transport proposals evaluated

### 2.0 PRISM MODELLING

To understand the operation of the Black Country transport network, a traffic model covering the whole of the West Midlands conurbation has been interrogated but with particular reference to the Black Country area. This traffic model is known as PRISM and as stakeholders with a transport background will be aware, the PRISM model is a disaggregate transportation model in which drivers' travel behaviour from individuals characteristics can be interrogated and used to model journey choice by different modes of travel.

Within the model PRISM has highway and public transport networks for which trip matrices have been estimated and validated using 2001 West Midland Transport Survey Results.

The capability of PRISM to predict the impact of changing demographic and employment changes on the transport network in the Black Country is particularly useful in the exercise of assessing the impact of the various land use scenarios being currently considered. The model has been used at a number of stages to evaluate a range of land use options and their implications for the existing Black Country transport networks.

For the future year forecasts, three separate transport planning forecast scenarios have been utilised for modelling 2011, 2021 and 2031. These are:

- Trend
- Trend / TEMPRO<sup>1</sup>
- Regional Planning Guidance (RPG)

TEMPRO is the Trip End Model Presentation program that is designed to allow detailed analysis of trip ends, journey mileage, and car ownership of population and workforce. The version used here is multi-modal, providing data on trips on foot, by bicycle, motor vehicle (both as driver and passenger), and by rail and by bus.

The three key Black Country Study Potential Directions of Change tested by the PRISM team for 2031 were:

- An emphasis on Centres
- An emphasis on growth along corridors
- An emphasis on planned dispersal

In short, the **three Potential Directions of Change** can be summarised as:

#### **Emphasis on Centres**

Focus on growth being directed at the Black Country's most important centres – Wolverhampton, Walsall, West Bromwich and Brierley Hill. The emphasis would seek to provide the most attractive shopping and leisure facilities and to develop the strongest markets for office employment.

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<sup>1</sup> For full explanation of these terms see PRISM Joint Application Team, black Country Study: Illustration Tests, November 2005

### Emphasis On Growth Along Corridors

The key transport corridors broadly coincide with areas of substantial likely surplus industrial land. They too also have some overlap with areas of high levels of housing deprivation. A strategy based upon corridors could achieve a multiple function focussed around more sustainable travel opportunities. The canals usually parallel other transport corridors or make up corridors in themselves. The Centres of Wolverhampton, Walsall, West Bromwich and Brierley Hill will still provide a degree of focus.

### An Emphasis On Planned Dispersal

The Direction of Change largely maintains the broad pattern of mixed uses that exist at present. It envisages that the four strategic centres will expand slightly but also follows past trends where the market has responded to a planning led process.

The transport network scenarios tested were:

#### Reference Case. (RC)

This scenario represents the “Do Minimum” transport network where it has been assumed all the previously committed and planned transport interventions are in place but no other schemes have come forward.

#### All Major Schemes Network (AMS).<sup>2</sup>

To analyse the transport impacts of the different planning and network scenarios, trip growth, mode share, link saturation, vehicle hours, vehicle kilometres and mode share were chosen as the key performance indicators (KPIs). The PRISM report identifies the full range of Indicators.

#### Summary of Results<sup>3</sup>

- Base transport 2001 and reference land use
- AMS and trend land use to 2021
- AMS and Black Country land use to 2021
- Black country network and Black Country land use to 2021

A similar exercise has been carried out for 2031

This report only considers the results from the AMS and shows the following trends in peak hour demands:

- 26% growth in overall traffic 2001-2031
- 20% growth in highway traffic 2001-2031
- 24% growth in public transport usage 2001-2031
- Public transport mode share increases from 16.86 to 18%

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<sup>2</sup> PRISM Joint Application Team, PRISM: Black Country Study Transport Technical Document, Interim Report May 2006

<sup>3</sup> PRISM Joint Application Team , Black Country Study: Illustration Tests, November 2005

The modelling also demonstrates that even under the AMS scenario, a large number of transport corridors in the Black Country are shown to be over capacity. In particular, the key links are:

- M6 motorway junction 10-8
- M5 motorway junction 2 – M6 junction 8
- Most approach routes to Brierley Hill
- Radial routes to the west of Wolverhampton city centre
- Some radial routes leading to Walsall town centre.
- Limited congestion on radial routes leading to West Bromwich town centre from the north.

### 3.0 LOCAL TRANSPORT PLAN SCHEMES

At this point, it is relevant to remind stakeholders of the identified schemes in the LTP 2011-2016. These can be split into three categories.

- Current Committed Schemes
- Provisionally Accepted Major Schemes
- Programme Commitments Only

Of the current committed schemes, the following are appropriate to the Black Country.

- Red Route Package 1
- Wolverhampton Centre accesses, and interchanges
- Cradley Heath Town Centre Strategy

Provisionally accepted major schemes comprise:

- Walsall Town Centre Transport Package
- Brierley Hill Sustainable Access Network
- Darlaston SDA Access project
- Owen Street level crossing relief road

The relevant programme commitment schemes are:

- West Midlands Urban Traffic Control
- Wednesbury to Brierley Hill Midland Metro extension
- Rail Showcase – Cannock Line
- Red Route Network 2, 3 & 4
- Wolverhampton Bus Station Redevelopment
- M54 Junction 2 Wobaston Road
- Burnt Tree Island
- Brownhills Transport Package
- Wolverhampton Railway Station
- Quality Bus Network III
- M6 Junction 10
- Midland Metro Extension
  - Phase A: Wolverhampton - Wednesfield - Willenhall - Walsall
  - Phase B: Walsall - Wednesbury

The expected growth in travel demand is expected to be significant and the current Local Transport Plan for the period up to 2011 will provide limited new highway capacity, principally to improve access and movement for goods and to serve new development.

From the above list it can be seen that there is also a substantial investment in public transport enhancements. The Local Transport Plan however, covers the West Midlands Metropolitan Area because in part the funding for certain schemes such as Bus Rapid Transit requires public consultation, detailed scheme design and traffic regulation orders. The process does lead to uncertainties in delivery and therefore a pool of schemes is developed and funds allocated to particular schemes once the statutory processes are complete.

#### **4.0 FURTHER TRANSPORT IMPROVEMENTS**

It is clear from the work done to date by the PRISM<sup>4</sup> team and by examining the LTP schemes and their potential impact on the transport network, that there will be critical parts of the Black Country Transport Network that will not be operating effectively by either 2021 or 2031 given the proposed Potential Directions of Change, even if all the LTP schemes are implemented. It is also clear that public transport will continue to struggle to attract passengers and maintain its modal share.

The LTP package prepared by the West Midlands Local Authorities and other key players has proposed a package of highway and public transport measures designed to tackle existing and emerging problems based on the continuation of existing land use patterns.

The extension from Metro Line 1 to Brierley Hill through Dudley and Merry Hill shopping centre and the Walsall – Darlaston – Wednesbury corridor are intended to improve modal split, improve air quality, reduce congestion, act as a catalyst for regeneration, and improve access from and within the Black Country.

#### **A Black Country Transport Strategy to support a Black Country Vision**

A key requirement of the Black Country Study is to establish the spatial principles of a transport network that will support the vision for the future. The RPG Panel believed that transport was the single biggest challenge facing the Black Country.

In 2001, the West Midlands Area Multi-Modal Study reported with its analysis of the transport problems in the West Midlands conurbation. This Multi-Modal Study became a key input to the West Midlands RSS, which was in preparation at that time. The Multi-Modal Study concluded that to develop a strategy to tackle congestion and capacity constraints, which impact on both regional and longer distance traffic, a strategy based on improvements to all the local transport networks would be essential.

These network improvements would need to be supported by a demand management strategy, including road pricing and a vigorous hearts and minds campaign to persuade people to use their cars less. The study's findings influenced the content of the Regional Transport Strategy (RTS) and several of the RTS main transport proposals appeared in the final draft of RSS policy T12, Regional Transport Priorities. The Local Transport Plan (LTP) 2006-2011, implements within the MUA the broad strategy of the previous studies. It is this strategy that has to expand and extend to meet the challenges of the Black Country Vision.

The Black Country has established strategic road, rail and air links to the national and international markets. Frequent passenger rail services run to London and other UK cities via two inter-city rail stations Wolverhampton and Sandwell & Dudley. The area is positioned at one of the major crossroads of Britain's motorway network, astride the M5 and M6. In terms of connectivity, the Black Country has all the components to be an internationally competitive sub-region. Despite these strategic links, economic growth is being constrained by congestion problems at key motorway junctions, on trunk roads, at key junctions on the all purpose road network and around centres. The Black Country Employment Land Capacity Study highlights the importance of accessibility to the motorway network as a key determinant of the quality of employment land-only 18% of Black Country

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<sup>4</sup> PRISM Joint Application Team, Black Country Study: Illustration Tests, November 2005

Employment Land is within 10 minutes of a motorway, despite the Black Country's favourable location at the heart of the motorway network<sup>5</sup>

Some of the worst affected areas are: Junction 8 where M6 traffic heading north merges with the M5; Junctions 1, and 2 and 9 and 10 on the M6 and routes around these junctions.

From the results of the PRISM modelling, other key roads suffering congestion at peak times include

- Routes linking the M6 toll to the M54
- Wolverhampton ring road
- Routes around Merry Hill
- Dudley Southern Bypass and Walsall Town Centre Ring Road

Knowledge of the transport and travel patterns and related problems in the Black Country are based on a long record of monitoring and analysis from the Multi-Modal transport studies. Latterly results from the PRISM transport model and accessibility planning show that the Black Country suffers from:

- Inadequate facilities for walking and cycling
- Unreliable, expensive and often overcrowded public transport thus reducing the ability to use public transport for commuting
- Lack of a high standard public transport system
- Lack of good public transport information
- Congestion and safety problems arising from car dependency
- Severe congestion on the motorway network
- Inefficient use of existing road space
- High cost of transport due to road congestion
- Poor transport network in the west of the conurbation

The PRISM transport model commissioned by the seven West Midlands Metropolitan authorities has been developed by a consortium of transport planning consultants. It has been used to provide information about where problems will occur on the transport network in the future and what impacts different land use patterns will have on the ways in which people move around.

From the results of the modelling work it has been identified there is a strong demand for travel regionally, nationally and internationally. On the average day over 2m trips are made within the Black Country boundaries, many of these starting or ending in places outside the area. These trips are vital to the Black Country economy. There is strong demand for travel on a north / south axis through the Black Country. The M5 and M6 motorways meet this demand to a degree but short distance trips on these routes influence their role as nationally strategic corridors.

The PRISM model shows that of the 2 million trips that are made every day in the Black Country, 83% are by car and only 17% by public transport. Even with the trend population forecast (predicted to decline over the next 30 years), the transport model shows that there would still be an 8% rise in the number of trips made daily. Of these new trips, the trend is

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<sup>5</sup> GVA Grimley ,June 2005 The Black Country Study Employment Land Capacity Study

for more to be made by car and fewer by public transport. Clearly, given the proposed expansion of employment, population and housing, this trend is unsustainable.

Overall, public transport use is declining in the Black Country whilst rail use is increasing. This is in line with national trends outside of London, which, with a different regulatory system, has seen an increase in bus use. Bus operators in the West Midlands have reported over thirty locations where delays on the road network are unacceptably high and this seriously affects reliability.

In terms of the overall objective for strategy there is a possible role for the introduction of demand management to bring the perceived cost of travel by car nearer to public transport travel costs. This could take the form of robust and plausible options such as cordon based charging or full electronic road pricing.

There is also an opportunity to develop the role of “hearts and minds” measures to encourage sustainable travel behaviour. The clear challenge is to change travel habits in favour of alternative modes to the private car such that people use their cars less and travel in a more efficient, economic and sustainable way.

However, it is becoming clear that through the work carried out by the PRISM team, and with the proposed growth and change in both the size and location of population and jobs and to accommodate the growth in the four strategic centres, it does mean that there is a need for an integrated strategy for measures to encourage sustainable travel choices. There still remains however a strong likelihood that other transport schemes need to be added to the future LTP package to help in the radical transformation of the Black Country over the next 30 years.

These additional improvements are intended to create high quality access and mobility to quality employment land, logistics sites and facilitate centres growth, whilst reducing the need to travel. Carl Bro has carried out preliminary work identifying transport investment projects that will ensure success in delivering the Black Country transformation.

The proposed transport interventions are intended to develop a transport strategy that is both balanced and integrated, designed to manage demand, encourage sustainable travel and increase capacity at key nodes where demand management will not provide an appropriate level of service to deliver the Vision.

A key feature of the interventions is to improve reliability of bus services by the provision of bus priority measures, the inclusion of cycle lanes, provision of Toucan crossings and enhanced pedestrian routes.

## 5.0 POTENTIAL IMPROVEMENTS TO FACILITATE LAND USE STRATEGY

Chapter 3 of this report identified the current committed Local Transport Plan schemes relevant to the Black Country for its Strategic Investment Areas.

In this initial work, and identified through the PRISM modelling, there is a strong demand for travel on a north / south axis through the Black Country. It is clear that the M5 and M6 motorways at present and to a degree, meet this demand but with the predicted increase in congestion on the motorway network and the desire by the Highways Agency to restrict the use of the M5 / M6 for short distance trips, alternative routes need to be explored.

The land use strategy work and the work carried out in developing an integrated transport network has identified three fundamental accessibility issues to be responded to within the Black Country:

1. Access for freight to future key high quality employment land to and from the national motorway network.
2. Access by public transport to and from future high quality employment land allocations and residential areas.
3. Access by public transport to the four key strategic centres and to and from residential areas.

**Key locations have been identified to lead out economic restructuring in the Black Country.** These comprise focus of office growth on four Strategic Centres; identification of four Employment Land Investment Corridors (linked to each strategic centre) for provision of quality employment land and image enhancement; and identification of two key Gateway sites within these Corridors as priorities for employment investment. The emerging land use strategy has identified the following key potential locations as immediate priorities for delivery action. The localities are:

### **Strategic Centres:**

- Wolverhampton City Centre
- Walsall Town Centre
- West Bromwich Town Centre
- Brierley Hill/Merry Hill New Strategic Centre

### **Employment Land Investment Corridors:**

- Black Country North (Wolverhampton - Stafford Road corridor)
- Black Country Central (Walsall – Neachells – Darlaston – Wednesbury Corridor)
- Black Country East (Oldbury/West Bromwich.- Junctions 1 and 2 M5)
- Black Country West (Dudley – Pensnett - Brierley Hill – Dudley - Dudley Port Corridor)

### Gateway Sites for immediate action:

- i54, Wobaston Road (in Black Country North)
- Darlaston SDA (in Black Country Central)

These are the current delivery priorities for assessment of transport implications to support their delivery,

Carl Bro undertook initial analysis of the land use transport implications of the Black Country Vision. By examining the Key Performance Indicators of link saturation and vehicles hours in particular, and driven in part by the proposed location of high quality employment land and housing areas (derived from the Employment Land and Housing Capacity analysis), Carl Bro conclude that there is a clear overall need to upgrade the A4123 / A449 corridor between M5 Junction 2 and M54 Junction 2 to provide a high capacity transport corridor on this route. This option however is not without its problems.

This is a key route for freight accessing the Black Country. By providing a high quality transport corridor along the entire route, this corridor could easily become an alternative route or “rat run” to the congested M5 / M6 motorways. There is no doubt that certain sections of this corridor would however benefit from improvements.

It has been recommended therefore at this stage, that whilst there is clear scope for improving the route as a high quality bus corridor, additional capacity for road traffic should not be provided for its entire length.

As identified previously in this report, there is also a need for transport investment over and above the LTP proposals to meet the public transport connectivity requirements of growth in the four strategic centres of:

- Wolverhampton
- Walsall
- West Bromwich
- Brierley Hill / Merry Hill

**Carl Bro has identified a number of potential transport investment projects to serve both the high quality employment land and the four strategic centres.** These are listed below and identified as Category 1 and 2.

**Category 1 schemes** are considered essential to securing a satisfactory means of modal access to the Investment Areas and are seen to be vital for the radical transformation of the Black Country.

**Category 2 schemes** are intended as improvements that need to come forward in the future to assist in the Black Country Delivery Plan.

Proposed schemes identified by an asterisk are potential improvements that are not currently identified as LTP or regional schemes.

### **Wolverhampton City Centre:**

- Completion of Midland Metro. Wolverhampton – Walsall – Wednesbury (Category 1)
- A4123/ A449 corridor improvements, including works to facilitate the expansion of Wolverhampton City Centre (Wolverhampton Section (Category 1) \*
- High Quality Bus Access (Category 2)
- Quality Bus Corridor (Category 2)
- Red Routes (Category 2)

### **Walsall Town Centre:**

- Completion of Midland Metro as above (Category 1)
- Walsall Town Centre access package (Category 1)
- Bradford Place bus station (Category 1)
- Rugeley–Walsall –Birmingham rail improvement (Category 2)
- High volume public transport corridor to Brownhills (category 2)

### **West Bromwich Town Centre:**

- A41 Expressway/ A461 All Saints Way junction Improvement (Category 1)
- Improvements to M5 Junction 1 (Category 1) \*
- Access improvements to West Bromwich Town Centre (category 1)\*

### **Brierley Hill/ Merry Hill Centre:**

- Completion of Midland Metro extension (Category 1)
- Merry Hill parking management regime (Category 1)
- Stourbridge to Brierley Hill high volume public transport corridor (Category 1)\*
- High Quality Bus Corridors/ Networks (Category 1)\*
- A4123 and A4101 corridor improvements (Category 2) \*
- Halesowen to Brierley Hill High volume public transport corridor (Category2) \*

### **Black Country North (Wolverhampton –Stafford Road Employment Land Investment Corridor)**

- High Quality Bus Corridor, as above (Category 1)
- I54 Wobaston road-
  - New site access and improvements to motorway interchange (category 1)
  - High Quality Bus Corridor to Wolverhampton City Centre (Category 1)
- A449 corridor improvement (Category 1) \*

### **Black Country Central (Walsall- Neachells- Darlaston- Wednesbury Corridor)**

- Completion of Midland Metro (Category 1)
- Improvements to Public Transport (Category 1)
- Improvements to M6 Junction 10. (Category 1) \*
- Improvements to key junctions on Black Country Route (Category 1) \*
- Darlaston SDA-Darlaston Access improvements (Category 1)

### **Black Country East (Oldbury / West Bromwich Junction 1 to 2 M5)**

- M5 Junction 2 and Birchley Island Improvements (Category 1) \*
- Kendrick Way and Telford Way Improvements (Category 1) \*
- ATM M5/M6 corridor

### **Black Country West (Dudley- Pensnett- Brierley Hill, - Dudley – Dudley Port Corridor)**

- Improved Bus priority and reliability (Category 1)
- A4101 corridor and junction improvements (Category 1) \*
- A461 Burnt Tree Island to Black Country New road (category 1)\*

The key driver for all of these schemes is to act as a catalyst for improved reliability, accessibility and mobility within the Black Country to create quality investment locations to enhance the competitiveness of the Black Country. This in turn will assist in the regeneration of key sites and the rejuvenation of the area to ensure the removal of traffic congestion, improve road safety and air quality by reducing delays and providing additional capacity.

There is no doubt in Carl Bro's opinion that one of the key issues that needs to be faced is not the ability to devise or promote worthwhile transport schemes or indeed packages, but the constraints on funding which exist and which may hamper investment in these crucial works.

Clearly if the Preferred Transport Strategy is to be implemented as a coherent whole, it would involve a major capital programme and funding may need to be sought from other sources than the LTP. Carl Bro recommends therefore that careful thought be given to the prioritising that investment, which focuses on providing access to strategic centres and to quality employment land, (as the spatial drivers of competitiveness). The ability of any schemes to come forward in a realistic time frame and in a logical manner requires that funding to ensure progressive improvements along key corridors. Such investment will have to provide the additional benefits of reducing congestion, improving the reliability of journeys, improving air quality and also reducing accidents.

Whilst work will be required in developing the Preferred Transport Strategy, at this stage these proposals are considered to meet the Black Country criteria and are considered capable of forming in time, part of the corridors of movement within the Black Country.